Inquiry, 33, 127–78

The Absolute Network Theory of Language and Traditional Epistemology

On the Philosophical Foundations of Paul Churchland's Scientific Realism[1]

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Paul Churchland's philosophical work enjoys an increasing popularity. His imaginative papers on cognitive science and the philosophy of psychology are widely discussed. *Scientific Realism and the Plasticity of Mind* (1979), his major book, is an important contribution to the debate on realism. Churchland provides us with the intellectual tools for constructing a unified scientific *Weltanschauung*. His network theory of language implies a provocative view of the relation between science and common sense. This paper contains a critical examination of Churchland's network theory of language, which is the foundation of his philosophy. It is argued that the network theory should be seen as deriving its point from traditional empiricism. The network theory enables the empiricist to resist the phenomenalistic temptations inherent in his position, and to build a realist philosophy on the basis of the representative theory of perception. This interpretation is confirmed by the fact that the representative theory is presupposed by Churchland's main argument in favour of the network view. Churchland tends to conceive of himself as a naturalistic epistemologist. But the philosophical faction to which Churchland belongs is rather that of modern neo-Kantianism.

I. Introduction

Philosophers, like poets or scientists, tend to be stimulated by images and metaphors. Theorists of language of the past, for instance, often assumed that words are meaningful because they are connected to meanings. On the basis of an often implicit metaphor, meanings were conceived of as building blocks in the mind or elsewhere. Simple blocks would correspond to indefinables and to the data of experience. Out of simple blocks we would construct complexes, which might or might not mirror reality. The image of building blocks seemed to allow for clear-cut philosophical distinctions, like that between the analytic and the synthetic (because a block is either part of a complex or not).

However, extending the stock of examples and criticizing traditional dogmas like the analytic–synthetic distinction or the theory–observation dichotomy, we learned that language does not work in the way the building block metaphor suggests. We realized that some of the most vexing philosophical problems concerning language were the product of a misleading picture. 'A picture held us captive', said Wittgenstein. He concluded that philosophy should be restricted to disentangling the ways in which the pictures embedded in our language generate philosophical pseudo-problems and pseudo-theories. Instead of building abstract and very general 'theories' about the workings of language, we should meticulously study the specific contexts of usage, in order to obtain an overview of the grammar of the expressions in dispute.[2]

Wittgenstein's philosophical therapy and ascetism appeal only to a few. Many philosophers wish to share in the bliss of scientific progress. They see philosophy as an enterprise continuous with science, only of a more general and abstract nature. For them, the new insights into the workings of language and science suggest new metaphors, and the new metaphors suggest new theories. The most popular picture of language has become that of a network, and network theories of meaning are widely advocated.

In this paper I shall discuss one variety of the network theory of language, the *absolute or radical variety* proposed by, among others, Feyerabend and Paul Churchland. As the philosophical significance of the absolute network theory substantially differs from that of other, relative varieties, the absolute and the relative variety should not be conflated, although they rest in part on the same arguments.

In section II the distinction between the absolute and the relative network theory will be elaborated. Something will be said about two important corollaries of the absolute theory, the causal or pragmatic theory of observation and the thesis of the plasticity of perception. Because the absolute network theory is generally deemed to be highly implausible, I shall try in section III to explain why it is thought to be appealing and discuss the main argument Churchland adduces in favour of the absolute theory as distinguished from the relative one. I shall claim that this argument presupposes the representative theory of perception as it was developed in the seventeenth century, even though Churchland officially rejects this theory. Section IV is concerned with Churchland's semantics in more detail. His semantical theory is strictly holistic. Furthermore, Churchland thinks that meaning is a function of belief. These two tenets imply the well-known problems of incommensurability due to meaning variance. Two problems of incommensurability will be distinguished and I shall briefly discuss Churchland's solution to the first, and Feyerabend's solution (which Churchland endorses) to the second. The fifth section, finally, sketches some further criticisms of the absolute network theory and of the specific arguments adduced in its favour by Churchland and Feyerabend.

II. Two Varieties of the Network Theory of Language

Network theories of language were proposed, in epistemology and philosophy of science, as a result of some familiar objections against the Logical Positivists' image of science. Whereas, according to later Logical Positivism, observation terms are defined by ostension, the meaning of theoretical terms was thought to be a function of the role those terms play in the relevant theory. This role could be made explicit, so it was thought, by formulating two kinds of meaning-postulates: postulates linking a theoretical term to other theoretical terms, and so-called correspondence rules. Both kinds of postulates were supposed to be analytic, and theoretical terms were said to be implicitly defined by the postulates.

The critics attacked various aspects of this picture without rejecting, however, the hard core: the idea that theoretical terms are implicitly defined by 'sentences' of the theory. First, it turned out to be practically impossible unambiguously to identify specific theoretical propositions as being the analytic meaning postulates of a theory and others as the synthetic propositions, while the analytic–synthetic distinction was also questioned in principle. The result of this first line of criticism was a *network theory of theoretical terms*: theoretical terms were thought to be implicitly defined by *all* sentences of the theory containing them, and all sentences were supposed to have empirical content within the context of the theory as a whole. But from this first step a second followed naturally, viz. that the network theory holds for so-called observation terms as well. For if theoretical terms are implicitly defined by a theoretical network, and if these terms are linked to observation terms by correspondence rules, observation terms must also be implicitly defined by the theory, at least in part. This conclusion was then fortified by discussions of specific observation terms of advanced sciences, which often turn out to be theory-laden to a considerable extent.

In this paper I shall be concerned neither with the common argumentative strategy leading to general network theories of language, nor with the various counter-strategies developed in recent years (for instance, the denial of the hard core of the positivist picture of theoretical terms as defined above, and its replacement by some version of the causal theory of names), for these matters have already received much attention. Rather, I shall concentrate on one variety of the general network theory, the radical or *absolute* variety, and on the specific arguments adduced for it, arguments which, if valid, would refute the other, *relative*, varieties of the general network theory. To prepare the ground for the discussion, I shall now briefly summarize the differences between the two varieties.

According to the *relative* network theory of language, philosophical insights like the Quine-Duhem thesis and the theory-ladenness of observation qualify, but do not completely abolish, the traditional distinction(s)

between the theoretical and the observational. The relative network theory admits of degrees of theoreticity and degrees of observationality. It holds that there is a class of relatively pure observation sentences, and that the members of this class are both *semantically* and *evidentially* primary. Furthermore, these two kinds of primacy are said to be inseparable. For the very fact that observation sentences are (occasion) sentences on which all (competent) speakers of a language give the same verdict when given the same concurrent stimulation (the semantical aspect), singles them out for their traditional role as the court of appeal of scientific theories (the evidential aspect). In other words, because observation sentences are used to describe the things human beings are able to perceive without having any or much collateral information, their uses may be learnt, at least in part, before we master much of language or of science. For the same reason they are relatively neutral *vis-à-vis* scientific theories. The relative network theory of language fits in well with empiricism, provided that the traditional dogmas are stripped off. Its major proponent is Quine.[3]

The *absolute* network theory of language, on the other hand, is far more radical. It flatly denies that there is any semantic difference between the theoretical and the observational. All knowledge, including all perceptual knowledge, is said to be fully theoretical. There is no such thing as non-theoretical understanding. Language is a thoroughly theoretical structure and there are no degrees of theoreticity, all terms being implicitly defined by sets of semantically important sentences. Comprehensive theories are not essentially parasitic, as in traditional empiricism; they are autonomous frameworks in their own right.[4]

Clearly the absolute theory uses the network metaphor differently from the relative theory. For the relative theory, language is like a net or web, the borders of which are more or less fixed to the hard rocks of common human experience. Like spiders we weave the web from these fixed points inwards, into free space. According to the absolute theory, however, the spider first weaves its web and then throws it over as many rocks of experience as it and the web can manage. But even this slightly stretched use of the metaphor misrepresents the absolute theory. For on the absolute theory human experience cannot be compared to a rock. This will become clear when we take into account two corollaries of the absolute network theory.

First, the absolute network theorist cannot dispense with the notion of observation sentences, although he denies that there is something special about the *meaning* of these sentences (e.g. that they have a zero or low degree of theoreticity). He wants to be an empiricist, and observation sentences are the empiricist's court of appeal for scientific theories. On the one hand observation sentences are said to be fully theoretical,[5] but on the other hand it is stressed that there still is a class of observation sentences.

To put it differently: whereas the absolute network theorist rejects a *semantical* theory of observation sentences, he has to accept some other kind of theory, a non-semantical, that is, a *(syntactico-)pragmatic* theory of observation sentences.

Both Feyerabend and Churchland subscribe to such a pragmatic or *causal* theory. They hold that the empirical evaluation of theories can continue as long as there remain systematic causal connections between kinds of sensory states and kinds of singular sentences we are trained to utter whenever these states obtain.[6] Observation sentences are now defined as (sentences expressing) 'those singular theoretical beliefs acquired as spontaneous non-inferential responses to sensory states of the perceiver'.[7] In other words, 'a statement will be regarded as observational because of the *causal context* in which it is being uttered, and *not* because of what it means. According to this theory, "this is red" is an observation sentence, because a well-conditioned individual who is prompted in the appropriate manner in front of an object that has certain physical properties will respond without hesitation with "this is red", and this response will occur independently of the *interpretation* he may connect with the statement. . . . All we need in order to provide a theory with an observational basis are statements satisfying this pragmatic theory'.[8]

The pragmatic or causal theory of observation (sentences) implies that one may learn the observational use of an expression without learning anything about its meaning and vice versa: 'a child's initial (stimulus-response) use of, say, "white", in response to the familiar kind of sensation, provides that term with no semantic identity. It acquires a semantic identity as, and only as, it comes to figure in a network of beliefs and a correlative pattern of inferences. Depending on what that acquired network happens to be, that term could come to mean *white*, or *hot* (. . .), or any of an infinity of other things'.[9] Whereas the later Wittgenstein argued that ostensive definition is a phenomenon of much greater complexity and diversity than Logical Positivists used to think, the absolute network theorist cannot but deny that this phenomenon exists. He will acknowledge ostension, but not ostensive definition.

This first corollary leads to a second, which Churchland calls the thesis of the *plasticity of perception*. Churchland rejects the causal theory of reference.[10] For him, reference and extension are a function of meaning or intension. This cannot be otherwise if the absolute network theory is correct. But now it follows from the pragmatic theory of observation that membership of the class of observation sentences not only implies nothing at all about the *meaning* of a sentence, but also has no implications whatsoever concerning its *reference*. In particular, it does not imply that referring expressions figuring in a sentence which is used as an observation sentence are used to refer to things we are able to *observe*. Or at least, so it seems.

In fact, the champion of the absolute network view and of the pragmatic theory of observation is landed in a dilemma. There are two mutually incompatible positions which, in Churchland's writings, sail under the flag of the 'plasticity of perception'. I shall call them the *weak* and the *strong* plasticity thesis, respectively. The fact that Churchland fails to distinguish between these two positions, so that his texts are systematically ambiguous on this point, perhaps partially explains the initial plausibility of the thesis of the plasticity of perception for many readers of his work.[11]

According to the *weak* plasticity thesis we may be trained to use *any* sentence as an observation sentence regardless of the question whether we are able to perceive the items to which the terms of the sentence refer (if 'interpreted' within a theoretical network). The only defining criteria for being an observation sentence are syntactico-pragmatic: observation sentences are *singular* sentences we are trained to utter *in response to* specific kinds of sensory states. For instance, we may be trained to use the sentence 'The bipolar cells in my retinae are firing in the pattern XYZ' (where XYZ is short for a complicated specification) on all occasions of our perceiving a cat, although we shall never be able to perceive our bipolar cells or their firing patterns when we look at a cat. This weak plasticity thesis is entailed by the absolute network view and the pragmatic theory of observation sentences. In fact it is equivalent to the latter. If a word may be used to refer to something in virtue of its meaning only, and if the meaning of the word or of the sentence in which it occurs is irrelevant to whether it is an observation term or sentence, the fact that a word occurring in a sentence may or may not be used to refer to something perceptible must be irrelevant to whether that sentence is eligible as an observation sentence. It is crucial to note that, on the weak plasticity thesis, it is not perception itself that is plastic. The weak thesis is concerned with the plasticity of our *perceptual judgments* only.

For this very reason the weak plasticity thesis is plausible as far as *perception* is concerned. Nobody will seriously think that any training whatever of our skill of visual perception will enable us to *see* or otherwise *perceive* the firings of the bipolar cells in our retinae. But the thesis is difficult to accept as a thesis concerning observation *sentences*. Why should we *call* sentences which we are trained to use according to the prescription of the pragmatic theory of observation ('as non-inferential responses to sensory states of the perceiver') 'observation sentences' at all? On the weak plasticity thesis these sentences or 'perceptual beliefs' are not necessarily *about* what we perceive. We do not use these observation sentences to describe what we observe, but rather to describe something which science tells us must be there when we perceive something which we describe quite differently.[12] Also, and even more crucially, it will not necessarily be possible to find out whether these sentences are true by using our (aided

or unaided) senses, although this is the distinctive feature of observation sentences in the usual sense of the expression. In short, the weak plasticity thesis radically severs the links between meaning and reference on the one hand and perception or observation on the other. It is incompatible with empiricism.

The *strong* plasticity thesis may be seen as an attempt to restore these links. It is similar to Kant's Copernican Revolution. 'Philosophers of the past', so we might imagine Feyerabend and Churchland declaring with Kantian solemnity,[13] 'assumed that meaning derives from perception. Let us try out the opposite hypothesis and assume that perception derives from meaning.' According to Churchland, 'perception consists in the conceptual exploitation of the natural information contained in our sensations or sensory states'.[14] This implies that, supposing we have a specific series of sensations or sensory states, *what* we perceive will be a function of the conceptual network or 'theory' we use to 'exploit the natural information contained in' these sensations or states. In Kantian jargon: our conceptual networks *constitute* the (phenomenal) world. Because we might adopt a different network or theory from the one we acquired by learning ordinary language, perception *itself* is plastic.

This is what seems to make Churchland's work so very exciting. He holds out the hope that we might learn to *perceive* the world 'in ways other than those supplied by our present culture . . . Perception might take place within the matrix of a different and more powerful conceptual framework. The obvious candidate here is the conceptual framework of modern physical theory . . . It must be a dull man indeed whose appetite will not be whet by the possibility of perceiving the world directly in its terms'.[15]

It will by now be clear that, although on the pragmatic theory of observation (sentences) we do not necessarily *mean what we say* – for we might utter these sentences without meaning anything, meaning being added to them by a theoretical network only – on the strong plasticity thesis we necessarily *see what we mean*, for meaning constitutes perception and the perceived world. According to the strong plasticity thesis, learning neurophysiological theory and being trained to use the sentence 'The bipolar cells in my retinae are firing in the pattern XYZ' on all occasions of our seeing a cat, will enable us literally to *see* or *otherwise perceive* these firing patterns on these very same occasions.

Finally, it will also be clear that on the strong plasticity thesis experience cannot be compared to a rock. Here, Churchland essentially differs from Kant. Kant still subscribed to the Aristotelian conception of a first philosophy or ontology. In explaining, by means of his constitution theory of experience, why we perceive the world in the way the synthetic a priori elements in geometry and Newtonian science supposedly say it is, he thought he had fixed or discovered a priori and once and for all the

mechanism of constitution and the philosophical first principles of natural science. For Kant, experience is still a rock, albeit a man-made (or rather: man-concretized) rock. However, the notion of a static philosophical foundation of the sciences was discredited by the scientific revolutions of the early twentieth century. Accordingly, the idea that conceptual networks or theories are constitutive of perception or of the phenomenal world will now imply that perception is, or could be, as changing or *plastic* as science itself.[16]

Let me conclude this section by summing up and asking some questions. There are two kinds of network theory, the relative and the absolute theories. According to the relative theory, meaning derives from perception, at least to some extent. The absolute theory denies this. Whereas the relative theory fits in fairly well with empiricism, it will be difficult to adhere both to the absolute theory and to empiricism unless one also accepts two corollaries: the pragmatic theory of observation sentences and the strong plasticity thesis. The first corollary is endorsed by Feyerabend and Churchland alike, whereas Churchland is much more explicit about the second.

The absolute network theory is confronted by various problems. We saw that for Quine the semantic primacy and the evidential primacy of observation sentences are essentially related. The absolute network theorist, however, separates the inseparable. He wants in some sense to maintain evidential primacy while denying semantic primacy. This raises a first problem of incommensurability: how will people adhering to different languages or theories be able to understand each other? The problem of the incommensurability of understanding is related to a second problem of incommensurability: the problem of the incommensurability of testing and perceiving. For if the strong plasticity thesis is true, how will two observers who 'embody' different theories or 'sets of interpretation functions'[17] be able to perceive the same things? How can Feyerabend and Churchland escape from a complete relativism and scepticism? And how is Churchland able to reconcile his relativistic crypto-Kantianism with the doctrine of scientific realism and with the idea of scientific progress which he emphatically professes?

Before addressing some of these problems in the fourth section of this paper, I shall try in section III to explain why the absolute network theory, in spite of its high degree of initial implausibility, appears to be attractive and convincing. If it appears to be attractive, this is (at least for Churchland) mainly because it seems to enable one to construct a harmonious scientific or *scientistic Weltanschauung*, and especially to reintegrate common sense into science. If it appears to be convincing, this must be because of the arguments adduced in its favour. As I said before, I shall not discuss the development of the philosophy of science which gave rise to network theories in general. I shall concentrate on Churchland's argument sup-

porting the absolute network theory as distinguished from the relative theories. This argument does not belong to the philosophy of science and it is completely a priori. My thesis will be that it presupposes a representative theory of perception which Churchland officially rejects.

III. Science, Common Sense, and the Problem of Realism

The chief philosophical attraction of the absolute network theory consists in the fact that it implies a radically new stance on the traditional issue of science versus common sense. The absolute network theory allows us to carry through elegantly Wilfrid Sellars's programme of integrating the Manifest Image into the Scientific Image.[18] In this section I shall first sketch very briefly the genesis of the antagonism between science and common sense in modern philosophy. It will be recalled why the problem of the external world (or of *realism*) came to haunt empiricism. I shall then go into the relation between realism and the network theory. One will wonder why Churchland uses the absolute network theory as a foundation of *realism*. Is it not much more plausible to connect the absolute network theory to the *anti-realist* position? But as soon as one interprets the absolute network theory against the background of *traditional empiricism*, the relation between realism and this theory becomes intelligible. It will be shown why, in traditional empiricism, a network theory of meaning may be thought to be correct for all terms other than sense-datum words. From this perspective I shall interpret, in the third place, Churchland's main and basic argument for the absolute network theory. This argument concentrates on terms for perceptual qualities like 'warm' or 'white', because these terms formed, as it were, the last bastion for those traditional epistemologists who wanted to reject a completely general network theory of language. Churchland's argument purports to establish that a realistic interpretation of such elementary perceptual predicates is possible. Finally, I shall sketch the significance of the absolute network theory for the issue of the relation between science and common sense.

The philosophers of the scientific revolution in the seventeenth century were convinced that the new sciences, especially the theory of vision and mechanics, falsified not only Aristotelian physics but also common sense. The success of mechanics as a unified science of terrestrial and heavenly motions suggested the bold speculation of the new corpuscular ontology (as the latter, vice versa, was a source of inspiration for the former). Would it not be possible to generalize mechanics into the truly universal science of nature of which the Ancients had dreamt? But to do so required the hypothesis that all non-mechanical phenomena of nature, like heat, colour

or magnetism, are in fact mechanical. They had to be explained as effects of the mechanical behaviour of imperceptibly small material particles.

The *conflict* between science and common sense resulted from arguments like the following. For reasons of simplicity, and in order to avoid circular explanations, the non-mechanical 'secondary qualities' were denied to the corpuscles.[19] Paradoxically, this seemed to imply that they had to be denied to perceptible macroscopic objects as well. For how can such an object which, for instance, was thought to be nothing but an aggregate or configuration of *colourless* particles, be really *coloured* itself? If we can specify the corpuscles of which the object consists completely in terms of primary qualities, and if the same holds for the structure in virtue of which these particles constitute the object, all *real* qualities of macroscopic objects must be primary qualities.[20] In other words, material objects are very different from how common sense suggests they are.

Notoriously, the ontological embarrassment concerning secondary qualities, which resulted from banishing them from physical reality, was resolved by assimilating these qualities to sensations like pain. They were supposed to be 'ideas or sensations in the mind'. And common sense, so the corpuscular philosopher said, reconstructing common sense in terms of his theory, *falsely supposes that these sensations are the physical objects themselves, or falsely judges that the physical objects resemble them.*[21] Common sense and physics were thought to be *incompatible.*

The corpuscular philosophy seemed to imply a dualistic theory of perception. Corpuscular stimulation of the sense organs and corpuscular processes inside our body would finally cause or 'occasion' ideas in the mind. These ideas were supposed to be the real immediate or primary data of perception, the sensory core, so to say.[22] But as we are, in our ordinary perceptual consciousness, not aware of ideas (and *a fortiori* not of these ideas *as* being in the mind), a mental mechanism had to be postulated which 'projects' or 'interprets' the sense data. Perception then, as far as the mind is concerned, would consist of a mental mechanism which constructs an image or representation of the world out of the impressions in the mind. Because this image incorporates secondary qualities, it is essentially misleading as to the real nature of material objects. Science would have the task of correcting common sense and of decoding natural perception on the basis of its insight into the true nature of reality.

Ironically, this theory of perception supposedly implied by the corpuscular philosophy generated a radical scepticism concerning its very premiss, the corpuscular philosophy. If what is really 'present to the mind' in perception is a film of ideas or sensations 'in the mind', how will we be able to know *by perception* whether the material world we believe to perceive exists at all? Could not an all-powerful God create only minds containing sense impressions without a material reality which causes these

sensations? And would this not be indistinguishable for us from the world he in fact created? The corpuscular philosophy led to Cartesian doubt concerning its own credibility via the representative theory of perception.

As long as corpuscular philosophers remained rationalists, it did not seem too difficult to stick to (scientific) *realism* concerning the corpuscular theory of matter and the problem of the existence of the external world. Innate ideas allowed one to prove that there is a God, and God's veracity guaranteed an *extra-perceptual access* to material reality by means of divinely certified clear and distinct ideas. But as soon as the corpuscular philosophers turned empiricist, accepting Newton's official inductivist methodology, spell-bound as they were by his scientific work, *the sceptical problem of the existence of the material world became one of the central problems of epistemology*. In spite of its stupendous success, natural science seemed to be a philosophical mystery.

Paraphrasing Russell,[23] we might sum up the situation for the traditional empiricist as follows. Sense perception leads to physics (i.e. to some theory of matter which seems to exclude secondary qualities from being real qualities of the objects we perceive). Physics assures us that the immediate data of perception are at the end of a long causal chain which starts from the objects, and are not likely to resemble the objects, except, at best, in certain very abstract ways. The observer, when he seems to himself to be observing a stone, is really, if physics is to be believed, observing the effects of the stone upon himself. Thus science seems to be at war with itself: when it most intends to be objective, it finds itself plunged into subjectivity against its will. Sense perception leads to physics, and physics, if true, shows that sense perception is to be doubted as a source of knowledge about material reality. Therefore, sense perception, if reliable, is unreliable. Therefore, it is unreliable.

As a consequence, it seemed that one could not be both an *empiricist* and a *scientific realist* concerning the existence of matter, except at the price of a *sacrificium intellectus* in the manner of Hume. As Hume himself had shown by merciless logic, if the immediate data of perception are sensations in the mind, neither sense perception nor inductive argument on the basis of sense perception can show that there is a material reality 'outside' the mind which causes the sensations. The only rational solution to this cardinal problem of traditional empiricism seemed to be to deny that physics is really *about* the non-mental causes of our sensations. The empiricist had to interpret physics as concerning the relations between these sensations (Berkeley) or as concerning the phenomenal world 'constituted' out of sensations (Kant). Empiricism, as based on the representative theory of perception, leads to phenomenalism and idealism. Within the framework of such an empiricism, the realistic (corpuscular or other) premisses of the representative theory of perception had to be repressed and became the obstinate *enfant terrible* of the *Ding-an-sich*.

This version of empiricism also implied a *sensationalist semantics*. According to traditional empiricism, meaning derives from perception or from reflection. If the primary or immediate data of perception are sensations, indefinables derived from sense perception must get their meaning from private ostensive definition. This view is one of the most salient varieties of the building-block metaphor in semantics. When traditional empiricism had passed from its psychological to its logical stage, it initially adopted the research programme of deriving the meaning of the theoretical vocabulary of science from sensation words (Logical Atomism). The breakdown of this programme then led to the standard Logical Positivist image of science discussed above. It has already been shown how criticisms of this image transformed it into a network view of language.

We now come to the question of how the *absolute* network theory fits in with this historical sketch. We shall see that the absolute network theory defended by Feyerabend and Paul Churchland is but the ultimate consequence of traditional empiricism as it was developed on the basis of the representative theory of perception. The absolute network theory might be reconstructed *as an attempt to maintain a realist position* in spite of the phenomenalist temptations hidden in this representative theory. I shall first argue briefly that, in order to reconcile realism with the representative theory of perception, one has to assume that the semantics of ordinary words for material objects like 'table' or 'cat' is what the network theory says it is. For a realist who adopts the representative theory of perception, these terms must be theoretical terms, implicitly defined by a network. Against this background, the point of Churchland's main and basic argument for the absolute network theory of language will be clear: the argument aims to prove that the absolute network theory holds even for those terms for perceptual qualities which, according to traditional empiricism, were defined by means of an inner ostensive definition.

Let us assume as a start that scientific realism, aside from philosophical considerations, is a more plausible position than instrumentalism or phenomenalism. When the scientist posits causal mechanisms in order to explain certain phenomena, he intends to refer to really existing entities. The development of scientific technology often enables us to observe the postulated entities by means of scientific instruments. The progress of science to a large extent consists in this process of postulating hidden mechanisms and of inventing means of observing them.

On the other hand, if the representative theory of perception as proposed by, say, Hume or Russell, is correct, not only the causal mechanisms postulated by scientists, but also ordinary objects like tables and cats are, strictly speaking, unobservable. For a rigorous empiricist, even these common objects are *postulated* or *theoretical entities*.[24] The epistemological problem of how we come to know that, say, our sensations or sense data

described by the sentence 'there is a canoid patch of colour' are caused by a dog, is deemed to be not essentially different from the problem of how we come to know that, say, neutrinos really exist.

A (scientific) realist who accepts the representative theory has to explain how we are able to *refer* to ordinary objects or to the objects posited by the scientist if what is really given in perception consists of nothing but sensations. Whereas a *phenomenalist* might think that words for these objects may be defined in terms of sensation-words, so that the meaning of all words derives from perception (or reflection), this option, whether it turns out to be viable or not, is not open to the realist. For he holds that these words are used to refer to the *causes* of our sensations and not to *complexes* of sensations. According to the realist, the ability to refer to ordinary objects like tables or cats cannot be acquired by ostensive learning, because these objects are not really given in perception. Therefore, reference has to be a function of meaning. Furthermore, as the meaning of material object words cannot be derived from the meaning of sensation terms, it has to be *autonomous vis-à-vis* the qualitative nature of our sensations. Words for ordinary objects like tables and cats, so the network theorist concludes, must be implicitly defined by the network of the language.

We have now arrived at a nearly general network theory of language, which holds for all words *except* the so-called sense-datum terms. These sense-datum terms, and only they, are still thought to be ostensively defined by reference to our sensations.

Against this background the point of Churchland's main and basic argument for the absolute network theory of language is pretty obvious.[25] The argument is *merely* concerned with terms for perceptual qualities like black, grey, and white, and cold, warm, and hot. It seeks to establish two points: that these terms do not refer to sensations but to the *causes* of these sensations, and that, as a consequence, even these terms are 'theoretic' in the sense that they are implicitly defined by a linguistic network. In other words, Churchland's argument purports to eliminate the last obstacle in the way of building a *general* realist theory of knowledge on the foundation of the representative theory of perception; general in the sense that, in such a general realism, even terms for perceptual secondary qualities are supposed to denote certain *causes* of our sensations and not these sensations themselves. The absolute network theory turns out to be an indispensable conceptual tool for achieving this objective.

Churchland's argument consists of a piece of biological science fiction and its philosophical exploitation. Churchland invites us to imagine a species of hominoids of which he stipulates the following characteristics:

1. Instead of our eyes they have large 'eyes' constructed such as to be exclusively sensitive to electromagnetic radiation at some wavelength in

the far infra-red. Since the vigour with which a body radiates in the far infra-red is a more or less straightforward function of its temperature, the brightness of these hominoids' retinal images will be a function of the temperature of objects. These peculiar beings are supposed to lack any tactile or bodily sense of temperature.

2. The hominoids speak a language which is indistinguishable from English, save for two points: it lacks our colour vocabulary, including 'black', 'grey' and 'white', whereas our ordinary thermal vocabulary is learned by the very young hominoids as an observation vocabulary for 'visual' instead of tactile reports, and finally:
3. The world 'looks' to these hominoids much as it looks to us in black-and-white prints of pictures taken with infra-red-sensitive films: 'on viewing a very hot object they have what *we* would describe as a sensation of an incandescent *white* object . . ., and so on.'[26]

In his philosophical exploitation, Churchland stages this piece of biological fiction as an imaginary *experimentum crucis* for choosing between *two* competing theories of meaning for simple observation terms. One of these theories is the absolute network theory, according to which such terms are, like all terms, completely theoretical, because they are implicitly defined by the network. The way Churchland introduces the other theory, which he goes on to reject, is not without a deeper philosophical significance: 'If we succumb to the *common-sense view* that the meaning of simple observation terms is given in sensation', he says, 'we must insist that *their* terms, "cold", "warm", and "hot" really mean *black, grey*, and *white* respectively, rather than *cold, warm*, and *hot*.'[27]. But such a *sensation-guided* translation has serious drawbacks, so Churchland goes on to argue. Most of the hominoids' background beliefs would turn out to be false (we would have to attribute to them the views that fire is white and that ice is black), and their observation judgments would all be false 'for they certainly cannot see whether objects *are* black, grey, or white'.[28] As the hominoids would come to a similar conclusion concerning *our* background beliefs and observation judgments, the sensation-guided translation 'lands us in an epistemological dilemma to which there can be no resolution': either our or their set of background beliefs and observation judgments has to be false, and we have no criterion to decide which.[29]

From this reductio of the sensationalist semantics of observation terms, Churchland concludes that we have to adopt the *homonymic* translation. But the correctness of this translation implies that 'the meaning of the relevant observation terms has nothing to do with the intrinsic qualitative identity of whatever sensations just happen to prompt their non-inferential application in singular empirical judgements' (recall the pragmatic theory of observation). And this, so Churchland thinks, implies without further

argument that the meaning of these terms is 'determined by the network of sentences containing them accepted by the speakers who use them'.[30] In other words, because we have to assume that simple observation terms are used to refer not to our sensations but to the *causes* of these sensations, the *absolute* network theory of language must be correct.

Before embarking on the last topic of this section, the significance of the absolute network theory for the issue of science and common sense, I shall briefly argue that both Churchland's piece of biological science fiction and his philosophical interpretation of this science fiction story *essentially presuppose* the representative theory of perception. This claim is as surprising as it is important. It is surprising because Churchland, once the absolute network theory is established, rejects the representative theory in its classical form (according to which what is 'really given' in perception consists of sensations). In fact, he cannot but reject the traditional representative theory. For if the strong plasticity thesis is true (and, as we have seen, this thesis must be true if the absolute network view has to be reconciled with empiricism), 'the intrinsic qualitative identity of one's sensations is irrelevant to what properties one can or does perceive the world as displaying'.[31] The claim is also important. If Churchland's main argument for the absolute network theory, an argument which is basic in the sense that it is taken for granted in the other arguments Churchland offers,[32] essentially presupposes the traditional representative theory of perception, one might just as well conclude from his *reductio ad absurdum* of sensationalist semantics that the representative theory must be mistaken or even nonsensical, instead of concluding, as Churchland does, that the absolute network theory of language must be correct.

As far as Churchland's biological science fiction is concerned, it clearly presupposes the representative theory of perception, because it is assumed that the way the world appears to the hominoids is determined by their *sensations*. 'On viewing a very hot object', Churchland says, 'they have what *we* would describe as a sensation of an incandescent *white* object. . . '.[33] And this assumption is essential for the philosophical evaluation of the story, for if the way the world appears to the hominoids were not determined by their sensations, it would not make sense to consider the possibility of a sensation-guided translation, albeit as a possibility which is eliminated in favour of a 'homophonic' translation. In other words, it is essential to Churchland's argument that his biological fiction presupposes the very variety of the representative theory of perception which is rejected once the argument has done its service.

Equally, Churchland's philosophical exploitation of the science fiction story presupposes the representative theory of perception. It does so for two reasons. First, the fact that Churchland merely considers *two* possible views of the semantics of simple observation terms like 'white' or 'hot', the

sensationalist view according to which these terms denote *sensations* and the network view according to which they denote the *causes* of these sensations, already betrays the implicit grip of the representative theory on his argument.

Second, and even more eloquently, the fact that Churchland presents the *sensationalist* semantics as the *common-sense* view[34] is also typical for those who think within the framework of the representative theory of perception. Of course, common sense as it really is knows nothing of sensations in the philosophical sense of the word. If one common-sensically thinks that we learn the meaning of words like 'white' by ostension, one surely nevertheless does not think that this ostension is inner ostension by reference to sensations. On the contrary, according to common sense, the samples one uses in such a type of ostensive learning are public objects (in this case *white* objects) and the whiteness of these objects is a public characteristic which everyone who is not blind can perceive. It is only when one thinks within the framework of the representative theory that one is led to misinterpret this common-sense view as sensationalism. And only if one presupposes the representative theory of perception will one simply *omit to consider* the *real* common-sense view that 'white' and 'black' denote real properties of material objects, and that we are able to refer by means of these words to those properties on account of our having learnt the meaning of these words, at least in part, by ostension, and not at all because we learned to master a whole linguistic network. For, if the representative theory of perception were true, material objects and their properties *could* not be used as samples in ostensive teaching and learning, because on this theory they are not really given in perception: they are merely represented by the sensations they cause in us. To conclude, Churchland's basic argument for the absolute network view of language essentially presupposes the representative theory of perception, the very same theory Churchland has to reject once the network theory and its two corollaries are accepted.[35]

We have seen that the conflict between science and common sense, condensed into the notion of the subjectivity of secondary qualities, gave rise to representative theories of perception, and that the attempt to construct realism on the basis of such a representative theory leads to the absolute network theory of language. This historical interpretation of the absolute network theory was then corroborated by the fact that Churchland's argument from 'transposed modalities' presupposes the representative view. We now come to the last point of this section: the question as to what the implications of the absolute network theory for the traditional philosophical issue of the relations between science and common sense amount to.

At first sight it is illuminating to distinguish two senses in which the expression 'common sense' is (ab)used by philosophers when they claim

that science falsifies common sense. In the first place they might intend to say that modern scientific theories or findings show that older *theories*, for instance Aristotle's cosmology, or the idea that there are witches, are incorrect or unfruitful, where these older theories are called 'common sense' because they have penetrated into the ways of thinking of the layman. In this sense 'common sense' stands for the class of *theories* and other speculations which have become popular. The content of this class is changing as a function of scientific advance. While Aristotelian cosmology was the common sense of the fourteenth century, Newtonian mechanics became the common sense of the nineteenth. This conception might be called the *dynamic* conception of common sense.

Second, when seventeenth-century philosophers claimed that science falsifies common sense, they also meant that if the corpuscular philosophy, including the thesis of the subjectivity of secondary qualities, is true, the majority of our *ordinary perceptual judgments* (like 'this is red' or 'this is warm') must be *literally false*, because the redness or the warmth we think we perceive are not really the qualities or states of material things we take them commonly to be. In this interpretation, 'common sense' denotes the class of elementary perceptual judgments, among them judgments about secondary qualities, or the class of the beliefs expressed by these judgments. Admittedly, there is evolution in language even on this elementary level. Nonetheless, common sense in this second sense is relatively stable or *static*. For this reason it could become, paradoxically, the unchanging criterion or tribunal for the evaluation of scientific theories in the eyes of the traditional empiricist.

The absolute network theory of language completely overthrows this picture. If the absolute network theory is true, the distinction between these two senses of 'common sense' is an illusion. Elementary perceptual judgments are said to be as speculative and as theoretical as the most abstruse speculations of the advanced sciences. Common sense in the second, static sense 'stands unmasked as being itself a theory, or a battery of related theories'.[36] And of course, if this is the case, it cannot be *essentially* static either. As it is a theory, we might ask whether it is the right theory. And if not, it ought to be replaced by a better one.

We are now able to fully appreciate the revolutionary philosophical significance of the absolute network theory of language. Indeed, the idea that all language is theoretical, so a proponent proclaims, 'is one of the most intriguing and important epistemological theses of the last sixty years'.[37] It implies that common sense in the static sense loses its semantical and evidential primacy. The expression 'common sense' now *merely* denotes the class of theories 'that got there first'.[38]

If even the most common observation judgments are 'fully theoretical', we must assume that common-sense or 'folk' theories are presupposed by

everything we say or think. These folk theories, when compared to their properly scientific competitors, turn out to 'suffer explanatory failures on an epic scale' and to have been 'stagnant for millennia'.[39] For that reason we must conclude that they are 'probably false' and that they should be replaced by better theories: 'Why not exchange the Neolithic legacy now in use for the conception of reality embodied in modern-era science?'[40] Because all language is theoretical, such a replacement will involve ordinary language. The *present* ordinary language should ideally be eliminated in favour of the language of science.

In this way the absolute network theory suggests a radically new interpretation of the idea that there is a conflict between science and common sense (in the second, static, sense). This conflict is now said to be just an ordinary conflict between competing scientific theories. Common sense is integrated into science, not as something science should explain or as the natural starting-point of scientific investigation, but as one scientific theory (or battery of theories) among others. The manifest image just is one kind of scientific image. But it is not the best scientific image we have, if we believe Churchland. His evaluation of common sense is inevitably a devaluation.

Let me conclude this section by two further remarks. First, the absolute network theory implies a generalization of scientific realism. Scientific realism used to be concerned with a subset of the class of things we refer to by means of language, the set of so-called theoretical entities. But the conjunction of scientific realism and the representative theory of perception implies that, strictly speaking, all ordinary objects in our environment are theoretical entities. They are the causes of our sensations, and, as such, not really given in perception. They are theoretical entities in the sense of unobservables. Furthermore, Churchland's basic argument intends to prove that even words like 'white' and 'warm' refer to the causes of our sensations and are, for that reason, theoretical terms, which must behave semantically as the absolute network theory says they do. It follows that scientific realism is a completely general ontological meta-theory: 'Excellence of theory emerges as the fundamental measure of all ontology', and this maxim is presented as a partial definition of scientific realism.[41] Ontology, needless to say, is now conceived of, not as the a priori science of first principles, but as an a posteriori corollary of scientific progress.

Second, one has to distinguish carefully between three ingredients of Churchland's work. They are, to start with the most concrete and specific kind of ingredient:

1. Pieces of neuroscientific theory, like the conception of state-space sandwiches as the mechanisms of sensorimotor coordination.[42] There is no necessary, conceptual link between these pieces of scientific work and the

other two ingredients, although Churchland, situating his philosophy within the tradition of naturalistic epistemology, probably thinks that these pieces are the real hard core of his achievement.

2. Philosophical speculations about the consequences of future scientific developments, like *eliminative materialism*. Eliminative materialism is the thesis 'that our common-sense conception of psychological phenomena constitutes a radically false theory, a theory so fundamentally defective that both the principles and the ontology of that theory will eventually be displaced, rather than smoothly reduced, by completed neuroscience'.[43] As the elimination of our common-sense conception of psychological phenomena, on the network theory of language, implies that we should drop the ordinary language vocabulary of psychological terms, eliminative materialism is the royal road to materialism: as soon as our common-sense theory of persons is eliminated by a better, neuroscientific, theory, we will not even be able to *formulate* the traditional objections against materialism, like those based on Leibniz's law. Therefore, the eliminative materialist feels entitled to reject those objections out of hand.

Clearly, eliminative materialism is neither a piece of scientific theory nor a pure prediction about the direction of scientific progress. Rather, it is a philosophical thesis about the consequences of 'completed neuroscience' for our ordinary ways of thinking and talking about human beings: namely the thesis that completed neuroscience would (or ought to) *eliminate* them. But this thesis presupposes that these ordinary ways of thinking and talking are fully theoretical, so that they will be eliminated by scientific progress in the same way as thinking about phlogiston was eliminated. In short, eliminative materialism, and many of the other positions in the debate on the question 'whether folk-psychology is here to stay', would be *meaningless* if the absolute network theory of language were mistaken.

3. For this reason, the absolute network theory and its corollaries, the pragmatic theory of observation and the strong thesis of the plasticity of perception, are the *philosophical basis* of Churchland's position. In this paper, I am concentrating on this basis only. The absolute network theory and its corollaries do not fit easily into the tradition of naturalistic epistemology. Empirical research on the influence of elementary conceptual resources on human discriminatory capacities, for instance, falsifies rather than confirms the strong plasticity thesis,[44] and in his main book (SRPM) Churchland adduces no *empirical* arguments for his position. I have interpreted the absolute network theory as a last step within traditional empiricist epistemology, which is largely a prioristic. As I shall argue in section V, the philosophical basis of Churchland's work belongs to transcendental philosophy in a Kantian sense, and not to naturalistic epistemology.

Although eliminative materialism essentially presupposes the absolute network theory, the latter does not necessarily imply eliminative materi-

alism. From a purely abstract point of view, Churchland's Scientific Realism is neutral as to *which* theory will turn out to be the most excellent in a given domain, and therefore as to which theory will become the measure of ontology. But in fact Churchland is convinced that the most excellent theories will all be of the 'Pythagorean type', and that our folk theories about human beings (psychology, economics, the social sciences, law, history, and even semantics) are not of that type.[45] As a consequence these theories, including their respective vocabularies, should all be eliminated in the course of scientific advance. 'The magnitude of the conceptual revolution here suggested should not be minimized: it would be enormous', so Churchland correctly observes.[46]

What Churchland proclaims is a wholesale cultural revolution, in which human culture, to the extent that it depends on language, will be reconstructed in the language of the exact sciences. Of the famous 'two cultures', the one will completely eliminate the other, and the cleft between the two, deplored by so many authors before and after C. P. Snow,[47] will not be bridged but annihilated. A monolithic scientific or scientistic *Weltanschauung* will be the result. And, if the strong thesis of the plasticity of perception were true, Churchland's cultural revolution would even completely revolutionize our *perceptual* awareness: by implanting the language of the exact sciences into our perceptual mechanism as 'interpretation functions', we will come to perceive the world as science says it is.[48] Churchland is not only convinced that such a prophecy is meaningful; he also thinks that its fulfilment would be very attractive, a kind of philosophical *Heimkunft*. 'Should we ever succeed in making the shift, we shall be properly at home in our physical *universe* for the very first time.'[49]

IV. Problems of Incommensurability

The absolute network theory of language is the thesis that all uses of language, even expressions of perceptual judgments, are *fully theoretical*, or at least, rest essentially upon theoretical assumptions.[50] This thesis of the radical theoreticity of all language and understanding has often been criticized for being nothing but an abuse of the word 'theoretical'.[51] One could go further and diagnose it as auto-destructive, because it is formulated in terms of the very distinction it purports to undermine.[52] Nevertheless, such criticisms are superficial: the slogan that all terms, including observation terms, are fully theoretical, is a paradoxical and misleading expression of the view that one specific account of the contrast between observational and theoretical uses of language is mistaken, because one specific account of the semantics of theoretical terms, the network account, *in fact holds for all terms.*

A pertinent criticism of this view must either dismantle the arguments adduced in its favour, or show that it cannot avoid absurd consequences except at the price of becoming incoherent, or finally, it ought to unearth deeper misunderstandings or misleading pictures which explain why the absolute network theory, in the eyes of its champions, somehow *must* be correct. My third section was primarily devoted to the first kind of criticism. The fifth section will contain some hints as to the third. In this section I shall briefly discuss the standard criticism of the second kind: the objection of incommensurability.

As Austin put it, 'there is nothing so plain boring as the constant repetition of assertions that are not true, and sometimes not even faintly sensible',[53] except perhaps the constant repetition of the canonical objections to these assertions. Accordingly, the discussion can be brief, for the moves in this game are well known. I shall first go into some of the details of Churchland's absolute network theory in order to show why he has to face the familiar problems of incommensurability. Second, I shall pose the question how, on Churchland's account, we could ever discover that the German word 'Baum', for instance, means tree. The answer turns out to be that we never could. I shall then summarize Churchland's own solution to the problem of *radical* incommensurability. This solution is incomplete without the invocation, as suggested by Feyerabend, of the pragmatic theory of observation, which would show a way out of radical incommensurability. This suggestion, however, conflicts with the strong thesis of the plasticity of perception and is, besides that, not very plausible (if it makes sense at all). The upshot of this short discussion will be that Churchland's semantical theory imperceptibly shifts in the course of his argument and that, when confronted with attempts to get it sharply into focus, it tends to behave like a Cheshire cat.

There are two aspects of the absolute network theory which, separately or taken together, give rise to the objection of incommensurability as due to meaning variance: on the one hand a radical holism and on the other the idea that meaning is determined by (empirical) belief. In Churchland's account of the network theory, the former aspect is derived from the latter. Accordingly, I shall start by explaining why, on this account, meaning is determined by empirical belief.

Churchland rejects the analytic–synthetic distinction on Quinean grounds.[54] It may be that a sentence does not admit of a denial consistent with one's current understanding of its terms, but this, so Churchland says, does not imply that the sentence is *true*, let alone necessarily true, let alone true solely in virtue of meanings.[55] For the *meaning* of a term in L 'is to be construed as the set of sentences *semantically important* for that term in the community of L-speakers'.[56] As this set is said to (co-)constitute an *(empirical) theory*, which might very well be *false*, a sentence semantically

important for a term *t* supposedly might be false too.[57] The sentences semantically important for *t*, taken together, *implicitly define t*.[58] As a consequence, implicit definition has the monopoly in the realm of definition.

What makes a sentence semantically important for a term *t*? Churchland lists various criteria which determine different degrees of semantic importance. But he holds, at least officially, that there is *one* necessary and basic criterion for a sentence containing the term *t* to be semantically important for *t*: that it enjoys *universal acceptance* within the relevant community of speakers.[59] Although this notion of *universal acceptance of sentences* is qualified in several respects, it 'remains central' to Churchland's account of semantic importance.[60] Finally, accepting a sentence is equated with believing what the sentence is used to assert, so that, according to the absolute network theory, *meaning is completely determined by the web of (empirical) belief.*

We now come to the second aspect of the absolute network theory which is relevant to the problem of incommensurability: the aspect of holism. Churchland proposes a radical variety of holism as a solution to what he calls 'the problem of term synonymy across languages'.[61] That the notion of term synonymy across languages becomes problematic is no surprise, given Churchland's account of meaning. If 'the meaning of a term in L is to be construed as the set of sentences semantically important for that term in the community of L-speakers',[62] a term *t* will have the same meaning for group *A* as for group *B* just in case the respective sets of sentences that are semantically important for *t* in each group have the same membership.[63] However, this notion of sameness of meaning, which is implied by Churchland's construal of the meaning of a term, will not do for the synonymy relation between two *different* terms. Churchland considers the case of 'Baum' in German and 'tree' in English. These have the same meaning, but the relevant sets of semantically important sentences contain *no* sentences in common.[64] Of course this is also the case, at least to a large extent, when two terms belonging to one and the same language are synonymous, although Churchland only discusses the problem of term synonymy *across languages*.

Without further argument, Churchland proposes his holism as a solution to this problem: 'as our counterexamples indicate, the basic unit of meaning must approximate an entire language. For the meaning of smaller units can be decisively specified only against the background provided by some such maximal unit. The semantic identity of a term derives from its specific place in the embedding network of the semantically important sentences *of the language as a whole*'.[65]

Before going into the question of how this holistic doctrine is supposed to solve the problem of term synonymy across languages, we should note that the quoted passage contains a drastic modification of the concept of

semantic importance. Originally Churchland adopted at least two conditions for a sentence to be semantically important for a term *t*: it should *contain t*, and it should be *universally accepted* by the relevant community. But in the quoted passage the first condition is dropped. It seems that all universally accepted sentences of the language are now said to be semantically important for each term of that language, whether they contain that term or not. And this implies that every extensional shift in the set of sentences which are universally accepted in a community will affect the meaning of *each* word of its language.

The doctrine of holism is supposed to solve the problem of term synonymy across languages as follows. The intuitive idea is that two terms, belonging to different languages, are *synonymous* if they occupy '*analogous places* in the relevantly *similar networks* provided by the respective sets of semantically important sentences of the two languages at issue'.[66] The notion of synonymy across languages is defined in terms of the notion of an *optimal translation:*

> Two terms, T_α in L_α and T_β in L_β, are *synonymous* if and only if they are paired in an optimal translation of the one language into the other,

whereas the notion of an optimal translation is holistic:

> An *optimal translation* of L_α into L_β is a mapping of the terms and syntactic forms of L_α into the terms and syntactic forms of L_β such that (1) the image, under that mapping, of each grammatical sentence of L_α is a grammatical sentence of L_β, and (2) the images, under that mapping, of the sentences semantically important for each term T_α in L_α are exactly the sentences semantically important for its paired term T_β in L_β.[67]

On this holistic conception, synonymy of terms across languages is not only defined in terms of an optimal translation of one language into another language, but it is also suggested that knowledge of the former requires that one already know that such an optimal translation of the one language into the other exists. In other words, Churchland's definitions seem to imply that, in order to know that two terms like 'Baum' and 'tree' are synonymous, we must first know that German as a whole can be optimally translated into English as a whole. The question whether 'Baum' and 'tree' ought to be paired as synonymous terms depends on the question whether German and English can be put in the relation of an optimal translation.[68] But how are we supposed to discover whether this is possible?

An Englishman who travels into Germany is supposed to find out, for instance, whether the sentences semantically important for 'Baum' can be exactly mapped onto the sentences semantically important for 'tree' (condition 2 of Churchland's definition of an optimal translation). It is only after having discovered that this quite complicated possibility is realized that he may be said to know that 'Baum' and 'tree' are synonymous.

However, such a discovery would be impossible if he could not at least entertain the hypothesis that 'Baum' and 'tree' are synonymous. And how is the Englishman supposed to hit upon this hypothesis?

If for a moment we forget about the absolute network theory and its corollaries, the answer to this latter question is trivial. We hit upon the idea that 'Baum' might be synonymous with 'tree' because we notice that Germans use the word 'Baum' to refer to the same kind of natural objects or phenomena as 'tree' is used to refer to. In other words, we break into the linguistic network by means of *reference* (or ostensive definition or learning).

But if the absolute network theory is correct, reference can never be a hint as to meaning. Reference is completely determined by meaning, and the meaning of a word is completely determined by the linguistic network. To see this, remember the two corollaries of the absolute network theory: the pragmatic theory of observation and the strong plasticity thesis. According to the former, learning to use 'Baum' 'non-inferentially in response to a certain kind of sensations or sensory states' (that is, observationally) has *nothing* to do with learning the meaning of the word, which is purely determined by a conceptual network. Depending on what that network happens to be, that term could come to mean *tree*, 'or any of an infinity of other things'.[69] Accordingly, the fact that Germans use 'Baum' non-inferentially in response to the same kind of sensations or sensory states as the English respond to with 'tree', if we could ever discover such a thing, should never induce us to think, even by way of a working hypothesis only, that 'Baum' and 'tree' are synonymous.

The strong thesis of the plasticity of perception implies an even greater obstacle to using reference as a guide, if only a provisional guide, to meaning. For according to this thesis, what someone perceives when he has certain sensations or sensory states depends on the conceptual network he uses to 'exploit the natural information contained in these sensations or states'.[70] In other words, if we notice that Germans use the word 'Baum' when we see that they are confronted with a tree, we cannot at all know that *they also see* trees when they are confronted with trees. Maybe their network differs from English in such a way that they perceive firing patterns in their retinae when confronted with trees. In that case it would be mistaken to translate 'Baum' by 'tree'.

I conclude that, if the absolute network theory were true, we could never learn another language and, in fact, not even our own. It would also be a complete mystery why ordinary languages of different cultures are remarkably uniform in the kinds of properties directly reportable within them.[71] To understand the phenomenon of language at all, we must suppose that children learn to perceive ordinary objects and phenomena before they learn a language, and that the data of an elementary level of perception

precede conceptualization instead of being its products, as the absolute network theory and its corollaries imply.[72] The metaphor of the network, if illuminating at all in studying language, should be used in the sense of the relative, rather than in the sense of the absolute network theory.

Let me add two observations on the relation between the absolute network theory and the views of Quine and Putnam respectively. Quine, in his theory of translation, assigns primacy to the pairing of observation sentences in each language. We now see why this primacy must be 'profoundly misplaced'[73] for the absolute network theorist: if he is right, one cannot break into a linguistic network via the things one perceives and via observation sentences, because meaning determines perception and not the other way around. But we also understand why, in his discussion with Quine,[74] Churchland avoids asking the question which is the basic question about translation for Quine: the epistemological question as to *how we might discover* the correct or optimal translation of words of a foreign language into our own language. Churchland does not raise this question because it cannot be answered within the framework of the absolute network theory. In his section on translation, Churchland implicitly assumes the point of view of the omniscient God of Cartesian epistemology, who is able to survey networks at a glance and to see whether 'languages' stand in the relation of optimal translation without having to discover this by empirical means. We humans, however, do not enjoy this privileged position, so that for us Churchland's idea of linguistic networks is an essentially metaphysical notion, or even not an intelligible notion at all.

Churchland's discussion with Putman[75] suffers from a similar evasion of the essential point. Churchland pretends that his absolute network theory of meaning accounts for the 'genuine intuitions' behind Putnam's suggestion, propounded in 'The Meaning of "Meaning"', that the extension of a natural-kind term as fixed by ostension is a component of the meaning of that term independent of the intension. The absolute network theorist, Churchland claims, might explain the 'non-trivial indexical element' in the meaning of a natural-kind term by saying that *singular* sentences like 'The stuff in our lakes, rivers, and oceans is water' are members of the relevant class of semantically important sentences, so that they contribute to the implicit definition of that term (i.e. 'water').[76] But one wonders in what sense such sentences may be called *indexical* on the basis of the absolute network theory and its corollaries. The 'indexicality' of observation sentences, according to the pragmatic theory of observation, boils down to their being caused by sensory states, and is completely irrelevant as to meaning. The meaning and reference of such singular sentences, on the other hand, are said to be determined by the network. As a consequence, it is a mistake to think that the absolute network theory may be reconciled with Putnam's intuitions that ostensive definition by means of samples or

paradigms is essential to the meanings of natural-kind terms and that the demonstrative 'this' in such definitions is 'rigid'.

According to many philosophers of science, these very intuitions provide a way out of the problem of incommensurability. As Churchland cannot really accommodate them, it will be interesting to know how he solves this problem.

Churchland has to confront the problem of incommensurability due to meaning variance because he accepts the two ingredients we discussed above. If, as Churchland's *holism* seems to imply, all of the sentences a man accepts are of non-zero semantic importance, then the slightest change in the set of sentences he accepts (that is, in his beliefs) would amount to a change (for him) in the meanings of the terms immediately involved and, finally, in the meanings of all terms he uses. Correlatively, even the smallest differences in the sets of sentences embraced by two different speakers would entail systematic differences in the meanings of all the terms they share. As a consequence, people could never change their opinions or understand each other, and the notions of disagreement, contradiction, truth, competing theories, and scientific progress could never be applied.[77]

Churchland's strategy in facing this objection consists of two moves. On the one hand he argues that his holism in most cases does not imply radical incommensurability at all. On the other he claims that, even in a case of radical incommensurability, 'intellectual commerce' may carry on. I shall discuss the two moves in this same order.

The first strategy embraces three points. Churchland says that his holism is less holistic than the objection suggests, because on his network view meaning variance is implied by differences between the sets of *semantically important* sentences only, whereas not all sentences in which a term occurs are said to be semantically important for that term.[78] This first reply, although correct, does not solve the problem of incommensurability in relation to Churchland's major philosophical tenets, like eliminative materialism. For eliminative materialism proposes a radical change in the set of sentences we now all accept, that is, in the set of semantic important sentences. The same holds for Churchland's second point, to wit, that on the network theory semantic divergence comes in degrees, and that low degrees of semantic divergence may be of no practical significance and may remain unnoticed. The third point is more relevant to Churchland's philosophy as a whole. It is concerned with the case where, on some topic, divergencies do rise to the surface and do prove significant for the point under discussion. In such a case, says Churchland, 'the speakers involved can usually fall back . . . on the extensive substructure of meaning and understanding that remains shared between them, and then approach the troublesome topic anew from that common foundation as they go, and becoming "bilectical" in the process as they come to learn and appreciate the divergent intellectual structure embraced by their opponent'.[79]

Here, Churchland seems to think that divergence of meaning may remain perfectly *local* and that two speakers, in spite of such a local divergence, might share a common *global* network which enables them to communicate. But how to reconcile this idea with the doctrine that 'the semantic identity of a term derives from its specific place in the embedding network of the semantically important sentences of the language as a whole'?[80] If this holistic doctrine is correct, any local divergence of meaning must affect the extensive substructure of meaning, which therefore cannot be a common foundation for mutual understanding. Churchland's third point is incompatible with his holistic doctrine.

It is equally incompatible with his official view that meaning is determined by empirical belief. This will become clearer when we consider Churchland's second move, his solution to the problem of *radical* incommensurability of understanding. Churchland argues that, even in cases of radical incommensurability, 'intellectual commerce' is feasible. 'The first requirement', he says,

> is that one learn the intensional structure of the alien framework ... Argument and criticism can then be conducted within the other framework in unproblematic fashion. Also, the other speaker can learn one's own framework, therein to perform the analogous critical function. The result is two simultaneous internal evaluations of two comprehensive alternatives competing for our commitment.[81]

Apart from the fact that, if the absolute network theory were true, it would be impossible to learn any conceptual framework (see above), this solution suffers from all the familiar weaknesses. If two frameworks are really incommensurable, how can they be said to be competing alternatives? Why shouldn't we accept both of them? Or neither?

However, the very fact that Churchland embraces the self-contradictory position that two radically incommensurable frameworks or theories may be *competing alternatives*, has devastating consequences for his official semantics. He apparently assumes that we are rational in that we will not simultaneously *accept* both of the competing alternatives. But this implies that learning and understanding the alien framework cannot require that we accept its sentences. In other words, in order to solve the problem of radical incommensurability, it must be assumed that we may understand what a theory means without believing that it is true. Meaning cannot be determined by empirical belief, and Churchland's official semantics must be wrong. Churchland's solution to the problem of radical incommensurability clearly destroys the semantical theory which was the rationale for considering the problem at all.

One might think that Churchland's network theory survives the amputation of the doctrine that meaning is determined by empirical belief. Couldn't we say that the meaning of a word is determined by the set of semantically important sentences (or the *theory*), but drop universal

acceptance in the relevant community as a necessary and sufficient criterion for semantic importance? Couldn't we say that, in order to understand a word, it is sufficient to *imagine* the theory by which it is implicitly defined to be true? Churchland himself already went in this direction when he considered the difficulty that, if the meaning of 'phlogiston' is determined by our accepting the phlogiston theory, we could not *reject* this theory, as we all do.[82]

Although such an amended network view might perhaps avoid the problem of the incommensurability of understanding, it still has to confront a second problem of incommensurability: a problem about the possibility of a *rational choice* between two competing networks or theories. Churchland claims that such a rational choice is possible, even in cases of radical incommensurability. It is made, he says,

> not on the relative happiness of the epistemic relations they [i.e. the two incommensurable and yet 'competing' theories, HP] bear to some specific convictions we both share (a set of observation sentences, for example), for in the radical case at issue we share no such thing. The choice is made rather on grounds of the relative 'internal' virtues of the two alternative frameworks: on their inductive coherence, their explanatory unity, their informational richness, and suchlike (somehow understood).[83]

Unfortunately, this solution too is beset with familiar difficulties. Even if it were possible to formulate network-neutral standards for measuring these internal virtues, couldn't it turn out that, say, the *Tales of the Thousand and one Nights* are more internally virtuous than, say, our theory of photosynthesis? Should we therefore prefer the former to the latter? This absurd question bears out the point that two empirical theories can only be considered as competing theories in relation to one and the same domain of phenomena, so that purely internal virtues will never suffice to justify a rational choice, or even the necessity of choosing.

The idea that two conceptual frameworks are competing does not make sense if we do not presuppose that they may be used to explain and predict phenomena of one and the same domain. And the problem of the incommensurability of testing cannot be solved if it is not possible to evaluate both theories in relation to this same set of phenomena. The real difficulty Churchland has to resolve is this: how might one make sense of the idea of a domain of phenomena common to two incommensurable theories, if one accepts the (amended) absolute network theory, the pragmatic theory of observation, and the strong thesis of the plasticity of perception? Churchland does not confront this difficulty. He typically *assumes* that there is such a common domain, whereas his theories of language and perception *exclude* such an assumption.[84]

In 'Problems of Empiricism', Feyerabend argued that this difficulty can be removed by 'taking the pragmatic theory of observation seriously'.[85] In

one passage, Churchland seems to endorse this claim.[86] The idea is as follows. According to Churchland's and Feyerabend's Copernican revolution in the (Positivist) theory of meaning, the meaning of all sentences, including observation sentences, is wholly determined by the theories to which they are related. As a consequence, two incommensurable theories, T1 and T2, cannot be compared by means of the same set of observation statements. 'Each theory will possess its own experience . . . Clearly, a crucial experiment is now impossible.'[87] However, the pragmatic theory of observation says that one should sharply distinguish between our capacity to apply sentences as observation sentences on the one hand (i.e. 'non-inferentially in response to whatever sensations or sensory states nature happens to have given us'), and our understanding these sentences on the other hand. The first capacity is learnt by stimulus-response training, whereas the second depends on our having acquired a network of beliefs.[88]

On the basis of this conception, the problem of incommensurability is solved as follows. Although two incommensurable theories cannot have a set of *interpreted* observation sentences in common, they might still be compared by reference to the same set of observation sentences considered as *uninterpreted strings of physical phenomena.* As these sentences, *qua* observation sentences, are caused by sensory states of human perceivers, they are on a par with, say, determinate positions of the pointer of a measuring instrument. As such, they are reliable indicators of their physical causes. Experience is now said to 'judge' competing incommensurable theories in the following manner. As long as we regard the observation sentences as part of a theory and, consequently, as meaningful sentences, we might say that they *follow from* the theory in conjunction with statements of initial conditions. Assume that a sentence S is deduced from T1 and that not-S is deduced from T2, given specific initial conditions (formulated in a theory-neutral way?). Of course, it is misleading to symbolize these sentences as 'S' and 'not-S' respectively, for they are radically incommensurable as far as their meaning is concerned. But, so Feyerabend suggests, *as physical tokens* they might be compared with the observation sentences human observers produce, equally considered purely as physical tokens. We then choose the theory which *mimics best* the observation sentences actually produced by observers.

This final attempt of the absolute network theorist to rescue empiricism in spite of incommensurability will, however, be shipwrecked, as many critics have argued.[89] Apart from the usual criticisms, consider the following difficulty. Feyerabend's proposal implies that we should not use observation sentences of observers without doing accurate research into the question of the *causal reliability* of specific observers considered as measuring instruments. In other words, we should investigate empirically whether an observer O always utters an observation sentence p when he is affected by

a stimulus *S*. Now in order to do this, it should be possible to discern, in a theory-neutral way, whether *S* is present to *O*. But this is excluded by the strong thesis of the plasticity of perception. Further, we shall always find that there is *no* simple correlation between *S* being present to *O* and *O*'s uttering *p*, because tokens of a sentence type are used in many different ways (tokens of *p* will have a large variety of uses), and because no observer always utters a sentence on perceiving something. As a consequence, one has to conclude either that no observation sentence is a reliable indicator of the causes of its utterance, or that some but not all tokens of *p* function as an observation sentence. The first conclusion destroys empiricism in theory; the second destroys empiricism in practice. Finally, even if empirical research into the causal reliability of observation sentences were conceivable, we would be entitled to accept the results of the investigators only after having first tested the causal reliability of *their* observation sentences, so that any claim as to the causal reliability of a set of observation sentences S_n would presuppose the reliability of the observation sentences of another set, S_{n+1}. I conclude that, if the absolute network theory were meaningful and correct, communication between scientists would be impossible.

V. A Picture Held Us Captive

In philosophy, *reductio ad absurdum* arguments, although perfectly valid, often remain ineffective. The familiar objections of incommensurability as raised against Feyerabend, Kuhn, and others, have not prevented Churchland from proposing the very doctrines refuted by these objections. This situation is typical for philosophical or metaphysical theories. On the one hand we say: it *cannot* be like that (because of the reductio). But on the other hand we feel that it *must* be like that.[90] To the champion of the absolute network view of language, it seems that this view somehow *must be right.* And this is why simple reductio arguments do not suffice to undermine his conception.

A final clarification of a philosophical doctrine should elucidate the origins of this 'must'. These origins may be multiple and complex. In this section I shall discuss briefly a few points which, among others, are operative in the case of the absolute network theory.

'The real foundations of his enquiry do not strike a man at all. Unless that fact has at some time struck him.'[91]

Within epistemology, network theories of language, whether relative or absolute, seem to follow from the standard criticisms of the Logical Positivist image of science. But they follow only if one sticks to what I have

called the hard core of the Positivist theory of theoretical terms: the idea that theoretical terms are somehow implicitly defined by postulates or sentences of the theory. Feyerabend and Churchland never question, or argue for, this crucial presupposition.

Moreover, Churchland's basic argument in favour of a *radical* network theory (the argument from transposed modalities discussed in section III) turned out to presuppose the representative theory of perception. As soon as this presupposition is made explicit, one will naturally blame the representative theory for the absurdities of a sensationalist semantics and reject this theory, instead of concluding on this basis that the absolute network view is true.[92]

But this logical possibility does not occur to the reader, because Churchland's presentation of the argument conceals *in three ways* the fact that the representative theory of perception is presupposed. First, the crucial distinction between sensationalism and the common-sense view that public samples are used in teaching the meaning of words for perceptible qualities is obfuscated, for Churchland says that we *either* have to accept the absolute network theory *or* have to 'succumb to the common-sense view that the meaning of simple observation terms is given in sensation'.[93] Second, the representative theory is built into Churchland's science fiction story of the transposed modalities. For he stipulated, as we saw, that the way the world 'looks' to the hominoids with temperature-sensitive 'eyes' is determined by 'the intrinsic nature of their visual *sensations*'. The reader who accepts this story as coherent and thinks that Churchland's real argument starts only with his philosophical exploitation of it (as if the story were somehow theory-neutral) has unwittingly swallowed the crucial presupposition.

Finally, the presupposition of the representative theory of perception is *suppressed* by the doctrine it helped to establish, the absolute network view. For, whereas according to the representative theory, the way the world 'looks' (or feels, etc.) is determined by the intrinsic nature of our sensations, the strong thesis of the plasticity of perception implies that what is given in perception is not sensations but the *causes* of these sensations *as posited by some conceptual network*. Accordingly, 'the intrinsic qualitative identity of one's sensations is irrelevant to what properties one can or does perceive the world as displaying . . . Sensations are just causal middle-men in the process of perception . . .'.[94]

Churchland concludes that sensations 'might even be *dispensed* with' in the theory of perception and that 'it would be a mistake to "kick the phenomenal properties inwards"', as the representative theory of perception did.[95] This, I suppose, is why the standard formulation of Churchland's theory of perception includes a disjunctive clause: 'perception consists in the conceptual exploitation of the natural information contained in our sensations *or sensory states*.' As sensations do not determine the way

the world appears to us, they have no other function than sensory or neural states have, and may either be 'dispensed with' or be identified with these states.

But in spite of this repression of the representative theory of perception by the strong plasticity thesis, the latter owes its appearance of intelligibility completely to the former, which survives, as it were, in the dubious disjunctive clause '*sensations or* sensory states'. If, as the representative theory says, the real data of perception consist of sensations 'in the mind', it seems natural to suppose that, when aware of these sensations, we speculate about their causes and *posit* putative causal mechanisms on the basis of some theory. If, however, it is supposed that *nothing* (neither sensations nor, of course, our sensory states) is given in perception *except these putative causes*, it becomes a mystery what induces one to invent speculative theories about the causes of our sensory states in the first place. Admittedly, a young child *learns* to perceive. But it is simply incoherent to claim that learning to perceive is identical with devising speculative theories about the causes of (or, as Churchland says it, the conceptual exploitation of the natural information contained in) our sensory states. For one cannot meaningfully be said to speculate about the causes of something if one is not somehow *aware* of this something.

The Epistemological Point of View

In section IV I argued that, on the absolute network theory, the idea of a linguistic network is a metaphysical notion. If the absolute network theory were correct, we would not be able to discover whether 'Baum' means 'tree' and, in general, we would never be able to learn linguistic networks. I suggested that this difficulty explains why Churchland, in his discussion with Quine, avoids the epistemological question as to how we are able to translate foreign languages into our own. Churchland implicitly adopts the point of view of the omniscient God of Cartesian epistemology, who does not need to engage in empirical research in order to know about translations.

This *elimination of the epistemological point of view* is not an occasional lapse but rather a structural characteristic of Churchland's philosophy. Consider again, for example, Churchland's argument of the transposed modalities. Churchland imagined a race of hominoids whose retinae solely consist of rods sensitive to electromagnetic radiation at some wavelength in the far infra-red. He postulated that, on 'viewing' a very *hot* object, these hominoids would have 'what *we* would describe as a sensation of an incandescent *white* object'. Further, they were supposed to lack any tactile or bodily sense of temperature, and to speak normal English except on two local points (see section III). Churchland then raised the question how we

should translate the hominoid word 'hot' into our English: by 'white' or by 'hot'? Whereas the first translation was said to be sensation-guided, the second was claimed to imply the absolute network theory of language. Churchland finally argued that the sensation-guided translation lands us in an epistemological dilemma and that, therefore, we have to opt for the homophonic translation.

In this argument Churchland clearly assumes that the sensation-guided translation, although it would be incorrect (and in that sense impossible), is still possible in another sense: *we are able to know what it would be* (their 'hot' would be translated by our 'white'). Without this supposition the argument collapses, for without it Churchland could not argue that translating their 'hot' by 'white' would 'land us in an epistemological dilemma'.

However, as soon as we ask the epistemological question as to how we might discover that a sensation-guided translation of their term 'hot' would be 'white', we see that it is impossible to know what a sensation-guided translation would be like. For sensations are 'private objects' in the sense Wittgenstein discussed in his private-language argument. Again we realize that both the story of the hominoids and its philosophical exploitation cannot be told except if one implicitly assumes the point of view of the Cartesian God, who, because of his omniscience, knows about the intrinsic qualities of the sensations of all sentient beings. Needless to say, this is not a possible point of view.

Of course one can agree with Churchland that the sensation-guided translation is 'out'. But not because it leads to unacceptable consequences. One should reject this idea of translation because it is *nonsensical*. Let us imagine how we would go about trying to understand what the hominoids mean when they use 'hot' and 'cold', in case we actually encounter these beings. We would never hit upon the hypothesis that their 'hot' and 'cold' should be translated by 'white' or 'black', or, for that matter, by 'red' and 'green'. It would indeed not be very difficult to find out that the hominoids are colour-blind. By studying their behaviour and asking questions, we could discover that they lack the capacity of colour discrimination, which explains that their 'English' has no colour vocabulary. Also, and again by studying their behaviour, we could find out that they lack any bodily or tactile sense of temperature. When they fall asleep near an open fire and, by accident, put their legs into the flames, they will burn alive like Pinocchio. As a consequence, they will not be able to teach us the meaning of their 'hot' as we do with our 'hot': by touching a hot object and saying: 'Oh, this is very hot, I am burning my fingers!' Yet we might discover that they somehow detect the temperature of objects at a distance by using their 'eyes' and we might infer that they use their 'hot' and 'cold' for what we might call 'seen temperatures'. And when, finally, they have discovered the opposite capacities and incapacities of perceptual discrimination in us,

they might even teach us the use of their 'hot' by some kind of 'ostensive definition': they point (at a distance) to a hot object and tell us to put our hand on it. Then they would say: 'Now you *feel* what I *see*: it is hot.'

What does this amended variety of the argument from the transposed modalities show? First, it shows that the word 'hot' as used by the hominoids is not completely equivalent to our ordinary 'hot'. It has different internal relations. The hominoids, for instance, cannot say 'I feel that it is hot', or 'I am hot' (as an avowal). And what to think of 'This feels hotter than it actually is', 'It is a hot day' or of the hedonic qualities associated with heat and cold, like 'an enjoyable cold shower'? Their 'hot' turns out to be very different indeed from our 'hot'. Clearly there is no *optimal translation* from our English into their 'English'.

Second, it shows that the absurdity of the sensationalist semantics does not at all imply that the absolute network theory is correct. We grasp the hominoids' use of 'hot' by studying their behaviour, by discovering their deviant discriminatory capacities, and by some kind of ostensive learning; not by an unimaginable overall comparison of *their* and *our* linguistic *networks.*

It will seem a mystery how Churchland could think that the absolute network theory of language is the only alternative to a sensationalist semantics until one realizes, as I argued in section III, that he implicitly presupposes the representative theory of perception. For on this theory, words like 'hot' *either* refer to our sensations, which are 'immediately given' in perception, *or* to states of external objects which *cause* these sensations. In the latter case, such words must function as theoretical terms (terms for unobservables), because, on the representative theory, external objects are not 'really perceived'.

Do Concepts Embody the Conditions of their Use?

There is yet a third lesson we might learn from the amended argument of the transposed modalities: that the meaning of observation terms cannot be fully understood by beings who lack the relevant perceptual capacities. As the meaning of these terms is taught, at least in part, by means of samples, someone who cannot perceptually discern the relevant qualities of these samples will not be able to learn the observational uses of the term in question. In other words, it is no wonder that the hominoids, being colour-blind, lack our colour vocabulary.

The absolute network theorist, of course, denies that this is the case. He claims that *any* concept may be used in judgments of observation. Churchland tells us a second story in order to convince us of this (weak) thesis of the plasticity of perception. As his story is not very convincing,[96] I shall leave it aside and briefly discuss Feyerabend's standard proof of the

weak plasticity thesis.[97] It will be shown that his arguments presuppose a common mistake about the relation between conceptual structures and the contingent background conditions (in us or in the world) which enable us to use these structures.

In this proof, which has at least three varieties, Feyerabend wants to show that 'any attempt to postulate a limit to what can be incorporated into the observational notions leads to synthetic a priori principles'.[98] This implies that the empiricist, who rejects the idea of the synthetic a priori, should accept the pragmatic theory of observation, according to which any sentence, even a highly theoretical sentence, may be used in making judgments of observation.

In its shortest version, this proof reads as follows:

> [C]onsider the principles P which guarantee that observational terms can be applied. These principles describe some general features of the world (or of the mind) and are therefore synthetic. On the other hand a theory implying their denial would eliminate its own observational basis, and would therefore be unacceptable. We can say in advance that such a theory must not be formulated – which guarantees the perennial correctness of P. P is synthetic a priori.[99]

If this argument is correct, the synthetic a priori cannot be avoided except by denying that there are such principles P, that is, by rejecting the 'semantic theory of observation'. It seems that we have to accept either the synthetic a priori or the absolute network theory.

From a purely logical point of view, the correctness of Feyerabend's argument depends on the interpretation of the second premiss, which says that a theory implying the denial of P would *eliminate its own observational basis*. This premiss contributes to the conclusion only if 'the elimination of the observational basis' means: to prevent our *using* the observation vocabulary, the background conditions for the application of which are described by P. But how can a theory which implies the denial of P *impede our using* this observation vocabulary? Only if the principles P, which 'guarantee that these observational terms can be applied', are *entailed* by our *use* of these terms. In other words, the argument presupposes that the principles P are somehow *part of the meaning* of the relevant observation terms.

This popular doctrine is, however, erroneous. Admittedly, we would not be able to acquire and use specific conceptual structures if we, or the world, were significantly different. If we had not the capacity to discriminate colours, or if conditions of lighting were always rapidly changing, it would be impossible to learn the use of colour words by means of samples, and the conceptual structure of colour concepts would have no point. But these background conditions for the application of concepts are not *components* of these concepts: we do not *state* these background conditions when we explain the meaning of words. In order to teach someone the meaning of

'red' it is *not* necessary or even helpful to dive into the physiology of vision or the theory of light. The idea that such background conditions are somehow written into our concepts, and that 'red', for instance, *means* 'looks red to a normal observer under normal conditions', is just as absurd as to think that the Newtonian theory of gravity is part of the rules of cricket, tennis or chess. And we would merely pile mistake on mistake by saying that, because such background conditions are part of the rules for using observation terms, all observation terms are theoretical.[100]

Of course a theory implying the denial of P would entail the proposition that humans are not able to use certain terms observationally. But if in fact humans *do* use these terms as observation terms, this proposition is simply (and contingently) false, and the theory implying it is falsified. Instead of saying *in advance* (in the sense of a priori, as Feyerabend must mean) that a theory implying the denial of P may not be formulated, we should say that this is an empirical theory which is falsified by the facts. We reject such a theory not on synthetic a priori, but on synthetic a posteriori grounds.

Feyerabend is right if he merely wants to say that we cannot a priori 'postulate limits to what can be incorporated into observational notions', without taking into account facts about human nature, measuring instruments, and the world. But the fact that we cannot a priori postulate such limits does not mean that there are no such limits, as Feyerabend claims. There are many kinds of factual background conditions for the use of observation terms. Although such conditions typically are not part of the meaning of these terms, we would not be able to learn and use these terms as observation terms if these conditions did not obtain. In other words, the rules of the relevant language-games do as a matter of fact, but do not logically, presuppose these conditions.

How Not to Talk about Meaning

'In the last thirty years, misusing the term "meaning" has been one of the most common, if least successful, ways of "establishing" philosophical propositions', so Putnam wrote, criticizing Feyerabend's absolute network theory in 1965.[101] Most of Putnam's criticisms are relevant to the absolute network theory as defended by Churchland. Under the heading 'how not to talk about meaning', I shall briefly elaborate three further points: the error of essentialism, the related error of descriptivism, and the distorting effects of talking about meaning in terms of 'acceptance' or 'rejection' of *sentences*.

Essentialism in the philosophy of language is the idea that, in spite of all the differences between the various kinds of words and sentences, and between the multifarious ways of using language, language really or fundamentally only functions in one way: there is an essence of language

hidden beneath the appearances, and the philosophy of language should dig it up. The phenomenology of the essentialist error reveals the following typical manifestations of essentialism. The essentialist philosopher usually does not take the trouble to study many concrete and specific uses of language. He already 'knows' what the essence of language is, and argues for his theory about it in an aprioristic manner. He barely understands how anyone can disagree with him about the essence of language, for the essence, once grasped, makes him blind to the multiformity of linguistic facts. Churchland conforms to this pattern, as we saw. His arguments for the absolute network theory are a priori and do not refer to any linguistic research. He significantly exclaims, *apropos* of his thesis that 'folk psychology' is a 'theory', that 'it is so *obviously* a theory that it must be held a major mystery why it has taken until the last half of the twentieth century for philosophers to realize it'.[102] Finally, the essentialist philosopher tends to simplify the positions of his opponents into essentialist theories which are at least as crude as his own. The later Wittgenstein, for instance, who is perhaps best known for his critique of essentialism and who explicitly rejected logical behaviourism, is transformed, in Churchland's hands, into the paradigmatic logical behaviourist.[103]

The essentialist doctrine that all language is theoretical also embodies the descriptivist error. Churchland does not deny that language may have many other functions besides its role in describing, explaining, and predicting. But he argues, using the standard essentialist strategy, that these other functions essentially *depend on* the 'theoretical' function.[104] How could this be otherwise if, as the absolute network theory says, the meaning of all words consists in a set of sentences universally accepted as (part of) a true theory? On Churchland's semantical theory, 'acceptance' of 'sentences' as true must be the basic, if not the only, function of language, for it is this function which creates language as a system of meaningful signs.

We have seen, in section IV, that Churchland could not really maintain the doctrine that meaning is determined by the web of empirical belief. The introduction of qualifications of the crucial concept of semantic importance, like the idea that not only our present acceptance, but also 'past acceptance' or 'the *prospect of future* acceptance' of a theory, might determine the meaning of words,[105] merely masks the necessity of admitting that we may very well understand the meaning of words without accepting a theory expressed in these words.

The *vitium originis* of Churchland's refusal to draw the distinction between meaning (or the rules of language) and empirical belief lies, it seems to me, in his decision to discuss semantics purely in terms of 'sentences' which are either 'accepted' or 'rejected', and in his assumption that the only or at least the fundamental way of *accepting* a sentence is believing it to be true.

As soon as one accepts this jargon, it becomes impossible to formulate the distinction between rules of language or questions of meaning on the one hand, and empirical belief or questions of fact on the other, a distinction without which the notion of meaning loses its sense. First, one will misrepresent the distinction between rules of language and empirical beliefs expressed in this language as a distinction between two *types of sentences*, 'analytic' and 'synthetic' sentences. One thus overlooks the fact that tokens of a sentence type may be used in different ways (to express a rule or to express a belief, for instance). One then correctly observes that there are virtually no *sentences* which are 'essentially' analytic. The sentence 'A whale is a giant fish', for instance, even if it once expressed an analytic truth, is now considered to be synthetic and false. And because such re-evaluations of sentences are made on empirical grounds, one concludes that all sentences have empirical import and that to accept a sentence is equivalent to accepting an empirical belief.[106]

The following story may serve to refute this doctrine. Imagine a primitive society where land is privately owned and the inhabitants each use their feet as units for measuring the plots they buy or sell. Prices are then calculated on the basis of a fixed sum per square foot. As some have large and others small feet, this measuring system is bound to provoke serious quarrels. Because land is crucial for surviving, such quarrels tend to be fierce. After one of these conflicts, in which many people were killed, the king, who was a wise man, decided once and for all to put an end to disputes about prices and land ownership. He ordered the royal jeweller to cut a bar having the same length as his right foot from a very big diamond belonging to the regalia. Then a stately ceremony was organized, in which each citizen had to say, with his hand on the Holy Book and pointing to the diamond bar: 'This is one foot long.' Having solemnly *accepted* this *sentence*, they all received a measuring stick just as long as the diamond bar, which they henceforth had to use in measuring length. From that time onwards, peace reigned in this primitive society.

Now what are the relations between meaning and belief in this example? Clearly, when during the ceremony the citizens accepted the sentence 'this is one foot long', doing that was not and could not be equivalent to accepting an empirical belief. Rather, it amounted to accepting a *rule of language* for the future use of the word 'foot' in measuring contexts. Admittedly, this new convention was motivated by empirical reasons, especially by the fact that peoples' feet do not all have the same length. But, in contradistinction to what Churchland claims, having empirical reasons for 'accepting a sentence' does not always imply that accepting this sentence amounts to accepting an empirical belief. Also it is a mistake to think that empirical belief is somehow necessarily more fundamental than other ways of 'accepting sentences'. For in order to use the sentence 'this is one foot long' as

the expression of an empirical proposition, one has *first* to accept the conventional unit of measurement.[107]

The Nature of Philosophy

Scientific realism or neo-Kantian idealism? That is the main question for someone who wants to understand Churchland's philosophical position. To complete my analysis, I shall argue that his philosophy is essentially both. It resembles, in this respect, the famous duck-rabbit drawing, which became the pernicious paradigm of knowledge for so many post-positivist philosophers of science. Churchland's philosophy is like this picture in that it admits of two mutually incompatible interpretations. It differs from the picture, however, because neither of these interpretations is a coherent philosophical view. Jacobi once criticized Kant, saying that without the presupposition of realism one could not enter his transcendental philosophy whereas, with this presupposition, one could not remain in it.[108] We shall see that the same paradox haunts the absolute network theory of language and the strong thesis of the plasticity of perception.

At the end of section III I sketched how Churchland, on the philosophical basis of the absolute network theory and its corollaries, preached a radical cultural revolution in a scientistic spirit. The theoretical language of the sciences was to replace ordinary language, 'even at the perceptual level'.

It goes without saying that this revolution would deeply affect philosophy. Philosophy, especially epistemology, was to be *naturalized.* Churchland pleads, more specifically, for a new kind of science of epistemic engines, which abandons the tradition of 'sentential epistemologies'. This plea fits in with Churchland's eliminative materialism. As long as the epistemologist tries to analyse the problems of rationality and knowledge in terms of 'sentences' and 'theories' which we 'accept' or 'reject', he remains squarely within the framework of our common-sense conception of psychological phenomena (folk psychology, or 'the P-theory of humans'). This conception, however, is 'radically false', if we are to believe Churchland. As a consequence, the epistemological problems we have 'will not be solved short of an intellectual revolution in our conception of ourselves as intellectual beings'.[109]

On this point a first paradox emerges. We saw that Churchland's eliminative materialism presupposes the absolute network view of language (section III). This semantical theory is formulated in terms of 'acceptance' of 'sentences'. As a consequence, it squarely belongs to folk psychology or folk semantics. But if eliminative materialism is correct, folk psychology is radically false and should therefore be rejected. Thus, if Churchland's eliminative materialism is true, his semantics is false. And if his semantics

is false, eliminative materialism is nonsensical. In short, eliminative materialism, if true, is nonsensical.[110]

Perhaps in order to avoid such an objection, Churchland moderates his position. He does not argue, as his eliminative materialism seems to require, that epistemology should *completely* abandon the sentential model. Rather, he says epistemologists should appreciate that linguistic structures will play a *relatively peripheral* role in fundamental epistemology. Now, if one defines epistemology as the natural science of knowing organisms, I think that no one will contest this claim. Yet it has to be reconciled with the strong plasticity thesis, which says that linguistic structures are epistemically fundamental because they *determine what a knowing subject will perceive.* Churchland tries to carry out this project of reconciliation by giving a sketch of the 'role that the institution of language does play in a society of epistemic engines like ourselves'.[111] From what he says, the following picture emerges.

The sensory periphery of the human nervous system is at any given time in receipt of gigantic amounts of information. Any momentary state of the human visual system, for instance, contains about 300 million binary bits of information (in the technical sense of information theory). These state-configurations have causal consequences, from the sensory periphery inwards along the pathways of the central nervous system and into the hierarchical labyrinth of the brain. By means of these causal processes the initial information is filtered, interpolated, integrated – over time as well as over other dimensions – refiltered, reintegrated and refiltered again and again. Although we barely understand these processes, Churchland deems it 'safe to say that the brain has abstracted quite ruthlessly from the sea of information in its peripheral state-configurations when it arrives at an internal state that would be expressed by an English sentence such as "There is a fly in my soup"'.[112] Human language, so he says, clearly is 'a device for exchanging, among individual information-processors, information at a very high level of abstraction relative to the actual state-configurations, both past and present, of the sensory peripheries of the speaker and hearer'.[113]

There are at least two problems with these quotations. The first difficulty is one of intelligibility. Churchland seems to conflate two senses of the word 'information'. When we say that we use language to exchange information, the term 'information' has its ordinary sense of *things we know.* We have information when we know something, and we couldn't exchange this information if we didn't have the relevant knowledge. This sense of 'information' is very different from that in which the word is used in information theory, where the amount of information is measured in binary bits and 'containing information' is to be in a certain *state.* In yet another sense, the stem of a tree *contains information* about its age, but it doesn't *know* anything. 'To have information' is not a synonym of 'to contain

information', and 'the information contained in our brain' is not conceptually identical with the information which we have and which we may exchange by means of language. Consequently, there is a categorial gap between what Churchland says about the information processing in our brain and his statement that language is a device for exchanging information. Churchland's confused use of the slippery key-term 'information' conceals this gap and thereby obliterates the philosophical difficulties in his account.

Second, Churchland's picture, as far as I have rendered it, falls drastically short of accomplishing his reconciling project. Whereas, according to the strong thesis of the plasticity of perception, linguistic structures *determine* what kinds of objects an epistemic engine will be able to perceive, the picture suggests that language merely serves to *communicate* information we have already acquired, for instance by perception.[114] This suggestion, however, is corrected by the following passage, which brings us to the heart of the matter:

> To acquire a specific language is, among other things, to learn to process peripheral information into the categories that language provides. The causal processes initiated at the periphery come to terminate in the utterance of specific sentences within that language, or if not in overt utterances, then in covert states involving dispositions to assent to them. To acquire a specific language then is indeed to come to share in a specific view of reality. The informational matrix the language embodies comes to shape the processing of peripheral information 'from the top down', as it were, and by this means all who learn it are acculturated into a common view of the general nature of reality and of the possible configurations it may here and there assume.[115]

Although this passage, as usual, equivocates between the strong and the weak thesis of the plasticity of perception – Churchland only mentions observation *sentences*, and expressions like 'view of reality' are systematically ambiguous – I assume that the doctrine that the informational matrix of a language shapes the peripheral information from the top down is nothing but the strong plasticity thesis. If linguistic structures shape the processing of information from the sense organs, these structures will determine what *kinds* of objects we will be able to *perceive*. No wonder, then, that Churchland again comes to speak of the problem of incommensurability. And what he says is a complete revision of his earlier 'solution'.

This earlier solution was squarely formulated in terms of the tradition of sentential epistemology which Churchland now rejects. Churchland said that, as there is no fixed or neutral class of observation judgments, we can only effect a rational choice between two global theoretical alternatives 'on grounds of the relative "internal" virtues of the two alternative frameworks: on their inductive coherence, their explanatory unity, their informational richness, and such-like (somehow understood)'.[116]

Against the background of the absolute network theory, this 'somehow understood' sounds ominous. Churchland now indeed argues that the absolute network theory *excludes* any theory-neutral understanding of notions like inductive coherence, explanatory unity, or informational richness. The propositions of formal logic, for instance, are said to be continuous with propositions of any other sort, so that they 'cannot provide the fundamental constraints on what does and what does not constitute rational intellectual activity'.[117]

At this point, Churchland's argument takes a surprising turn. He does not conclude, as we would do, that the problem of incommensurability cannot be solved on the basis of the absolute network theory of language and that, therefore, one has to reject this theory. He rather assumes that there *must* be a solution to the problem and jumps to the conclusion that this solution must lie *on a deeper level than the level of language*: 'If we are ever to understand what virtuous intellectual activity consists in, we must try to penetrate to that deeper intellectual kinematics of which our manipulation of sentences is just the occasional and superficial reflection.'[118] In other words, naturalistic epistemology will eventually be able to solve the problem of incommensurability if only it radically abandons the tradition of *sentential* epistemology.

This prospect of a future, post-sentential solution to the problem of incommensurability is surely surprising. How can such a post-sentential solution be relevant to a problem which is essentially a problem *within* the tradition of sentential epistemology? This difficulty, however, is but a symptom of a deeper paradox within Churchland's position. I am referring to the basic paradox of Kantian epistemology which Jacobi once noticed.

On the one hand, we have now seen, Churchland's absolute network theory is dependent on a naturalistic view of ourselves as epistemic engines. The thesis that linguistic networks determine what a human epistemic engine will perceive is only intelligible if we presuppose that 'the sensory periphery of the human nervous system is in receipt of perfectly ridiculous amounts of information', and that the 'informational matrix a language embodies comes to shape the processing of peripheral information "from the top down"'.[119] Similarly, Kant's idea that the synthetic a priori elements of our knowledge determine what we perceive presupposed that these elements operate upon *sensations (Empfindungen)* which result from stimulation of our sense organs. Churchland's naturalism or realism is, of course, formulated in terms of modern science and not in the old-fashioned metaphysical jargon of the *Ding-an-sich*. Without this scientific realism, we could not come into Churchland's philosophical system (just as, without some kind of realism concerning the *Ding-an-sich*, Kant's notion of a sensation would be unintelligible).

However, naturalistic epistemology, although it is presupposed by the

absolute network theory and its corollaries, studies the human epistemic engine only 'from the outside'. As soon as we realize that *we are identical with such an epistemic engine*, disturbing questions are bound to arise. If what we perceive and what we, on the basis of perception, think to be true, is a *function of a linguistic network*, does this not hold also for the naturalistic picture of the world and of ourselves as epistemic engines? And if different networks are incommensurable, is naturalism or scientific realism then not just an arbitrary choice? Might we not equally use completely different conceptual frameworks in our perceptual mechanism?

Certainly, Churchland holds out the hope that this problem of incommensurability will be solved by a future naturalistic science of epistemic engines. But doesn't this hope beg the question, apart from the fact that it is, if intelligible at all, *nothing but* a hope? For it *presupposes* the correctness of the scientific view of ourselves as epistemic engines, whereas the correctness of this view is the very issue at stake.

I conclude that Churchland's naturalism or scientific realism collapses into a 'neo-Kantian' transcendental idealism, which says that reality as we perceive it is a product of the conceptual structures we adopt. But this variety of transcendental idealism is not a stable philosophical position either, as we saw. It essentially presupposes Churchland's naturalism. For it says that we use conceptual networks in 'exploiting the natural information contained in our sensations or sensory states'. Without the naturalistic presupposition, the absolute network theory and its corollaries would amount to the doctrine that I create the universe *ex nihilo*. In short, without naturalism or scientific realism we could not enter the absolute network theory and its corollaries. But as soon as we have adopted this position, we have to reject scientific naturalism as being but one arbitrary choice among many others.

We now understand how it is possible that Feyerabend and Churchland, although they both endorse the absolute network theory and its corollaries, could draw such widely different conclusions from this philosophical basis. Churchland dogmatically abides by scientific realism. Feyerabend, on the other hand, has opted for what he calls democratic relativism.[120] Both Churchland and Feyerabend overlook the fact that their *Weltanschauung* expresses only one ephemeral aspect of an essentially unstable philosophical hybrid, the absolute network theory of language.

NOTES

The following abbreviations are used to refer to Churchland's main works, listed in alphabetical order:

CPNK 'Conceptual Progress and Word/World Relations: In Search of the Essence of Natural Kinds', *Canadian Journal of Philosophy* 15 (1985), pp. 1–17.

CPS 'The Continuity of Philosophy and the Sciences', *Mind and Language* 1 (1986), pp. 5–14.
EMPA 'Eliminative Materialism and the Propositional Attitudes', *The Journal of Philosophy* LXXVIII (1981), pp. 67–90.
FQI 'Functionalism, Qualia and Intentionality' (with Patricia Smith Churchland), *Philosophical Topics* 12 (1981), pp. 121–45.
HPS 'How Parapsychology Could Become a Science', *Inquiry* 30 (1987), pp. 227–39.
LCAE 'The Logical Character of Action Explanations', *Philosophical Review* LXXIX (1970), pp. 214–36.
MC *Matter and Consciousness. A Contemporary Introduction to the Philosophy of Mind.* (Cambridge, Mass: MIT Press, 1984). (The second edition of MC appeared in 1988, after this paper was written.)
OSO 'The Ontological Status of Observables: In Praise of the Superempirical Virtues'. In *Images of Science: Essays on Realism and Empiricism, with a Reply from Bas C. van Fraassen*, ed. by Paul M. Churchland and Clifford A. Hooker (Chicago: University of Chicago Press, 1985).
PPTN 'Perceptual Plasticity and Theoretical Neutrality: A Reply to Jerry Fodor', *Philosophy of Science* 55 (1988), pp. 167–87 (cf. Fodor's 'Reply', ibid., pp. 188–98).
RQ 'Reduction, Qualia, and the Direct Introspection of Brain States', *The Journal of Philosophy* LXXXII (1985), pp. 8–28.
RS 'Some Reductive Strategies in Cognitive Neurobiology', *Mind* XCV (1986), pp. 279–309.
SRPM *Scientific Realism and the Plasticity of Mind* (Cambridge: Cambridge University Press, 1979).
SWEE 'Stalking the Wild Epistemic Engine' (with Patricia Smith Churchland), *Noûs* 17 (1983), pp. 5–18.
TGEB 'Two Grades of Evidential Bias', *Philosophy of Science* 42 (1975), pp. 250–9.
TNK 'Is Thinker a Natural Kind', *Dialogue* 21 (1982), pp. 223–38.

See for other papers the bibliography in Patricia Smith Churchland, *Neurophilosophy: Toward a Unified Science of the Mind-Brain* (Cambridge, Mass.: MIT Press, 1986).

References to Feyerabend's works are mainly to 'Problems of Empiricism' (abbreviated: PE), in R. G. Colodny (ed.), *Beyond the Edge of Certainty*, Englewood Cliffs, N.J.: Prentice-Hall, (1965), and to the papers collected in the two volumes of Feyerabend's *Philosophical Papers* (Cambridge: Cambridge University Press, 1981) (abbreviation: PP).

1 Several friends, students and colleagues generously read and commented upon drafts of this paper. I am especially indebted to Dr P. M. S. Hacker (St. John's College, Oxford), Dr M. Ayers (Wadham College, Oxford), Dr Th. C. Meijering, Drs J. J. M. Sleutels and Th. C. W. Oudemans (Leiden University), Prof. Dr G. Lock (University of Nijmegen), Dr B. Smith (University of Manchester and Lichtenstein), and to my former assistant, Dr. M. Lievers.

2 Wittgenstein, *Philosophical Investigations* (Oxford: Blackwell, 1958), 1, §115. Cf. J. L. Austin, 'The Meaning of a Word', *Philosophical Papers*, 2nd ed. (Oxford: Clarendon Press, 1970). For Wittgenstein's later conception of philosophy, see P. M. S. Hacker, *Insight and Illusion* (rev. ed.), (Oxford: Clarendon Press, 1986), ch. VI, and G. P. Baker and P. M. S. Hacker, *Wittgenstein, Meaning and Understanding* (Oxford: Blackwell, 1983), ch. XIII.

3 Cf. *Word and Object*, §§ 8–10; 'Two Dogmas of Empiricism' (in *From a Logical Point of View* [Cambridge, Mass.: Harvard University Press, 1953]), §6; 'Epistemology Naturalized' (in *Ontological Relativity and Other Essays* [New York: Columbia University Press, 1969]), esp. pp. 85–90, and *The Roots of Reference* (La Salle, Illinois: Open Court, 1974), §§ 1, 9, 10 and 11. One might object that other passages may be found in Quine's works in which Quine seems to flirt with the *absolute* network theory of language. How to differentiate, for instance, between a *semantic* and a purely *causal* account of observation sentences (see below in the text), if one analyses language from a behav-

iouristic, that is, from a *causal* point of view? However, the problem of the inner consistency of Quine's philosophy of language has no relevance to my argument.

4 Churchland, SRPM, pp. 1–2 and *passim*. Cf. for Churchland's holism: SRPM, pp. 61 and 76. Cf. also Feyerabend, PE, p. 180 ('After all, the meaning of every term we use depends upon the theoretical context in which it occurs . . .'), pp. 202–10, and PP, vol. I, p. x ('observations [observation terms] are not merely theory-*laden* but *fully theoretical*'). Cf. also Kuhn and others.

5 Feyerabend, PP, vol. I, p. x.

6 Churchland, SRPM, p. 15, with reference to Feyerabend, 'Science without Experience', PP, vol. I, ch. 7. Rorty, on page 184 of *Philosophy & the Mirror of Nature* (Oxford: Blackwell 1980), endorses the causal theory of observation and the weak plasticity thesis, whereas he rejects the strong thesis of the plasticity of perception (p. 185; cf. for these notions below in the text). But his story of the Antipodeans (pp. 70 ff.) presupposes the strong thesis of the plasticity of perception, whereas Rorty on page 324 subscribes to the idea of a neutral observation language in order to protect his internal realism against the objection of incommensurability. Rorty just changes position in function of the opponent he deals with, and his acceptance of a neutral observation language undermines his rejection of traditional empiricism.

7 SRPM, p. 2.

8 Feyerabend, PE, p. 198. Cf. pp. 160, 212 ff., 258–9. Cf. also PP, vol. I, pp. 17–36, 50–54, 93 and 125.

9 SRPM, pp. 13–14.

10 SRPM, pp. 70–74. Cf. also CPNK.

11 As J. R. Brown says in his review of SRPM in the *International Philosophical Quarterly* 23 (1983), p. 226: 'Indeed, his chapter on *the plasticity of perception* makes out the case for the theory-ladenness of observation so well that it will be very difficult for any reader to resist.'

12 I am supposing here, for the sake of argument, that these sentences, when we utter them, express a true proposition.

13 Essentially the same thought is expressed in the famous passage in Kuhn's 'Postscript', where he says: '. . . two groups, the members of which have systematically different sensations on receipt of the same stimuli, do in *some sense* live in different worlds. We posit the existence of stimuli to explain our perceptions of the world, and we posit their immutability to avoid both individual and social solipsism. About neither posit have I the slightest reservation. But our world is populated in the first instance not by stimuli but by the objects of our sensations, and these need not be the same, individual to individual or group to group. To the extent, of course, that individuals belong to the same group and thus share education, language, experience, and culture, we have good reason to suppose that their sensations are the same . . . They must see things, process stimuli, in much the same ways' (*The Structure of Scientific Revolutions* [Chicago: University of Chicago Press, 2nd ed. 1970] p. 193). Clearly, Kuhn assumes that *what objects we will perceive* on having specific stimuli depends on our 'education, language, experience and culture', so that perception is a function of meaning.

14 SRPM, p. 7. Cf. pp. 15, 24–25, 39–40, §13 and §16.

15 SRPM, p. 7. In this paper I am not concerned with Churchland's (or Feyerabend's) clever use of *rhetoric*. Yet it should be stressed that Churchland's failure to distinguish between the two mutually incompatible positions of the weak and the strong thesis of the plasticity of perception is a powerful rhetorical device. For both these theses are implausible, but they are implausible on different points (the weak thesis is implausible as a thesis concerning observation *sentences*, as I argued in the text, whereas the strong thesis is incorrect and refuted by psychological research on *perception*; cf. note 4). This is why it is so profitable to use ambiguous phrases which may express either the weak or the strong plasticity thesis. For as soon as the reader is about to conclude, from the weak thesis, that according to the absolute network theorist observation sentences are not necessarily used to describe what we perceive, the author will seem to affirm the strong thesis, according to which they *are* so used. And as soon as the reader is ready to infer, from the strong thesis, that he might, without microscope or mirror, literally *see* or otherwise *perceive* the microstructure of his own retinae, simply by learning about the physiology

of the eye (i.e. by acquiring the relevant theoretical network), the author will seem to reject such an absurdity because he is talking not about perception but about perceptual *judgments* only. Churchland successfully uses various formulae in this amusing game, such as 'The function of science, therefore, is to provide us with a superior and (in the long run) perhaps profoundly different conception of the world, *even at the perceptual level*' (SRPM, p. 2); 'Past and present science provide us with a variety of alternative conceptions of this or that familiar perceptual domain, and the displacement, *at the level of spontaneous perception*, of some of our current *conceptions* is readily imagined in considerable detail' (SRPM, p. 4; italics mine); 'In large measure we *learn*, from others, to perceive the world as everyone else perceives it' (SRPM, p. 7); '. . . we may examine with profit the possibility that perception might take place within the matrix of a different and more powerful conceptual framework' (SRPM, p. 7). Cf. also PPTN, where Churchland seems to take refuge in the weak plasticity position (pp. 178–9 and 184–5). This is correctly criticized by Fodor in his 'Reply' (pp. 195–6).

16 There is yet another, related, difference between Churchland's and Kant's metaphysics of experience. Whereas, according to Kant, *only a few* concepts are 'constitutive' of the phenomenal world (the 'pure' concepts like causality), Churchland has to endorse the view that *all* concepts are constitutive. As a consequence, there is no room in Churchland's theory of perception for the notion of the 'matter' of the phenomenal world. In other words, it is not clear, in his theory, *what* might be 'organized' by the constituting concepts (in spite of Churchland's free use of the magical expression 'information-processing'. See sect. V, pp. 39–43). Finally, Kant held that science is concerned with the *phenomenal* world, whereas in Churchland's view science aims at giving a true account of the world *an sich*. If ever we come to 'embody' such a true account as 'interpretation functions' in our perceptive mechanism, the 'subjective intentionalities' of our sensations will match the 'objective intentionalities', and the distinction between the phenomenal world and the noumenal world will be nullified (cf. SRPM, §3). This last difference between Churchland and Kant equally follows from Churchland's (holistic) assumption that *all* our concepts are constitutive of what we perceive: this asumption does not admit of a stable and final distinction between the phenomenal and the noumenal. But as Churchland's neo-Kantianism excludes any direct way of comparing our subjective intentionalities with the objective intentionalities, truth is bound to become a transcendent notion, and Churchland's theory is beset with difficulties similar to the famous problem of the *Ding-an-sich*.

17 Cf. for the idea that we 'embody' or 'model' a set of 'interpretation functions', Churchland's argument from measuring instruments, SRPM, §5.

18 Cf. Wilfrid Sellars, 'Philosophy and the Scientific Image of Man', in *Science, Perception, and Reality* (London: Routledge & Kegan Paul, 1963), 'Scientific Realism or Irenic Instrumentalism', in R. Cohen and M. Wartowski (eds.), *Boston Studies in the Philosophy of Science*, vol. II (1965), and 'Science, Sense Impressions, and Sensa: a Reply to Cornman', *Review of Metaphysics* XXIV (1971), pp. 391–447.

19 Cf., e.g., Descartes, *Regulae* XII, *Le Monde*, ch. V, and *La Dioptrique*, first discourse.

20 This argument for the incompatibility between science and common sense is also fundamental to Sellars's position. Cf., e.g., 'Philosophy and the Scientific Image of Man', *Science, Perception, and Reality*, op. cit., esp. pp. 26–27 and 34–35.

21 Hume epitomized a century of philosophy of perception when he wrote in the *Treatise*: 'We may observe, that 'tis universally allow'd by philosophers, and is besides pretty obvious of itself, that nothing is every really present with the mind but its perceptions or impressions and ideas, and that external objects become known to us only by those perceptions they occasion' (*Treatise*, I.II.vi). And reconstructing (that is, distorting) common sense within the framework of this representative theory of perception, he claims that the persons who are 'the unthinking and unphilosophical part of mankind . . . suppose their perceptions to be their only objects, and never think of a double existence internal and external, representing and represented' (*Treatise* I.IV.ii).

22 The expression 'the sensory core' is introduced by Gary C. Hatfield and William Epstein in 'The Sensory Core and the Foundations of Early Modern Perceptual Theory', *Isis* 70 (1979), pp. 363–84.

23 Bertrand Russell, *An Inquiry into Meaning and Truth* (Harmondsworth: Penguin Books, 1962), p. 13.
24 Cf., again Russell, op. cit., passages like the following: 'Unsophisticated common sense supposes that the book, just as it appears when seen, is there all the time. This we know to be false. The book which can exist unseen must, if it exists, be the sort of thing that physics says it is, which is quite unlike what we see. What we more or less know is that, if we fulfil certain conditions, we shall see the book. We believe that the causes of this experience lie only partly within ourselves; the causes external to ourselves are what lead us to belief in the book. This requires belief in a kind of cause which completely and essentially transcends experience. What is the argument in favour of causes of this kind?' (p. 221; cf. ch. 21).
25 SRPM, §2. Churchland's argument here is logically presupposed by his further arguments. In order to see this, cf. SRPM, pp. 21–22 (the phrase 'for we saw in §2 that the meaning of common observation terms like "hot" and "cold" is determined by the cluster of beliefs and assumptions in which they figure'). Cf. also TGEB.
26 SRPM, p. 9.
27 SRPM, pp. 9–10 (first italics mine).
28 SRPM, p. 10.
29 SRPM, p. 11.
30 SRPM, pp. 11–12.
31 SRPM, p. 15. Cf. RQ.
32 SRPM, §§3–5.
33 SRPM, p. 9.
34 SRPM, pp. 9–10.
35 One might object that there is nothing wrong with Churchland's argument, because in a *reductio ad absurdum* argument one *always* makes an assumption which one is going to reject. But this objection is beside the point. The problem is not that Churchland first supposes sensationalist semantics to be correct in order to reject it by means of a reductio. The reductio is but one step in a *disjunctive syllogism* (either sensationalist semantics is true or the absolute network theory is true; sensationalist semantics is false; therefore the absolute network theory is true). My criticism is concerned with this disjunctive syllogism as a whole. I am arguing that the syllogism itself presupposes the representative theory of perception, because the disjunctive syllogism will seem to exhaust all possible semantical views only to someone who is under the spell of the representative theory. And if the syllogism presupposes the representative theory, this holds also for its conclusion, the absolute network theory of language. Furthermore, if the absolute network theory implies (via the strong thesis of the plasticity of perception) that the representative theory of perception must be false, the network theory implies its own negation.
36 SRPM, p. 2. Cf. SRPM, pp. 13–14, 21–25, 37–45; cf. also EMPA, pp. 68–72; FQI, pp. 126–7; LCAE, pp. 125–6; RQ, pp. 14–17, and the review of Joseph Margolis's *Persons and Minds, Dialogue* 19 (1980), pp. 467–9.
37 Patricia Smith Churchland, 'Replies to Comments', *Inquiry* 29 (1986), p. 254.
38 SRPM, p. 44.
39 EMPA, pp. 75 and 76.
40 SRPM, p. 35. Does Churchland really think that neolithic men spoke American English?
41 SRPM, p. 2. Cf. pp. 24, 34–35, and 43.
42 See RS.
43 EMPA, p. 67. Cf. SRPM, pp. 114–20 and MC, pp. 43–49.
44 Cf. Alan H. Goldman, 'Epistemic Foundationalism and the Replaceability of Observation Language', *Journal of Philosophy* 79 (1982), esp. pp. 145–52. Goldman refers to Eleanor Gibson, *Principles of Perceptual Learning and Development* (New York: Meredith, 1969). pp. 64–73, 154–60. See also J. Fodor, 'Observation Reconsidered', *Philosophy of Science* 51 (1984), pp. 23–43, and Churchland, PPTN, with Fodor's reply. Cf. for other relevant psychological research: B. Berlin & P. Kay, *Basic Colour Terms: Their Universality and Evolution* (Berkeley: University of California Press, 1969); E. R. Heider, 'Universals in Colour Naming and Memory', *Journal of Experimental Psychology* 93 (1972), pp. 10–20; E. H. Lenneberg, *Biological Foundations of Language* (New York, 1967); E. Rosch, 'On

the Internal Structure of Perceptual and Semantic Categories', in T. Moore (ed.), *Cognitive Development and the Acquisition of Language* (New York, 1973); R. L. De Valois & G. H. Jacobs, 'Primate Colour Vision', *Science* 162 (1968), pp. 533–40. One finds a summary of this material in E. Rosch, 'Linguistic Relativity', in P. N. Johnson-Laird and P. C. Wason, *Thinking: Readings in Cognitive Science* (Cambridge: Cambridge University Press, 1977), esp. pp. 509–19. One will find some more recent material in I. Rock, 'Perception and Knowledge', *Acta Psychologica* 59 (1985), pp. 3–22.

45 SRPM, pp. 100–7, and EMPA. The latter claim is contested by Van Fraassen in his review of SRPM, *Canadian Journal of Philosophy* 11 (1981), pp. 556–60.

46 MC, p. 45.

47 C. P. Snow, *The Two Cultures and A Second Look* (Cambridge: Cambridge University Press, 1969). Cf. H. Philipse, *Wijsbegeerte tussen twee culturen* (Leiden: Brill, 1986).

48 Cf. SRPM, §5.

49 SRPM, p. 35. Churchland's use of the expression 'at home' in advertising a *scientistic* philosophy is not without humour. Was it not the development of science from the seventeenth century onwards that aroused feelings of 'homelessness' in a world which 'is not made for man'? Such feelings inspired a great deal of antiscientific metaphysics, from the German Romantic Movement to the work of modern philosophers like Heidegger. 'Philosophy is really homesickness', wrote Novalis, and many philosophers have somehow felt that science and technology endanger our 'home'. Cf. John Passmore, *Science and its Critics* (London: Duckworth, 1978), who quotes Novalis as quoted by Lukács (p. 12).

50 See note 4.

51 For instance by Geoffrey Madell, 'Neurophilosophy: A Principled Sceptic's Response', *Inquiry* 29 (1985), pp. 164–8; William S. Robinson, 'Towards Eliminating Churchland's Eliminationism', *Philosophical Topics* 13 (1985), pp. 61–68; K. V. Wilkes, 'Pragmatics in Science and Theory in Common Sense', *Inquiry* 27 (1984), pp. 339–61; K. V. Wilkes, 'Nemo Psychologus nisi Physiologus', *Inquiry* 29 (1985), pp. 169–72 (cf. Patricia Smith Churchland's reply on pp. 252–5). Cf. also Bas C. van Fraassen, *The Scientific Image* (Oxford: Clarendon Press, 1980), pp. 13–19.

52 Cf. SRPM, p. 1: 'The premiss on which the older approach is based – that there is indeed a genuine distinction between the theoretical and the non-theoretical – appears to be false.' But if *this* is the case, the claim that all language is *theoretical* will seem to be void of sense.

53 J. L. Austin, *Sense and Sensibilia* (Oxford: Clarendon Press, 1962), p. 5.

54 SRPM, §7.

55 SRPM, p. 47.

56 SRPM, p. 69.

57 Churchland uses the notions of truth and falsity not only in relation to statements or sentences, but also in relation to conceptual networks or 'theories' as a whole (cf. SRPM, pp. 5, 19, 23, 24, 47–48, 83, 84, and 86–88; cf. RQ, p. 9 and CPNK, p. 3). This latter notion of truth is not unproblematic. The absolute network theory implies, for instance, that '*whether or not the world instantiates* . . . our ordinary observation predicates . . . *is in the first instance a question of whether the theory which embeds them is true*'. This question, so Churchland claims, 'is primarily a matter of the relative power and adequacy of the theory . . .' (SRPM, p. 24). In other words, according to Churchland's scientific realism, 'Excellence of theory emerges as the fundamental measure of all ontology' (SRPM, p. 2). The following dilemma arises concerning this notion of the truth or falsity of theories: either the truth of a theory is *completely* 'a matter of the relative power and adequacy of the theory as a means of rendering the world intelligible' (SRPM, p. 24), then *truth* becomes a *gradual* notion and the way Churchland naïvely uses the expressions 'true' and 'false' is illegitimate. Or truth and falsity are *not* purely a matter of the relative power and adequacy of the theory, but depend on the question whether the 'subjective intentionalities' of our theory match the 'objective intentionalities' of our sensations (that is, whether the theoretical entities which we *posit* in order to account for our perceptions *really cause* these perceptions). However, if what we perceive is a function of theoretical networks, as the strong thesis of the plasticity of perception says, this latter notion of truth is *transcendent*: we humans will never be able to know whether our theories are

true or false in this sense (cf. Hilary Putnam, 'Three Kinds of Scientific Realism', *Philosophical Quarterly* 32 [1982], pp. 197–8). Because of Churchland's holism, this dilemma also undermines the notions of truth and falsity as applied to statements or sentences ('If we were thus unable to speak of the set of all true sentences, what sense could we make of truth sentence by sentence?' [OSO, p. 46]). Now it will certainly not do to evade this conceptual problem inherent in the absolute network theory by claiming that the notion of truth is suspect anyhow because it belongs to 'folk semantics' (OSO, p. 46: 'The notion of "truth", after all, is but the central element in a clutch of descriptive and normative *theories* [folk psychology, folk epistemology, folk semantics, classical logic], and we can expect conceptual progress here as appropriately as anywhere else'). For, if so, Churchland's philosophical position as a whole also belongs to folk semantics and folk epistemology. Churchland's philosophy, in other words, may be characterized as 'scepticism in the strict sense' (cf. E. Husserl, *Logische Untersuchungen* [Halle: Niemeyer, 1900], I, §32). For it is expressed in terms which, if the position were correct, would lack any coherent meaning. Cf. for similar objections of scepticism: E. W. Cooper, 'Four Anti-Materialist Propositions', *The Philosophical Forum* XI (1980), p. 104; N. Everitt, 'A Problem for the Eliminative Materialist', *Mind* XC (1981), pp. 428–34; G. Madell, 'Neurophilosophy: A Principled Sceptic's Response', *Inquiry* 29 (1987), pp. 167–8; R. A. Sharpe, review of SRPM, *Philosophical Quarterly* 30 (1980), pp. 268–9; and R. G. Swinburne, review of SRPM, *Philosophy* 55 (1980), pp. 273–5.

58 Cf. MC, pp. 56 and 79–80.
59 SRPM, p. 52. Cf. pp. 53, 54, 55, 56, 61, 66, 67, 75, and 76.
60 SRPM, pp. 55 and 61, 66, 67, 75–76.
61 SRPM, pp. 60–61; cf. p. 69.
62 SRPM, p. 69.
63 SRPM, p. 60.
64 Ibid.
65 SRPM, p. 61 (italics mine); cf. also note 68.
66 SRPM, p. 61.
67 SRPM, p. 62.
68 Cf. SRPM, p. 76: 'If we are bent on tracing the meaning of a term into a certain cluster of sentences containing it, and the meanings of the terms they in turn contain into further clusters of sentences, and so on, then it is clearly the entire network such tracing discovers that forms the basic unit of pairing in cases of translation.'
69 SRPM, p. 14. Cf. Feyerabend, PE, pp. 198–9, 212–13, and 258 (note 158). Cf. note 8 above.
70 SRPM, p. 7. Cf. pp. 4, 15, 26–28, 35, 64, 87, and 139–40.
71 Cf. Alan H. Goldman, 'Epistemic Foundationalism and the Replaceability of Observation Language', *Journal of Philosophy* 79 (1982), pp. 143–54.
72 Doesn't Churchland himself argue this point in chapter 5 of SRPM, where he discusses 'the relatively peripheral role that linguistic structures will play in fundamental epistemology' (§20)? See, for this difficulty, my section V, under 'The Nature of Philosophy'. Cf. also note 44.
73 SRPM, p. 64.
74 SRPM, §9.
75 Ibid., pp. 70–74.
76 SRPM, p. 72.
77 SRPM, p. 75.
78 SRPM, p. 76; cf. p. 61.
79 SRPM, p. 77.
80 SRPM, p. 61. It seems to me that Churchland is slightly disingenuous on page 77 of SRPM, for he affirms his holism again in footnote 8 (pp. 78–79), admitting that the 'common' global network is only 'common' if conceived in abstraction from its connection with the 'local', divergent and incommensurable, 'theories'.
81 SRPM, p. 78.
82 SRPM, pp. 55–56.
83 SRPM, p. 78. Cf. pp. 87 and 140–1.

84 Cf. SRPM, p. 87. It is symptomatic that in PPTN Churchland straightforwardly denies that the problem of incommensurability is *also* a problem concerning the possibility of communication (pp. 170–1; cf., however, p. 179).

85 PE, p. 217; cf. pp. 214–15. Cf. also 'Explanation, Reduction and Empiricism' (PP, vol. I, ch. 4), p. 93.

86 SRPM, p. 15: 'As long as there remain systematic causal connections between kinds of states of affairs and kinds of singular judgements, the evaluation of theories can continue to take place.'

87 Feyerabend, PE, pp. 212–15. Cf. SRPM, pp. 87 and 140.

88 SRPM, pp. 13–14. Cf. notes 8 and 9 above.

89 See, e.g., Dudley Shapere, 'Meaning and Scientific Change', *Mind and Cosmos: Essays in Contemporary Science and Philosophy*, ed. by R. G. Colodny (Pittsburgh: University of Pittsburgh Press, 1966), pp. 41–85. The cardinal point of my criticism is well expressed by K.-O. Apel, when he objects to Carnap's causal theory of observation that the communicative relation between theorist and observer breaks down as soon as the utterances of the latter are considered merely as empirical data. Cf. Apel, *Transformation der Philosophie* (Frankfurt am Main: Suhrkamp 1973), vol. I. p. 313.

90 Cf., Wittgenstein, *Philosophical Investigations*, op. cit., I, §112.

91 Ibid. §129.

92 There are many different ways of criticizing the representative theory of perception. What I have in mind is not the Sellarsian school which attacks the Myth of the Given and holds that the concept of a sensation is a (valid) theoretical notion, but rather the 'classical' criticism of J. L. Austin in *Sense and Sensibilia*, op. cit. See also the excellent book by P. M. S. Hacker, *Appearance and Reality: A Philosophical Investigation into Perception and Perceptual Qualities* (Oxford: Blackwell, 1987).

93 SRPM, pp. 9–10.

94 SRPM, p. 15.

95 SRPM, p. 15 and RQ, p. 19.

96 SRPM, §3, pp. 16–21. This time, Churchland invites us to imagine an isolated society of humans whose physiology differs in no way from our own (same sense organs) and who speak normal English except that, instead of our thermal vocabulary they *only* use the jargon of the caloric theory of heat. Let us call these people the calorians. Now Churchland does not really argue, but *simply claims* that the calorians might use the jargon of the caloric theory as an *observation language*: 'As these people blithely explain to us, caloric is, at common pressures, perfectly transparent (invisible), but it is easily visible at very high pressures when it first becomes a highly distinctive red, then orange, yellow, and finally white as it is subjected to further increases in pressure. It is easily *felt*, however, even at common pressures. Skin contact with bodies at various caloric pressures produces characteristic sensations as the fluid flows into (or out of) the observer's body. That is, these people claim to perceive or observe, by feeling and on occasion by looking, that material bodies contain caloric fluid at various pressures, and even to perceive the fluid itself, as when they feel it flowing into their fingertips when they touch a body at high caloric fluid pressure, or see it in a body at very high caloric fluid pressure' (p. 17). This argument will seem to be convincing only to those who have already swallowed Churchland's first (and therefore basic) argument to the effect that ordinary words like 'red', 'orange', or 'flowing' are theoretical terms. For, if one does not accept this basic argument, one will retort that *to feel something flowing is very different from feeling that something is hot, and that, when we feel that something is hot, we simply do not feel anything flowing at all.* In other words, the verb 'to flow' is already used, in our *and in their* English, to refer to phenomena which are completely different from thermal phenomena. As a consequence, the calorians are simply lying when they claim to be able to *literally feel* the caloric fluid flowing. Similar points may be made for feeling pressure, etc. Churchland's answer to such objections on page 18 is an *ignoratio elenchi*. For the question which he imagines that the calorians ask *us* in order to refute the objection ('Can you really just see that . . . a red physical object in front of you . . . has substance behind its facing surface . . .?') is *not at all similar* to the objection (can the calorians really feel the caloric fluid flowing?). The calorians should rather have asked us: 'Can you

really just see that the physical object in front of you *is red*?' And clearly the answer is: yes.

97 Cf. Feyerabend, PE, pp. 202–10; 'An attempt at a realistic interpretation of experience' (PP, vol. I, ch. 2), pp. 20–21; 'Reply to Criticism; Comments on Smart, Sellars and Putnam' (PP, vol. I, ch. 6), p. 125.

98 PE, p. 208.

99 'Reply to Criticism', PP. vol. I, p. 125.

100 Cf., e.g. I. Lakatos, *Philosophical Papers* (Cambridge: Cambridge University Press, 1978), vol. I, p. 23: 'calling the reports of our human eye "observational" only indicates that we "rely" on some vague physiological theory of human vision.' This ludicrous idea implies that all observation judgments are 'really' theoretical or theory-laden. Cf. for criticisms of this mistake, G. P. Baker and P. M. S. Hacker, *Wittgenstein: Rules, Grammar and Necessity* (Oxford: Blackwell, 1985), pp. 229–30.

101 Hilary Putnam, 'How Not to Talk about Meaning; Comments on J. J. C. Smart' (ch. 6 of *Mind, Language and Reality, Philosophical Papers* [Cambridge: Cambridge University Press, 1975], vol. 2, p. 122).

102 EMPA, p. 71.

103 Or at least into 'one of the most influential philosophers in the behaviorist tradition'; MC, p. 54.

104 Churchland, 'The Continuity of Philosophy and the Sciences', *Mind and Language* 1 (1986), p. 9: 'The vocabulary of the theory of *witches* and *demonic possession* was also used for a great many purposes beyond explanation and prediction: to warn, to censure, to abjure, to accuse, to badger, to sentence, and so forth. But the beliefworthiness of witches and demons was still a matter of the relative explanatory and predictive virtues of folk demon-theory, and the existence of demons and witches was in no way assured by the additional practical roles played by the relevant vocabulary. So it is with beliefs, desires, and all of the other propositional attitudes. Their integrity, to the degree they have any, is ultimately an empirical/theoretical integrity.' Cf. also Patricia Smith Churchland, 'Replies to Comments', *Inquiry* 29 (1986), p. 254.

105 In order to explain how we may both understand *and* reject the phlogiston theory. SRPM, pp. 55–56, cf. p. 47.

106 Cf. SRPM, §7.

107 Yet Churchland's doctrine that *universal acceptance* (in the sense of accepting to be *true*) is the main criterion of semantic importance, expresses a valuable intuition which, however, is *distorted* by his jargon of accepting sentences. For if, having accepted the new rule for the use of the word 'foot' in measuring contexts, the citizens for some reason never got the same result of a measuring operation, the language game would break down. As Wittgenstein says in *Philosophical Investigations* I, §242: 'If language is to be a means of communication there must be agreement not only in definitions but also (queer as this may sound) in judgments. This seems to abolish logic, but does not do so. – It is one thing to describe methods of measurement, and another to obtain and state results of measurement. But what we call "measuring" is partly determined by a certain constance in results of measurement.' In other words, universal acceptance of sentences (in Churchland's sense) does not *constitute* the meaning of words, as Churchland claims. The rules of language are not logically dependent on a matter of fact, i.e. on whether we do or do not agree in our empirical beliefs. But without *global agreement* about truth and falsity of empirical statements in standard conditions the language game of measurement would lose its point (which does *not* mean that it would be falsified by the facts). Cf. G. P. Baker and P. M. S. Hacker, *Wittgenstein: Rules, Grammar and Necessity* (Oxford: Blackwell, 1985), pp. 258–60 and 229–51.

108 Friedrich Heinrich Jacobi (1743–1819), 'Über den transcendentalen Idealismus', *Werke* (Leipzig 1812–1825, 6 vols), II, p. 304. Cf. W. Windelband, *Lehrbuch der Geschichte der Philosophie*, 16th ed. (Tübingen: Niemeyer, 1976), p. 494.

109 SRPM, pp. 3–4. Cf. ch. 5.

110 For similar sceptical objections, see note 57.

111 SRPM, pp. 137–43. Note that Churchland's argument on pp. 131–3 is ambiguous. For the conclusion should be that human beings never really acquire propositional attitudes

at all, just as 'strictly speaking, the body of gas never acquires the classical properties at all'. But Churchland rather concludes that linguistic structures, although real, play but a peripheral role.

112 SRPM, p. 138. Of course, it is not *very* safe to say this. For the formula that 'the brain abstracts . . .' is at best misleading and at worst an instance of the homunculus fallacy, which consists in characterizing a *part* of an organism or human being as engaging in activities in which only the organism or human being as a whole may meaningfully be said to engage in. The expression 'homunculus fallacy' was coined by A. Kenny. See his 'The homunculus fallacy' (1971), reprinted in A. Kenny, *The Legacy of Wittgenstein* (Oxford: Blackwell, 1984).

113 SRPM, p. 139.

114 This is how Patricia Smith Churchland reads ch. 5 of SRPM. Cf. her 'A Perspective on Mind-Brain Research', *Journal of Philosophy* LXXVII (1980), p. 190: 'From a rather different standpoint, Paul Churchland has adduced general considerations which indicate that the linguistic model is decidedly parochial and that how evolution solved the problems of information *processing* is probably quite different from how it solved the problem of information *exchange*.'

115 SRPM, p. 139.

116 SRPM, p. 78, cf. pp. 87 and 140.

117 SRPM, p. 141.

118 SRPM, p. 141.

119 SRPM, pp. 138 and 139.

120 Cf. Feyerabend, 'Historical Background: Some Observations on the Decay of the Philosophy of Science' (1981), ch. 1 of *Problems of Empiricism, Philosophical Papers*, op. cit., vol. 2. In his later work, Feyerabend argues for his ideology of democratic relativism not only on the basis of the absolute network theory, but also and mainly by means of his methodological anarchism. See his *Against Method: Outline of an Anarchistic Theory of Knowledge* (London: Verso, 1975) and *Science in a Free Society* (London: NLB, 1978).

Received 23 June 1989

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