

**INVESTIGATIONS INTO FACTS AND VALUES:  
GROUNDWORK FOR A THEORY OF  
MORAL CONFLICT RESOLUTION**

by

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## **ABSTRACT**

In this thesis the main aim is to lay a philosophical foundation for the conclusion that moral conflict resolution can be rational. Some requirements for rational moral conflict resolution are then briefly considered.

The rationality of moral judgements is demonstrated firstly by showing that there is a rational means, *viz.* non-deductive reasoning, of arriving at a moral normative conclusion of the form 'One ought to do X'. Secondly, it is demonstrated that moral normative judgements are non-deductively justifiable on the basis of factual and value judgements.

It is argued that value judgements as well as factual judgements are rationally assessable. The notions of abstracting and wholes are introduced in order to provide a conceptual framework in terms of which value judgements can be satisfactorily analysed. In particular the semantics of value predicates are explained in terms of the notion of abstracting, whereby a value predicate refers to an emergent part (technically defined in terms of wholes) of the value object which is abstracted from objective features of it.

Value judgements are analysed in such a way that (i) they p-imply pro or con connotations in relation to the value object; (ii) they p-imply objective reference; and (iii) they p-imply a standard. Factual judgements and truth and knowledge are discussed in the light of an epistemology termed rational empiricism, a view which draws together conclusions reached as a result of contemporary developments in philosophy of science.

The legitimacy of non-deductive reasoning is argued for on the grounds that it is necessary and/or sufficient to justify conclusions within both scientific and non-scientific contexts. It is concluded that factual and value judgements are significantly similar such that if factual judgements are rationally assessable so are value judgements. It is argued that the differences between them do not warrant rejecting this conclusion.

An analysis of moral normative judgements is provided whereby it is concluded that moral normative judgements presuppose moral intention as well as sets of factual judgements relating to the circumstances of the judgement. It is then suggested that insofar as 'morally right' and 'moral' are value terms, the standard for what is morally right to do is and what is moral, is what is rational to do and what is rational respectively. An account of rationality which would support such a conclusion is provided.

Finally, it is argued that if what is rational is accepted as a standard for what is morally right and for what is moral, then both factual and value judgements are required to justify moral normative judgements. The requirements for rational moral conflict resolution are briefly considered. These include articulating the factual and value judgements on which moral normative judgements are of necessity based. More generally it is argued that moral conflict resolution requires philosophical skills of articulating, structuring and comprehension — and psychological requirements which include self-knowledge; ego-stability; good will; empathy and other skills involved in interpersonal relations.

## EDITOR'S FORWARD

Between 1951 and 1978 there was a major revolution in the Philosophy of Knowledge, whereby its experts (epistemologists) lost all hope of *perfect certainty* in the rigorous use of logic. For practical day-to-day activity that need not have mattered much, just as it is not a disaster that we can't express  $\pi$  or  $\sqrt{2}$  as exact decimals. However it did create important differences for longer term policy and the psychological outlook of those involved.

Those differences led to a *second phase* which is still under development. It forms *the main theme of this present thesis — a better appreciation of less-pretentious rational thought*, and I shall say more about that shortly.

One early forewarning about unreachable certainty arose with Gödel's famous paper (1931) showing that such perfection was impossible within mathematical logic. But it was Quine (1951) who then argued *the impossibility of "purely analytic" statements* (supposedly free from all guesswork and dubiously-supported evidence); and Kuhn extended this argument (1962). Thus *all* statements must be more-or-less "synthetic" — depending on some reasonable-but-unprovable assumptions. Dr Cushman discussed this in 1983; see chapter 3 below, which offers a summary of those "phase 1" developments. — Meanwhile the chief proponent of the old view had admitted defeat on BBC TV just a few years earlier (Ayer, 1978).

In fact this thesis should have been published promptly in 1983; but of course publishing conditions were different then, and many a worthy dissertation languished on dusty archive shelves. As it happens though, Dr Cushman's two core themes are still live issues, and both seem in need of further in-depth support.

One might have thought that the above "phase 1" issue was settled, and perhaps it *has* been resolved for philosophers and many psychologists. However we might doubt that the message has yet penetrated to scientists-in-general, nor especially to their funding bodies and journals. Without that understanding, progress within "phase 2" is likely to be difficult, as we shall see.

Many short papers have appeared on the *Quine / "phase 1"* topic, but I am aware of only one post-1983 major work on this theme: (Parrini, 1995/1998) — appearing some twelve years after Dr Cushman's thesis. My impression is that, while it does cover the more-macro field comprehensively, it lacks some of the systematic fine-detail analysis offered here, e.g. in chapter 1.

Dr Cushman's main theme is to offer that *phase 2* in which such hard-to-define concepts as "value", "subjective", "induction" and "attitude" are given some respect and analysis, at least within philosophy. True, these concepts entail fallibility, but that is something

which we just have to live with — so we had better get used to it and develop ways of coping, or even take advantage of this new insight.

Indeed this revision could be a blessing in disguise — at least in its implications for **scientific method**. For one thing it offers some rationale for what all scientists have been doing partially anyhow — perhaps with some guilt, or simply with a dismissive shrug at the naïve perfection-goal of the interloping "logisticiens" (e.g. Piaget, 1949).

Secondly it could show how the super-caution of the old research procedures has unnecessarily hobbled scientists while they wait for ideal textbook conditions which may never come.

Here I like to re-quote a simple puzzle task offered by Ross Ashby (1960; §11/5): The challenge was to find some randomized procedure to open a "combination lock" of 1000 on/off switches, each trial taking one second. The total test time varies vastly according to strategy, thus:

- (i) *If* we could see all mechanisms, the solution could take *1 sec.*
- (ii) If we could save partial successes, we expect about *500 sec.*
- (iii) If we are so perfectionist that we demand all-or-nothing, then the investigation is likely to take  *$10^{301}$  seconds*, (i.e.  $2^{1000}$  seconds, or  $3.5 \times 10^{291}$  centuries!) — and of course that effectively = "never"!

Likewise overzealous Popperian rejection of imperfect partial-success can kill off promising "synthetic/inventive" theories. Such rejects include Hydén (see Traill 2005b §9, 2012 §n), or P.S.Callahan (Traill 2005c, 2008b) — and I could list a queue of perhaps six more such cases which have not even got to that stage of tentative recognition; e.g. those mentioned in Traill (2010).

Probably the trouble is that if *Committee X of some Science/Funding Establishment* really still believes collectively that perfection is feasible, then that X is disdainful of any plebian procedures for dealing with "crass imperfection"!

Dr Cushman herself puts it this way (§2.57):

*"It is in the scientific sphere that the role of value judgements has been most difficult to recognise and accept. This is in part because of empiricist doctrine regarding the nature of value judgements, in particular that they are not susceptible of rational assessment."*

She continues:

*"With the extensive revision of views about the nature of science that has taken place ... this is slowly changing."*

Well maybe! That was three decades ago, but we might feel that the emphasis *still* lies with the word "slowly"!

But apart from that tricky matter of scientific method, we come to those other hard-to-define “Arts Faculty” topics which one hardly expects to be infallible or fully analytic anyway. That means that here there should be no direct worry about the attacks from Gödel or Quine, though it does mean that the *hard sciences* should also (technically) be admitted into the Arts bailiwick as well — even if such refugees will not always be entirely welcome!

Anyhow Dr Cushman here deals in detail with those value-judgement topics of Aesthetics, Moral philosophy, Legal reasoning, Psychological Processes (in *chapters 2 and 5*) — with *chapter 7* devoted specifically to Moral judgements. Meanwhile, early in *chapter 5*, she offers an important detailed explanation for why “non-deductive reasoning” reasoning is legitimate — including reasonable-but-unprovable assumptions about regularity within reality.

The question about recent developments then arises again: “What other substantial works since 1983 have tackled this *value-judgements* topic of phase 2?” — “And have they made comparable progress?” — I can identify two candidates, and both use the term “axiology” (the science of value): Edwards (ed. 1995), and Rescher (2005).

The **Edwards** book is centred around “Part II,” a posthumous collection of writings by Robert S. Hartman (1910-1973), reputed to be “the founder of modern axiology.” In fact Dr Cushman cites an early Hartman work, along with Maslow (see her endnote<sup>25</sup> in chapter 2). Not surprisingly, the two treatments have much in common. Hartman’s own 30 pages could hardly go into the same detail, but I recommend them as a useful adjunct.

Part III contains material by Edwards. This (and indeed the key activities of the Hartman Institute) seem centred on “Value mathematics” and “Measuring intangibles.” That differs a bit from Dr Cushman’s treatment, but it seems a worthy digression.

**Rescher**’s book, reviewed edifyingly by Lawlor (2005), does raise occasional interesting points. (One such is quaintly termed “respect”, which any mathematician would interpret as “vector component” — and his complaint of “respect neglect” amounts to saying “*some measures are multifactorial, but we cheat and try to represent the whole manifold by a scalar*”. Meanwhile he does not actually mention the word “vector” at all.)

More seriously, as Lawlor indicates, Rescher’s claim that things always work out for the overall-best seems bizarre. — It reminds one that Voltaire (1759) wrote a satire to counter similar views from Leibniz (1710); and it is also suggestive of extreme free-market propaganda from the economic rationalists, maximizing “value”-as-profit (though isn’t profit usually a scalar!?). One could argue that he might have a case if “value” were interpreted as “entropy” — a scalar whose maximization does indeed predict how an engineering system will evolve. But I doubt that this would seem helpful to anyone in the social sciences, and it conflicts with his own implied call for the use of vectors/respects! At best, Rescher leaves this issue unresolved.

In any case, as Lawlor remarks, one gets the impression that Rescher’s book is more a string of short articles, somewhat lacking in overall in-depth integration. Thus I don’t see it as serious competition to Dr Cushman’s account.

In short, Dr Cushman’s thesis could have been ground-breaking in 1983 if it had been published then — and it could still be ground-breaking today and beyond, despite the long delay. However publication is only the first step. Publicity and motivating come next — and that is another daunting task.

Robert R. Traill (15 April 2014)

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## INTRODUCTION

Resolving moral problems in science and medicine has become increasingly important as the problems increase in number and complexity. This increase is due primarily to the technological dilemma: as technology becomes more sophisticated, it brings with it greater power of choice in regard to possible courses of action. Wherever there is a choice in regard to a course of action, where the outcome affects a valuable entity, there is a moral choice to be made as to whether that action should be taken or not. Advances in technology increase the number of possible actions in regard to which such a choice has to be made. In medicine, and other scientific fields, such as genetic engineering, since the actions in question involve other valuable entities, the choices involved are moral choices.

Therefore the question of the rationality of moral discourse becomes urgent. Insofar as people discuss moral questions, this implies that they are believed to be capable of rational discussion. Yet the rationality of moral discourse is frequently denied. This creates a problem in regard to moral discourse, since there is an inconsistency between the avowed belief and the belief implicit in undertaking discussion of moral problems. This inconsistency has a philosophical foundation.

Classical empiricism as a theory of knowledge has implications in regard to the philosophy of science insofar as the latter is concerned to understand scientific knowledge. However, it also has profound implications in regard to moral philosophy. One of the developments of classical empiricism, given Hume's distinction between truths of reason and matters of fact, was the principle of verifiability.<sup>1</sup> This was also a demarcation principle, intended to separate scientific from non-scientific judgements.<sup>2</sup> Only those judgements<sup>1</sup> were regarded as cognitively meaningful that were either analytic (corresponding to Hume's "truths of reason") or were observational judgements, or were appropriately related to observational judgements

(corresponding to Hume's "matters of fact"). All other judgements were cognitively meaningless.

The principle of verifiability was ultimately rejected in spite of many modifications. However, the essential distinction that it articulated between scientific and non-scientific judgements has remained as a tenet of empiricism. It has resulted in, amongst other things, a sharp fact/value distinction and a sharp distinction between factual and moral judgements. Moral judgements and value judgements are not capable of being true or false. Therefore they cannot be rationally assessed.

Classical empiricism and its latter-day developments such as logical positivism have been under comprehensive and sustained philosophical/empirical attack particularly, since Kuhn's ground-breaking work *The Structure of Scientific Revolutions*. Insofar as empiricism, in whatever form, has implications in regard to moral discourse it follows that rejection of empiricist assumptions opens the way for a revision of views about moral discourse. However, whilst it is in general accepted by philosophers of science that empiricism is not defensible as an epistemology; and whilst historians and sociologists of science have been forthcoming with empirical support for such a conclusion, revision of views about the rationality of moral discourse has been much slower.

Thus the major aim of this thesis is to establish that moral discourse can be rational. This is done both by systematically rejecting those empiricist assumptions that prohibit acceptance of the rationality of moral discourse; and by providing positive reasons to accept the conclusion that moral discourse can be rational. Secondly, given acceptance of the view that moral discourse can be rational, suggestions have been made in regard to the requirements for settling moral conflict rationally.

The philosophical groundwork that is necessary in order to extricate moral discourse from the limbo to which it has been relegated within the empiricist framework, has been the primary focus of this thesis. Having established that moral discourse is rational in principle, it is clearly of the first importance to investigate how to make it rational in practice. Therefore although, of necessity, the discussion of rational moral conflict resolution in this thesis has been brief, it what is ultimately seen to be of the greatest significance in terms of its ramifications for the solving of moral problems in practical areas such as medicine. However, serious work on the rational solving of moral problems cannot begin, philosophically or practically, until it has been accepted that moral discourse is rational.

The basic structure of the thesis is as follows. In Chapter One an analytic framework based on the notions of abstracting, abstraction and wholes has been developed. In Chapter Two this framework is used to develop an account of value judgements.

In Chapter Three factual judgements are discussed in relation to contemporary developments in the philosophy of science, including rejection of fundamental tenets of empiricism. In Chapter Four the concepts of truth and knowledge are revised in the light of a proposed epistemology termed rational empiricism.

In Chapter Five the legitimacy of non-deductive reasoning is defended. Chapter Six is concerned to establish the rational assessability of value judgements. Chapter Seven investigates moral judgements and the relationship between rationality and morality.

In Chapter Eight some suggestions are made in regard to developing a model of rational moral conflict resolution.

#### NOTES for the INTRODUCTION

1. The term 'judgement' will be used throughout to emphasize that utterances are abstracted from contexts of use by people. While this abstracting may be desirable for particular purposes, it also involves a change of perspective and loss of information. Statements are linguistic entities capable of being said to be true or false and are related to other linguistic entities not so capable. In the last resort, however, both are used by individuals. In addition, they are both products of the rational psychological processes of individuals. Just as the term 'utterance' emphasizes the 'use' aspect of linguistic entities, so the term 'judgement' is intended to be a reminder of the psychological and psychic origins of linguistic entities. For the purposes of the present treatise, this is of the first importance, hence the use of the term 'judgement' throughout.
2. Hume (1962), p.354.



## Ch.1 — ABSTRACTING (Model-Building)

### Status of the analysis

**1.1** The present account of abstracting can be viewed in two distinct but related ways. The notion of abstracting is used within empirical psychology to refer to a psychological process which has not however been empirically explored.<sup>1</sup> The term ‘abstracting’ can thus be interpreted firstly as referring to a psychological process. This is taken to have a neurophysiological basis as do all brain processes. It does not follow however that an account of this, or of any other psychological process, could be given solely in neurophysiological terms.<sup>2</sup>

**1.2** Viewed this way the present analysis of abstracting is a philosophical extension of a concept with as yet minimal empirical content which nevertheless does have a place in empirical theory. Further philosophical exploration of the concept may thus have heuristic value.

**1.3** The second way of regarding the present analysis is as a philosophical investigation of the concept of abstracting for use not just in explicating psychological notions but philosophical ones, particularly in explicating factual and value judgements. The present account can thus also be seen as an analytic model with explanatory power that offers the prospect of clarifying problems within philosophy.

**1.4** The two ways of regarding the present analysis are in one respect independent. Even if the notion of abstracting did not already have a use within empirical psychology, it might still be argued that the analysis was justified by its usefulness in explicating philosophical problems. However the fact that the notion of abstracting has psychological-empirical relevance, strengthens the case for arguing that the analysis of abstraction should be accepted: not only because of explanatory usefulness but because of its empirical validity.

**1.5** Thus while the account of abstracting presented here is intended to be evaluated primarily in terms of its internal coherence and its applicability to the problem of explicating value judgements and factual judgements, there is some *prima facie* independent support for the concept insofar as the present account is consistent with the concept of abstracting as used in psychology to refer to processes involved in perception and cognition.<sup>3</sup>

### The analysis

**1.6** Abstracting is a dual process: it involves (a) selecting and (b) joining. These are not necessarily separate in time. The notion of demarcating something (*e.g.* fencing a garden) implies at once separating and at the same time unifying. It is intended that abstracting be regarded as such a process of simultaneous selecting and joining: the one taking place in virtue of the other.

### Kinds of abstracting

**1.7** The selecting involved in abstracting is always essentially the same — a process of separating from the background context. However the sorts of joining involved can differ. There are basically two kinds of joining involved in abstracting — *unifying* and *collecting*.

**1.8** (a) *Unifying abstracting*. This involves conceptually selecting and joining something into a whole or unity in the sense that a person, a table, or a painting can be conceived or perceived as a unity or as a single object.<sup>4</sup> The products of this kind of abstracting are **i. particulars** (objects) and **ii. properties** (qualities or relations). A property while generally not being regarded as a thing in the same sense as a table, has a unity insofar as it is identifiable as a property or an aspect of a particular and can be re-identified on other occasions as being the “same” property.<sup>5</sup> Whatever else can be said regarding the ontological status of properties they are conceptual unities. Thus for example redness is selected and unified as a property of a table; height is abstracted as a property of a person etc.

**1.9** (b) *Collecting abstracting*. This involves conceptually selecting and joining groups of particulars (or other abstractions since abstracting can be recursive) which are conceived of as discrete and are collected to form a set or a group. The members of this group do not lose their individual identity in the process of being collected. That unifying abstracting results in a unity whilst collecting abstracting results in a group of individuals is the main respect in which collecting abstracting differs from unifying abstracting.

### Products of abstracting

**1.10** Just as there are two *modes* of abstracting (itself a dual process of conceptually selecting and joining) there are two *products* of the process of abstracting: *wholes* and *sets*. Wholes are those conceptual entities which result from the unifying mode of abstracting.<sup>6</sup> Both particulars and properties can be conceived of as wholes. Sets are those conceptual entities which result from the collecting mode of abstracting.

**1.11** Both wholes and sets can be further distinguished in terms of their internal structure. Wholes can be either differentiated into parts or undifferentiated. An undifferentiated whole is indistinguishable throughout its extent.<sup>7</sup> A differentiated whole has distinguishable parts. An example of each would be:

	Differentiated	Undifferentiated
Particular	human being	space
Property	revolving and having seven segments	being red

**1.12** Sets can be regarded as either collections of unrelated objects in accord with the basic notion of a set, or their members can be related. In this latter case it seems useful to talk of a *structured set*, *i.e.* an abstraction formed by collecting (so that the members retain their individual identity) whose members are related to each other. Ordering the members of a set is one way of relating them. However there can also be other more complex relationships between members *e.g.* causal relations. An example of a set would be the set consisting of a real number, an imaginary number and a tennis ball. An example of a structured set would be Bohr’s model of the atom, consisting of a nucleus with electrons revolving around it in concentric orbits.

**1.13** The two modes and four products of abstracting can be displayed as follows:

Mode	Product
Unifying	i. Particulars ii. Properties
Collecting	iii. Sets iv. Structured sets

Each one of these products of abstracting will now be discussed in more detail.

**1.14 i. Particulars** The concept of a particular is an abstraction: it is the concept of a separate, unified portion of space-time. What are regarded as instances of the concept of concrete, physical particulars, *e.g.* rocks, tables and human beings, are portions of space-time conceptually abstracted as unified entities or wholes. Not all instances of the concept of a particular are “concrete” or “physical” in the sense above. It seems plausible for instance, given people’s inner experiences, to suggest that there are also instances of the concept of mental particulars, which can themselves be subdivided into two categories:

- a. “concrete” mental particulars — instances of which would be pictured or imagined objects such as an image of a golden mountain;
- b. purely mental particulars — instances of which would be propositions or ideas without pictorial content *e.g.* the idea of equality.<sup>8</sup>

However instances of the concept of concrete, physical particulars are intuitively the most obvious and least controversial.

**1.15** The concept of concrete, physical particulars is exemplified by tables, chairs, cars, etc. — middle-sized objects that are regarded as in some sense a unity. It is this general idea of a unity or a whole that seems to be implied by the terms ‘object’ and ‘entity’.

**1.16** Those objects which are abstracted as instances of particulars can be seen as instances of particulars-relative-to-a-time.<sup>9</sup> Hence particulars can be regarded as either “old” or “new”. “Old” particulars are those things already conceived of as unities. “New” particulars are those objects which have only recently come to be conceived of as wholes. For example, the earth conceived of as a biosphere would be a new particular. An ecological niche could also be regarded as a new particular. Electro-weak forces, those that bind electrons to the nucleus, would also be new particulars. In general referents of any new theoretical term would be new particulars.

**1.17** To talk of old and new particulars is just to emphasize the flexible and changing nature of our conceptual schemes. Explanation of these changes has to be sought in history, psychology, and linguistics as well as in philosophy.

**1.18 ii. Properties.** A property is an abstraction which is a concept of a separate, unified constituent of a particular. ‘Constituent’ will be used as a generic term for ‘that which belongs to an abstraction’. Properties are generally those aspects of particulars which are conceived of as a unity. Properties can be seen as aspects or constituents of a particular or a group of particulars. These constituents are generally abstracted from the particular and are identifiable independently of it.<sup>10</sup> They can be said to “belong” to many particulars, *i.e.* be identified on other occasions as being the “same” aspect.<sup>11</sup> Properties are generally wholes, being the result of the unifying mode of abstracting.<sup>12</sup>

**1.19** Properties are not, as a rule, regarded as objects which have the same ontological status as concrete, physical particulars. It could be argued on the basis of an extension of the above analysis that particulars and properties do have the same ontological status. There is no attempt made to settle the controversial questions concerning universals and particulars within the present framework.

**1.20** It is interesting however to note that conceiving of particulars and properties as wholes or unities of the same ontological kind is in fact consistent both with contemporary logic and contemporary physical theory. In Quine’s account of the logical structure of the names of objects and of properties for example, both are represented by predicates which are generally taken to refer to properties. Thus the common name ‘tiger’ can be replaced by the predicate ‘tigerizes’.<sup>13</sup> In this scheme existence assumptions are represented by bound variables.<sup>14</sup> What this mode of logical analysis seems to amount to is the assimilating of objects to properties, both being regarded as qualities of a bare something, which is referred to by means of the bound variable “ $\exists x/x...$ ”. In Quine’s terminology it is bound variables that carry the “burden of objective reference”.<sup>15</sup>

**1.21** Such a view is, in turn, clearly consistent with physical theory according to which there are no objects as generally understood but only properties of a single object — the field. There may only be one concrete particular — the universe. According to Einstein's theory of general relativity and the unified field theory he was working on at the time of his death the universe is a unified energy field. Hence to conceive of any part of this universe separately, *i.e.* as an instance of the concept of a concrete particular, is to abstract conceptually from what is. This is equivalent to the view that there are ontologically speaking no concrete physical objects as generally perceived and conceived, *i.e.* as ontologically distinct entities.<sup>16</sup>

**1.22** Thus it becomes clear that to conceive of the world as consisting of concrete particulars is a metaphysical view. It is a high-level metaphysical-empirical hypothesis that there are concrete particulars. Therefore it is in part an empirical question whether there are any instances of concrete particulars. To ask this is equivalent to asking: is the universe in any scientific sense to be ultimately conceived of as a single fundamental entity? David Bohm is one physicist whose answer to this question is in the affirmative.<sup>17</sup>

**1.23** Thus the claim that particulars and properties are wholes or abstractions can be seen to be consistent with physical theory which states that in an ultimate sense there are no physical objects. The account of abstracting then becomes part of a philosophical analysis of how we arrive at the concept of a physical object-as-a-unity. As will be discussed in Chapter Three, such a view is also consistent with the empirical account of perception which holds basically that what we see is a cognitively modified version of the sensory data. Hence abstracting can also be seen as part of a philosophical explanation of how we arrive at percepts.<sup>18</sup>

**1.24** **iii.** *Sets.* Sets are abstractions consisting of groups of entities. Hence members of sets can be particulars, properties, or sets themselves. The notion of a set emphasizes the conceptual unity of discrete, collected particulars which nevertheless retain their identity. Sets are therefore in respect of their unity similar to wholes. This is displayed in the use to which sets are put in mathematics and logic where it is treating the set as a unity which creates the conceptual gain of set abstraction (*e.g.* in the analysis of the natural numbers in terms of sets or equivalence classes). Sets are however dissimilar to wholes in respect of their constituents, as well as in respect of the mode of abstracting they involve.

**1.25** **iv.** *Structured sets.* Structured sets are collections of elements which are related to each other. Ordering members of a set is one way of relating them to each other. The set of real numbers is an example of a partially ordered structured set. Establishing causal relations between them is another way of relating members of a set, *e.g.* an internal combustion engine may be conceived of as a structured set.

## Wholes and sets

**1.26** Sets and wholes can be regarded as paradigms of the two sorts of products of the two modes of abstracting. Wholes are those abstractions which are formed by selecting and unifying. Sets are those abstractions formed by selecting and collecting. This latter mode could be seen as a weaker form of abstracting since the entities abstracted continue to be conceived of as individuals and can be identified independently of the abstraction to which they belong. In the following section wholes will be compared to sets in order to further elucidate the elusive but important notion of a whole.

**1.27** Wholes and sets will herein be distinguished from each other (a) by the mode of abstracting through which they are formed and (b) in terms of the nature of their constituents. Thus a part is a constituent of a whole; an element is a constituent of a set. Sets differ from wholes not only in the mode of abstracting by which they are formed but in that their constituents are elements and not parts.

**1.28** Sets are commonly accepted abstractions. They are standardly defined as being discrete, discriminable collections of entities of almost any kind.<sup>19</sup> There are problems engendered by having certain sets as members of other sets.<sup>20</sup> Sets are of course conceptual collections, whatever other ontological standing is allowed them.<sup>21</sup>

**1.29** Sets are identified in terms of their elements. They can be identified *by enumeration*, *i.e.* by individually naming their elements (*e.g.* the set consisting of a chair, the number 6, and my typewriter). Alternatively a set can be identified *by means of a defining property* which each of its elements have (*e.g.* the set consisting of real numbers), where 'is a real number' is understood as the name of a property. This property determines set membership and hence is shared by all the members of the set. Identifying a set by means of a defining property identifies the set as the collection of all those objects which possess that property.

**1.30** Sets consist of elements which are, by definition, discrete and discriminable. The notion of an element thus combines the notion of an entity which belongs to another entity but which is nevertheless identifiable independently of that to which it belongs. In fact since a set is identified either by enumeration of its elements or by stating defining property of its elements, it is necessary that its elements be independently identifiable if the set is to be identifiable.

**1.31** Wholes on the other hand are abstractions formed by conceptual joining in the mode of unifying or turning into a whole. Thus it is clear that the concept of abstracting is required to properly elucidate the elusive notion of a whole.

**1.32** Wholes, if differentiated, consist of parts. There are two senses of the term ‘part’. There is a sense of ‘part’ in which it can be used interchangeably with ‘element’. We can talk of car parts, for example of a carburettor, and identify it independently of the car of which it is a part. In this case ‘part’ means the same as ‘element’ as previously defined: a discrete, discriminable, independently identifiable, constituent of a set.

**1.33** There is another sense of ‘part’ however in which it does not mean the same as ‘element’. In this sense a part cannot be identified independently of the whole to which it belongs. To say something is a part of a whole is in a strict sense to say it is the whole, where the ‘is’ is the ‘is’ of inclusion and not of identity. In this sense a person’s arm is part of them, *i.e.* constitutes them, though not wholly.

**1.34** A part of a whole, like an element of the set, has the relation of belonging to the whole of which it is a part. However unlike an element it cannot be identified as a part independently of identifying the whole. This is a necessary condition of being a part. A whole with parts is a differentiated whole. My arm, conceived of as a part, cannot be identified as my arm independently of identifying me. The arm which belongs to me, where I am conceived as a collection of limbs, can clearly be identified as an arm, *i.e.* as an element of me.<sup>22</sup>

**1.35** To use a different example: the smile on the face of the Mona Lisa cannot be identified as the Mona Lisa’s smile independently of identifying the whole painting. It is in its context (in relation to the Mona Lisa’s eyes, her posture and the background against which she is placed) that the smile realises the special qualities of enigmatic amusement tinged with sadness, that it does.<sup>23</sup>

**1.36** That which is conceived of as a part can come to be conceived of as an element and vice versa. The best example of this process can be found in aesthetic evaluation. In critical analysis of a painting, parts of the painting can be treated or conceptualised as elements (as when one is commenting on the brushwork, the texture of the painting, its frame, its line etc.). Alternatively the painting can be considered as a whole with parts so that each aspect is related to other aspects in order to evaluate it, as in the previous example given above of the Mona Lisa’s smile, or in noting the colour of the flowers in von Gogh’s “Sunflowers”. It is difficult to verbalise, except metaphorically, one’s perception of a painting as a whole. Language tends of its nature to be analytic. For the same reason it is difficult to verbally illustrate what it is to conceive of a painting as a whole. What is generally going on in critical evaluation is a dual interactive process which consists of shifting between conceiving of the painting as consisting of elements, to conceiving of the painting as

consisting of parts, and back again. When parts of a whole are conceived of as elements then the whole is conceptually transformed into a structured set, *i.e.* a collection of interrelated elements. Conversely when elements are conceived of as parts the structured set is transformed conceptually into a whole. More about this will be said below in the discussion of analysis and synthesis.

**1.37** We can conceive of the same entities either as sets or wholes. We can conceive of a table either as a whole or we can conceive of it as a collection of molecules and thus as a set. When we define ‘table’ as a ‘solid object consisting of four legs, a top, etc.’ we may be conceiving of it as either as a set of properties (*i.e.* as having properties as elements) or we may be implying that these are parts of the table and hence that it is a differentiated whole.

**1.38** In the context of scientific theory, humans and tables and chairs can come to be conceived of as structured sets of atoms or molecules or as sets of cells. In a moral or aesthetic context on the other hand human beings, along with paintings and other value objects, are often conceived of as wholes, either differentiated or undifferentiated. It has even been argued that in the biological sciences it is in fact necessary to conceive of organisms as wholes in order to properly understand them.<sup>24</sup> Within the social sciences the notion of a society has a central explanatory role. In the light of the previous discussion it is apparent that there are at least two ways of understanding the concept of a society. On the one hand society can be conceived of as a set, involving collecting abstracting. On the other hand society can be conceived of as a whole involving unifying abstracting. The philosophical problem about whether or not notions such as society can be regarded as being nothing but collections of individuals can be reformulated as: are societies properly conceived of as sets or as wholes? According to the present analysis they can be conceived of as either depending on the context. In addition it can be argued that, as a matter of fact, groups in general can be either. That is to say individuals can behave as a set of individuals (*e.g.* when making decisions on committees) or as a unity — *e.g.* when a mob runs riot. Thus the concept of abstracting not only permits salient distinctions to be made at the conceptual level but at the ontological level as well.

**1.39** These considerations emphasize that both collecting and unifying abstracting, with their respective products, may occur in and be appropriate for different contexts. Once it is allowed that both sets and wholes are abstractions then the question of which way of conceiving of objects is most appropriate under what circumstances can be explicitly raised.

**1.40** Particulars can be conceived of as sets; sets can be conceived of as wholes; parts can be conceived of as elements and vice versa. Each represents a different point of view or different level in our conceptual scheme. Different ways of conceiving of things can have powerful psychological and practical consequences. Viewing society as a whole and not as a set involves conceptually transforming or unifying a



collection of people into a new unity to which causal and other properties can be ascribed, *e.g.*, the society can then be described as materialistic; as causing its individual members to break down; as oppressive etc. This may not however be just a way of speaking but may be a genuinely distinct way of conceiving of the society. Furthermore, as suggested above, conceiving of the society in these two ways may reflect a genuine ontological feature of groups: that they can and do manifest this sort of complementarity, as it were. In certain circumstances groups may function more like a unity (a whole) than as a collection (a set). In other circumstances the reverse may be true. In any case the question as to whether or not they do, cannot be answered until there is a conceptual framework of abstracting and wholes that allows the question to be properly framed.

**1.41** It does not follow that conceiving of an entity as a whole or as a set can always be done simply by an act of will. The causes that operate in relation to the process and products of abstracting are often neither conscious nor under voluntary control. The present aim however is to show that there *are* two sorts of abstracting as well as two sorts of products of these different modes.

**1.42** In the light of the preceding discussion regarding sets and wholes some further explication of properties is possible. Previously properties were said to be conceived of as wholes which belonged to particulars or groups of particulars. However not all properties are wholes which are *elements*. Some properties are not wholes but are parts. As will be discussed in a later chapter, factual predicates generally refer to properties which are *elements* (and wholes) while value predicates refer to properties which are parts.

**1.43** Properties in the present scheme can be regarded as constituents of particulars or of groups of particulars. Constituents can be either elements or parts. Properties which are elements can be identified independently of the particular to which they belong, *viz.* having a red top is an element of a table. Properties which are parts cannot be identified independently of identifying the particular to which they belong.<sup>25</sup> The smile on the Mona Lisa is a part of the painting of the Mona Lisa.

**1.44** Properties can be further divided into *lesser constituents* and *greater constituents*. Lesser constituents are those which are identical with some portion of the particular in question, *e.g.* having a leg is a property which is a lesser constituent in relation to a table conceived of as a whole. Such properties are lesser constituents in-relation-to-a-particular whole. Greater constituents are those which are not identical with any portion of the particular in question. They are no longer constituents in the sense of being a lesser portion of a particular but they are constituents in that they belong to the particular in question.

## Emergent properties

**1.45** Emergent properties can be explicated in terms of greater constituents. The difficulty of explicating emergent properties arises in part from failure to distinguish the two sorts of constituents: parts and elements. Emergent properties should properly be divided into *emergent elements* and *emergent parts*. All emergent properties are however greater constituents.

**1.46** Emergent elements are greater constituents which are not identical with any portion of the particular to which they belong. Thus consciousness is an emergent element of a normal human being but it is, being an element, by definition identifiable independently of identifying a particular human being and can be recognised as the same property in other non-human and human beings. Though it may be difficult to articulate a definition of 'consciousness', consciousness is nevertheless non-linguistically identifiable.<sup>26</sup>

**1.47** It is possible to have emergent elements not just of one particular but of more than one, *i.e.* of sets of particulars. Thus the relation 'to the left of' is an emergent element of a structured set of two particulars such that one is to the left of the other. Most non-monic properties of more than one particular, *e.g.* being greater than, being a brother of, being between A and B, are emergent elements of sets of particulars.

**1.48** As well as greater constituents which are emergent elements there are greater constituents which are emergent parts. Emergent parts are constituents of a particular such that: (1) they relate to the entire particular; (2) they cannot be identified independently of identifying the particular; (3) they are not identical with any portion of the particular. Value properties, it will be argued in a later chapter, are paradigms of emergent parts. They are typically properties of the particular in question (or of groups of particulars); are greater constituents (not identical with any portion of the value object) and are parts (not identifiable independently of identifying the value object).

**1.49** Thus conceiving of emergent properties which are parts, differs from the usual relation that objects and properties are taken to have in two important respects. Firstly, the paradigmatic property is generally conceived of as an element rather than as a part. Secondly, the paradigmatic property is conceived of as a lesser constituent of the object to which it belongs. That properties are usually conceived of as elements and lesser constituents, makes the notion of an emergent property and subsequently the notion of an emergent property which is also a part, particularly hard to explicate.

**1.50** The idea that a property is an element makes it by definition identifiable independently of the particular to which it belongs. However that is how properties are generally conceived; that is how they are logically and semantically represented (by predicates which are generally taken to be class names). All class names name elements since, as will be discussed below, that is a necessary condition of being a class name.

The relation of predicates to bound variables (which latter refer to objects), is represented by means of the set membership relation, *viz.*  $\exists x Px \equiv \exists x/x \in P$ . Predicates are generally analysed as denoting sets of ordered particulars. This standard conception of properties as elements does not however become clearly apparent until an alternative conception of properties as parts is available. However the standard conception of properties makes it difficult to talk about properties as parts because being a property seems to go together with being an element.

**1.51** The standard conception of properties as elements and as lesser constituents also makes it difficult to explicate the notion of an emergent property. Emergent properties as here defined are greater constituents in relation to the object to which they belong. However given the distinction between parts and elements, and given recognition of the two modes of abstracting, as well as of their two products, the concept of emergent properties is easier to elucidate. The latter is a problematic notion which is of particular interest in relation to the biological sciences and it has long occupied philosophers of science dealing with the problems of reductive explanation.<sup>27</sup> Using the account of abstracting it also becomes possible to introduce and explicate the notion of a property which is a part and, given the notion of greater constituents, of an emergent property which is also a part. This latter notion is of particular importance in regard to giving an adequate account of value judgements.

## Abstracting and naming

**1.52** Thus far the notion of abstracting and the associated concepts of wholes and parts, sets and elements have been used to explicate the notion of emergent properties, which will be of use in giving a satisfactory account of value judgements. The notion of abstracting can also be used as the basis of an account of naming that will, in turn, permit a more thorough analysis of the relationship between factual and value judgements to be given.

**1.53** Abstracting is involved in naming as follows. Take a judgement such as: 'The table is brown'. It will be assumed that 'table' is the name of a class of objects and as such it can be seen to involve abstracting in two respects.<sup>28</sup> Firstly, in order for 'table' to *constitute* the name of a class of objects it must involve the abstracting of a set of features from any particular table. These features constitute the criteria on the basis of which the name is applied. In order for a name to be correctly applied, there must be criteria for its application. Thus names represent the result of abstracting from individual objects a set of features which will allow the name to be applied to a class of objects. It will also be assumed that there are "principles" on the basis of which names are formed, and which are not presently known.

**1.54** Thus abstracting is a logically necessary condition for forming the name of a class of objects.<sup>29</sup> The name can then

be applied to any object with the required set of features, *i.e.* to each member of a set of objects. It is important to note that the features in question may not themselves be explicitly named. All that is required is that they be perceptually recognisable.

**1.55** The second respect in which names involve abstracting is that abstracting is required in order for the name to be successfully applied to objects. This is a necessary condition for the correct *application* of a name. Abstracting is required from the features of the object (potentially infinite) that are not relevant to the name being applied, e.g. that the table is located in Canada. Thus firstly in order for a name to be able to constitute a name of a class of objects it is necessary that a group of features that constitute the criteria for its application to a set of objects be abstracted. Secondly, in order for the name to be applied to a particular object, those aspects of the object, and only those aspects, which satisfy the criteria for applying the name must also be abstracted, *i.e.* selected and unified so as to justify calling the object a table.

**1.56** Applying a name to an object presupposes recognition of those features that make it a member of a particular class. These criteria need not however be regarded as linguistically identified or identifiable. That is to say the features or criteria involved need not themselves be named, so long as they can be recognised. It is important to distinguish perceptual criteria of identification from linguistic criteria of identification. Perceptual criteria and linguistic criteria are both sufficient for correct application of a name. However, neither are necessary, in the case of the mature language user. It is not necessary that a person see a table in order to be able to identify one. It is sufficient if one is given a definition or a description of a table. Neither is it necessary that a person know the linguistic definition of 'table' in order to be able to identify one.

**1.57** If the criteria for applying the names are specified or are themselves named then this produces a definition of the name in terms of the named features. These named features then constitute the linguistic criteria for identifying the object in question and for correct application of the name in question. The difficulty of coming up with complete, non-stipulative definitions, *i.e.* with sets of logically necessary and sufficient conditions for being called X, may be explicable by the fact that we cannot generally linguistically specify all the features in virtue of which we identify something. In the case of terms which are only ostensibly definable it may be that we cannot linguistically specify any. This is a plausible argument given the difference, along many dimensions, between what can be seen and what can be said. It is hard and probably impossible to articulate all that we perceive at any given time.

**1.58** In addition, as has already been argued by Wittgenstein, it may be that most terms are family concepts.<sup>30</sup> There are only sufficient conditions for being called on X. This open-ended nature of the conditions for applying terms gives language its flexibility, and could be part of the process whereby terms come to change their meaning over time.



## Abstracting and analysis

**1.59** Analysis is the process which is the obverse of unifying abstracting. Unifying abstracting involves selecting and unifying. Analysis involves selecting and separating that which is unified into elements. It thus involves turning a whole into a set. Synthesis is taken to be the reverse of the process of analysis. However the term ‘synthesis’ is systematically ambiguous between unifying abstracting and collecting abstracting. It will be used in the present context to signify that mode of collecting which results in structured sets. That is to say it will be taken to refer to collecting abstracting.

**1.60** Synthesis is to be regarded as a mode of collecting rather than unifying since that which is synthesised is independently identifiable as elements and remains an element after the synthesis. Many kinds of scientific explanations are synthetic in this sense. Thus a standard explanation in genetics regarding, say the mechanism of transmission of heritable traits, is synthetic in that the various elements such as genes, chromosomes, DNA and RNA are causally related in the explanation to each other. The entire explanation can be regarded as a structured set whereby the elements are causally related to each other. A similar kind of explanation is an account of a chemical interaction such as the transformation of water into hydrogen and oxygen by electrolysis.

**1.61** Ultimately the purpose of analysis and synthesis is to secure understanding of some whole or unity by separating it into elements (not parts) and collecting (synthesising) these elements into structured groups which could then be said to approximate or explain the original whole. Thus analysis and synthesis are the conceptual process by which a whole is transformed into a structured set. The foregoing is intended to identify very general features of standard sorts of scientific explanation.<sup>31</sup>

**1.62** Examples of the process of analysis and synthesis can be provided from many diverse fields. Linguistic analysis involves separating language into its components — demonstratives, verb-phrases, noun-phrases, sentences, and modifiers — in order to synthesise these elements into sentences and thus postulate how sentences are constructed. Logical analysis involves a similar division of the conceptual scheme into various categories: predicates, names, variables, quantifiers, and connectives, in order to synthesise these elements and thereby demonstrate fundamental features of the conceptual scheme underlying language itself. Literary analysis involves dividing a literary work into metaphors, similes, component ideas, patterns of sound and of typography in order to synthesise these into an explanation or account of the meaning of the work.

**1.63** Analysis and synthesis are family concepts. The process of analysis and synthesis as above described are taken to be conceptual activities, as is abstracting, though they

are related metaphorically and/or analogically to physical analysis and synthesis as it might take place on a dissecting table or in a chemistry laboratory.

**1.64** To summarise: analysis involves conceptually dividing a whole into elements and hence transforming a whole into a set. Synthesis involves conceptually collecting the elements and relating them so as to form structured sets. These conceptual activities constitute part of the process of explaining some aspect of the original whole in order to arrive at an understanding of it.

**1.65** A whole which is subject to analysis and synthesis is not identical with the structured set which results from subjecting it conceptually to this process. It is only approximated by it. Explanation is conceived in very general terms as having occurred if analysis and synthesis has taken place.<sup>32</sup> However arguably there is a third step in explanation which is required for genuine understanding of a whole. This third step is the reunification or conceptual transformation of a structured set, formed by analysis and synthesis, into a whole.<sup>33</sup> This step cannot of course be identified unless the concepts of abstracting and of wholes are available to articulate it. It is this step which supplements the loss of information that occurs when a whole is divided into elements. Furthermore it may be this tacit or unacknowledged element in explanation that leads to a more complete understanding of the whole.<sup>34</sup> It can be argued that it is this third step in explanation, reunification, which leads to a ‘new way of seeing’ the original whole. It may even lead to new ways of being able to physically manipulate it.

**1.66** The objections of people from various disciplines to the lack of “systems” or “wholistic” thinking and to the overemphasis on “reductive” or “atomistic” thinking can be seen to be due to the lack of a legitimised notion of a whole and of the unifying mode of abstraction.<sup>35</sup> Only the conceptual notion of sets and elements and of the collecting modes of abstracting are regarded as legitimate.

Yet there seems to be evidence that the concepts of both kinds of abstracting and both kinds of products refer to genuine psychophysical processes as well as providing philosophical tools for analysis of our conceptual frameworks and of the nature of “real” world that these frameworks are taken to represent. If this is so then there seems to be strong reasons to include the concepts of unifying abstracting and wholes in our conceptual schemes as tools of analysis.

**1.67** This concludes the present account of abstracting and abstraction. The usefulness of the present scheme is primarily to be demonstrated in the chapters to follow. The notions of unifying abstracting, of wholes, parts and emergent properties are to be utilised therein to elucidate the nature of value judgements; of factual judgements and of the relationship between them.<sup>39</sup>

## CHAPTER ONE NOTES

1. Fishbein (1967): "...the concept of attitude is a hypothetical variable, abstracted from the many statements and actions that an individual makes with respect to a given object." (p.479) Morton (1971): "I am taking as a premise that language is represented in the brain in a way that reflects different levels of abstraction." (p.83) Morton also describes Lennenberg's view of the innate component of language as including "a capacity for extracting similarities from physical stimuli or from deeper classes of structural schemata." (p.92) Though not explicitly termed the capacity to abstract, the capacity to which Morton refers is so, as the notion of abstracting is here explicated.
2. Sperry (1975), p.250; Sperry Eccles (1980), pp.22-23. (1976)(a), p.53;
3. The notion of abstracting has also been utilised in philosophical contexts. Whitehead (1941): "Our conscious thought is an abstraction of entities from the background of existence." (pp.672-81) See also Whitehead (1938), pp.100-101; p.135; p.147; pp.168-169, and p.189. Aristotle's philosophy of mathematics was founded on the concept of abstraction (see. Aristotle (1976), pp.26-34)). Also, according to Aristotle, the capacity for abstraction is what explains the ability to know what something is. This is prior to and opposed to being able to define it (see Le Blond (1979), pp.64-65).
4. One can either *conceive* of something as a whole or *perceive* it as a whole. The two modes are conceptually distinct though they may be causally related. One can conceive of a beehive as a whole, though one may perceive it as consisting of individual bees (Chauvin (1968), P.68). On the other hand one may perceive a jelly fish as a unity yet conceive of it as a cluster of independent organisms. The causal interaction can occur in either direction. One may conceive of something as a whole because one perceives it to be a whole; conversely one may come to perceive something as a whole because one conceives of it a certain way, *e.g.* perceiving iron filings as connected by a magnetic field. For the sake of simplicity, however, conceiving of X as a whole will be taken as the paradigmatic illustration of the abstracting process.
5. "Same" is ambiguous between identical property and closely similar property. This ambiguity generates the problem of universals and particulars. Depending on which interpretation of 'same' one adopts, one is said to be either a nominalist or a realist about properties. Without trying to defend a solution to this old and recalcitrant philosophical problem, it can be said that no property, conceived of as an existing feature of the world, is the same as any other property (each property has distinct spatiotemporal co-ordinates). However, properties can be sufficiently similar to be referred to by the "same" term.
6. The notion of a whole also has both empirical and philosophical application. Part of G.E. Moore's theory of value depends on explicating the relation between wholes and parts (Moore (1948), pp.29-34). More recently Nozick (1981) utilises the notion of a whole to account for self-identity (pp.94-104). The notion of a whole also occurs in empirical contexts. Von Glaserfeld (1977) uses the term in explaining what constitutes a language, viewed as a system of communication. Piaget (1950) explains the development of the ability to conserve quantity in terms of the ability to perceive the conservation of a whole (pp.140-141). Kohlberg (1971), following Piaget, includes in his characterisation of the cognitive-developmental view of child development the concept of a "structured whole" (pp.352-353). Bohm (1980) uses the concept of wholeness (a property of a whole) in providing an alternative interpretation of quantum theory (pp.19-26; p.134). Finally, Maslow (1970) uses the concept of a whole to study personality (see pp.296-302, esp. p.297). The above is intended to establish the importance of explicating the concept of a whole.
7. I owe this definition of a differentiated whole to Dr. Mary McCloskey.
8. Mental representations have, since the development of cognitive psychology, become a subject of interest to psychologists (see Kosslyn and Pomerantz (1977); Pylyshyn (1979); Fodor (1981)).
9. 'Particular' will be used instead of 'instance of a particular' for the sake of brevity.
10. The difference between linguistic and perceptual criteria will be discussed below (see 1.56). However, for present purposes if something is said to be identifiable, it is assumed that it is both perceptually and linguistically identifiable.
11. See Note 5 above.
12. However not all properties are wholes. As will be discussed later in Chapter Two, some properties are parts.
13. Quine (1) in Quine (1960), pp.96-97; Quine (1961), p. 7f., p.167.
14. *Ibid.*, p.12.
15. *Ibid.*, p.6.
16. Capek (1961), pp.254-260; Ch. XV. esp. pp.271-272.
17. Bohm (1980), p.11.
18. This is how the concept of abstracting has been traditionally used (see Note 3 above).
19. Cantor (1915): "By an "aggregate" (*Menge*) we are to understand any collection into a whole (*Zusammenfassung zu einem Ganzen*) M of definite and separate objects in our intuition or our thought." (p.85)
20. The main one is posed by Russell's paradox. If we allow that sets can be set members then the set of all sets which are not members of themselves, both is and is not a member of itself. Russell's solution to this and other similar paradoxes was type theory in which types of objects at each level could not be members of objects of the same level. Hence sets could not be members of sets (see Whitehead and Russell (1910), Chapter II, esp. pp.63 and 65).
21. Quine (1960), pp.233-234.
22. cf. Moore (1948), pp.34-35.
23. Arnheim (1974), esp. Introduction.
24. Weiss (1969).
25. Arnheim (1974), p.5, p.11.
26. Dewan (1976), p.182; Sperry (1976)(b), pp.165-166. See also Note 10 above.
27. Nagel (1961), esp. Chapters 11 and 12; Putnam (1973); Ruse (1973), esp. Chapter 10; Wimsatt (1976), esp. Part II.
28. Interpreting common names as class names is consistent with the logical analysis of common names whereby 'is a table' is represented by a predicate variable which stands for a class of objects (given that attributes are interpreted extensionally). See also Alston (1964), p.16.
29. This view that naming requires classification converges with the problem of pattern recognition in empirical psychology. As Neisser (1976) points out, the main problem for explaining pattern recognition is accounting for the mechanism of classification. It is not possible at present (and Neisser speculates perhaps not possible at all) to decide empirically between different theories of the mechanism of classification (p.74). The present view of the role of abstracting as a prerequisite for naming is not a view about the mechanism of classification but the pre-condition for it, *viz.* the abstracting of a set of features from an object (see also Note 3, Le Blond (1979)).
30. Wittgenstein (1968), 30e-32e.
31. It has been argued that this sort of explanation is essentially incomplete (Weiss (1969), pp.5-7; Bohm (1980), Chapter One).
32. Weiss (1969), p.7.
33. A new whole may be formed, *i.e.* one which is differently differentiated.
34. Weiss (1969), pp.8-11.
35. Koestler (1969), especially papers by Weiss; Koestler; von Bertalanffy and Waddington.

## Ch.2 — VALUE JUDGEMENTS

### Introduction

**2.1** In Chapter One the notions of abstracting and abstraction were discussed. At the conclusion of that chapter it was suggested that these notions were necessary to adequately elucidate, amongst other things, value judgements. In the present chapter value judgements will be discussed in terms of the framework developed in Chapter One.

### The analysis of value judgements

**2.2** The following is suggested as an analysis of value judgements:

X (where X is some object) is Y (where Y is some property) is a value judgement iff:

- i. The judgement implies either logically or presumptively that the speaker has a pro or con attitude to X. Presumptive implication, to be designated 'p-implication', will be discussed below.
- ii. The judgement p-implies that X has certain properties in virtue of which X is being said to be Y.
- iii. The judgement p-implies a standard by means of which X is judged to be Y.

The object, referred to in the value judgement, will be termed the value object. The property referred to in the value judgement will be termed the value property. Value properties are to be identified contextually — they are the properties that appear in value judgements.

### P-implication — (Presumptive-implication)

**2.3** Prima facie p-implication differs from logical implication in several ways.<sup>1</sup> Firstly and most importantly the link to the statement or term which is p-implicated seems more obviously empirical than it does in the case of logical implication. To claim that the latter is revisable an empirical grounds, as Quine does, is more controversial than to claim that p-implications are. P-implications, being empirical, are obviously revisable. Hence it also seems reasonable to claim that we have learned the p-implications and that we know them a posteriori rather than a priori. P-implications therefore seem "weaker" than logical implications, which latter, on the standard view, carry the requirements that the relations involved are fixed in some sense and cannot on pain of self-contradiction be contravened. Thus 'She is his wife' is said to logically imply 'She is not single' and consequently it is taken to be self-contradictory to assert 'She is his wife but is single' on a "standard" reading of this statement.

**2.4** It is not however contradictory to say 'That table is ugly but I like it' or 'That person's face is ugly but nevertheless it has an appealing quality'.

**2.5** The second prima facie difference between logical and p-implication is that not only judgements but terms will be taken to have p-implications. P-implications can be regarded as identical to what are sometimes called in a literary context the associations of a term. The associations of terms are most clearly revealed by literary analysis. It is necessary to proper critical analysis of a poem, for example, to introduce some such notion in order to explain adequately how language functions in a literary context. In Keat's line:

Glut thy sorrow on a morning rose

the term 'morning rose' p-implies purity, freshness, beauty etc.<sup>2</sup> Understanding these associations is essential to understanding the significance of the line as a whole. Thus it is not simply the logical implications but the p-implications (associations) that give the line its depth of meaning.

**2.6** Terms can have p-implications not only in a poetical but in a philosophical context, which may influence or weight arguments. Hence it is particularly important that the p-implications should be identified. It is not just the logical implications of saying: 'Abortion is murder' that carry weight in the argument against abortion. It is also, it can be argued, the p-implications of the term, which are violation, brutality and injustice. The "hidden baggage" of terms, their p-implications, makes it important for example whether the term 'kill' or 'euthanize' is used to describe a particular act. P-implications can thus also account for what is termed the emotive force of language. An emotional response to the term "The Holocaust" is evoked in part by the p-implications of the term in question. P-implications can thus be regarded as the empirical connections, acquired through learning and experience, that terms and judgements have with other judgements and terms.

**2.7** A term such as 'ugly' p-implies that the speaker has a negative attitude towards the object being judged. This is the most reasonable interpretation because as a matter of fact the possession of the property is not, for the most part, regarded with approval and because the term is not, for the most part, used so as to indicate liking. However the term 'ugly', like most value terms, is sufficiently "open-textured" to be linked to an approving term without contradiction. It is not, however, so open-textured that there is no presumption of approval or disapproval, *i.e.* that approval or disapproval is not p-implicated. In the case of the term 'clever' it approval that is p-implicated.

**2.8** It is possible however to utilise the term 'clever' in such a way that it is associated with disapproval, *e.g.* 'The radio announcer was just being clever' or 'The conversation was shallow and clever'.

**2.9** What constitutes the p-implications of a judgement or term is thus an empirical matter. Most users of language have introspective access to this information since it is part of what is imparted when the language is learned. A necessary condition for being able to speak a language is knowing under what circumstances to use terms and judgements. Another necessary condition, obviously related, is knowing the p-implications of judgements and terms.

**2.10** According to the ‘meaning is use’ view, extrapolated from the later writings of Wittgenstein, the meaning of a term is its use.<sup>3</sup> According to the present view, meaning is an emergent element of a set comprising both the logical and p-implications of judgement or terms. There are many interesting consequences of accepting such a view, only some of which can be presented here and those rather sketchily.

**2.11** Meaning can be defined as ‘those other judgements (or terms) with which a judgement (or term) can be legitimately linked, either logically or by p-implication’. These links are known in virtue of being a language-user and constitute in part knowledge of the language. Hence they are known “a priori” in the sense that knowledge additional to that acquired in the course of learning the language is not required.

**2.12** Contrary to Wittgenstein (or rather Wittgensteinians) use is not to be identified with meaning. Rather on the present view it is what emerges as a result of use of the language. Meaning is an emergent element of terms, judgements and sentences used and learned in particular contexts and constitutes in part the knowledge of the language acquired as a result of such learning and use.

**2.13** Logical implication could then be regarded as a special case of p-implication. What are called the logical implications of a term could then be regarded as the relatively entrenched p-implications rather than as something quite distinct from them.<sup>4</sup> This is consistent with the rejection of the analytic/synthetic distinction to be discussed in Chapter Three. To say that ‘Martha is not single’ is a logical implication of ‘Martha is Harry’s wife’ is, in part, to forbid the use of the statement ‘Martha is Harry’s wife but is single’ (said of Martha) on pain of self-contradiction and other things being equal. The ‘ceteris paribus’ clause has to be included because of the open-textured nature of language. This open-texture gives language its enormous flexibility but is the bane of the logician and the philosopher. For example it would be possible to use the above statement in a circumstance in which it would not be self-contradictory. The above may be used to indicate that Martha is separated from Harry or that she lives as a single woman would, and so on.

**2.14** Logical implications would then be those linguistic connections, acquired through use of language in particular circumstances, which change relatively slowly or are relatively unchangeable; which are known “a priori” to the speakers of the language; which are linked with a judgement independent of any particular use of a statement; which are

accepted as being substitutable ‘*salve veritate*’; which are accepted as true if the implying judgement is accepted as true and so on. However, they are, in the final analysis, inescapably empirical connections. The genuine difference between logical and presumptive implication, on the present view, thus cashes out as the difference between the entrenched as opposed to the less entrenched empirical connections of a term or judgement. The meaning of a term (or judgement) is an emergent element of the entire set of terms (or judgements) to which it is connected by more or less entrenched p-implication.

**2.15** It seems clear that it is an empirical question how and when something becomes part of the meaning of a term — either part of its logical implication or part of its p-implication. Quine’s claim that we can only provisionally separate analytic and synthetic aspects of language seems essentially correct and is consistent with the above view.<sup>5</sup> Analytic statements express logical connections — those which are relatively entrenched and which we are not aware of having learned since we learned them in learning the language. This would explain people’s capacity to identify analytic statements.<sup>6</sup>

**2.16** It seems undeniable that the logical implications of words undergo changes over time. In the area of theoretical science, the development of the meanings of theoretical terms has received closest scrutiny, it is generally agreed that the meanings of terms change and develop over time.<sup>7</sup> Therefore it seems reasonable to suggest that in general, with constant and widespread use, one term or judgement becomes substitutable for another or attached to it in a relatively constant way. It is then regarded as ‘meaning the same’; being ‘part of the meaning’; being ‘synonymous’ or, if the speaker is philosophically more sophisticated, as ‘being analytic’ or ‘being logically implied’. This process may simply be slower and hence less noticeable in a non-scientific context, or perhaps it has received less philosophical scrutiny.

**2.17** The notion of p-implication merely emphasizes these conclusions about language. All implications of a term, logical or otherwise, are arrived at or changed through use. The notion of p-implication also emphasizes the contextual nature of language and language-learning (an insight due largely to Wittgenstein) and how both terms and sentences function through network linkages with other terms and sentences. It is through learning that such links are set up. Whatever else about language may be innate, knowledge of the meaning of terms and sentences is not.<sup>8</sup> The view presented above is consistent with work in linguistics on semantic features and semantic representation by Katz, Fodor and others.<sup>9</sup>



## The three conditions for being a value judgement

### 1. Speaker has some attitude to X

**2.18** *Condition One: The judgement implies either logically or presumptively that the speaker has a pro or con attitude to X.*<sup>10</sup>

The first condition for being a value judgement is that the judgement p-implies something about the attitudes of the judger.<sup>11</sup> What value judgements p-imply is that the judger has a positive or negative attitude towards that which is being judged. This is analogous to the two truth values, true or false (significantly also termed ‘values’) which are assigned to factual judgements in formal logic. The “sign”, in the case of value judgements, is assigned to the judger as a result of what the value judgement as a whole p-implies.

**2.19** Terms such as ‘elegant’, ‘refined’, ‘witty’, and ‘beautiful’ generally carry a positive (*i.e.* approving) p-implication. The terms ‘fatuous’, ‘crude’, ‘sentimental’, ‘sloppy’ carry a negative (*i.e.* disapproving) p-implication. The consideration that value judgements have a sign is behind Hare’s insight that the term ‘good’ is related to commendation.<sup>12</sup> It is not, however (pace Hare) the sole characteristic feature of value judgements on the present view.

**2.20** Thus the judgements: That is an elegant chair. The prose is vigorous.

The landscape is serene. can all be value judgements which p-imply that the speaker has a pro attitude towards the object about which the value judgement is made.

**2.21** The last act of the play was contrived. The colour is jangling.

The decor is precious. are, under appropriate interpretations, examples of value judgements which imply that the judger has a con attitude towards the value object.

**2.22** Many value terms carry a positive or negative p-implication when viewed as isolated terms, however this is modifiable both by sentential context and by context of utterance.

**2.23** For example in the judgements: He is just so refined. and The line was crude and vigorous. the terms ‘refined’ and ‘crude’ are modified by the sentential context so that they become negative and positive respectively.

**2.24** P-implications of value terms can also be modified by the context of utterance; by tone of voice; gesture; facial expression; or even by prior knowledge, as the following examples illustrate. Someone remarks: ‘Isn’t that refined:’ in a scathing tone of voice; or says: ‘That was a clever piece of work:’ in a contemptuous manner; someone pulls a face while remarking: ‘That’s pretty’ or says ‘Yes, its competent’ with a dismissive wave of their hand; or exclaims ‘But it’s brown;...’ All these modify the value terms by context of utterance. In the case of the last example, a term that is

regarded as a paradigm of an observation term is converted, at least partially, into a value term in virtue of appearing in a value judgement and is modified by the context of utterance so as to carry a con p-implication.

### 2. Value judgement credits X with relevant properties

**2.25** *Condition Two: It is p-implicated that X has certain properties in virtue of which X is said to be Y.*

The second characteristic feature of value judgements is that they p-imply that the value object has certain properties in virtue of which the value term is applied to the value object.<sup>13</sup> Value judgements undeniably have the form of objective reference. ‘The table is ugly’ has the same grammatical form as ‘The table is brown’. However, a more controversial claim of the present thesis is that the logical form of value judgements is also such that *they p-imply that X possesses certain properties in virtue of which X is asserted to be Y.*<sup>14</sup> That is to say objective reference is p-implicated in value judgements. It is logically implicated in factual judgements, *i.e.* it is a more entrenched association.

**2.26** Most terms which are characteristically used in value judgements, such as ‘precise’, ‘elegant’ etc. refer to emergent properties — greater constituents in relation to the particulars to which they belong. Specifically value properties are *emergent parts*, *i.e.* value properties which are greater constituents of the entire value object but which cannot be identified independently of identifying the value object. To the extent that value terms refer to emergent parts, they lack specificity of reference.<sup>15</sup> This is not to imply that they lack objective or factual reference. To say that the table is ugly is not specific in that it does not logically imply what parts (in the technical sense spelled out in Chapter One) of the table constitute its ugliness, as it were. However the value judgement p-implies on the present view, that there are such parts and that it is in virtue of these parts that the table is termed ugly.

**2.27** It is not only their *inspecificity* of reference, a consequence of value properties being emergent, that is characteristic of value predicates. It is also their *variability*. This is also a consequence of value properties being emergent parts. The reference of value predicates characteristically changes with (a) change of value object; (b) change of valuer; (c) change of standard; and even (d) change of occasion. ‘Beautiful’ in ‘What a beautiful vase’ generally has different referent to ‘beautiful’ in ‘What a beautiful body’. It may also differ from person to person or occasion to occasion when the judgement is made by the same person. This is not to be explained solely in virtue of the fact that the value properties or value objects concerned are different, though that factor obviously does contribute. Neither is it to be explained solely in terms of emergence since not all emergent properties are variable in this way. ‘Consciousness’ or ‘being

to the left of' are terms referring to emergent properties which do not vary in referent from object to object (or alternatively refer to closely similar referents — depending on whether one is a realist or a nominalist). Intuitively it is the parts of the value object in virtue of which it is judged to be beautiful, that are likely to be different in each case. Hence the emergent property will be different even in the case where the value object may not be.

**2.28** To give an example, suppose two people are viewing a pottery vase. For one person it might be in virtue of the colour and quality of the glaze, the slightly uneven shape of the vase, its size and the texture of the clay that the value property of being beautiful is applied. On the other hand another person viewing the same vase may say it is only mediocre because of the patchy quality of the glaze; because the pot is slightly off-round on one side; because the colour, according to a different standard, is seen to be too bright and so on. Yet the two people may be looking at the same vase. However they see it as two distinctly differentiated wholes, constituted by different parts. Hence the emergent value properties ascribed to the vase, are abstracted from different wholes and are, to that extent, themselves different.

**2.29** This is not to imply that value terms such as 'beautiful', necessarily have several different meanings, *i.e.* that they are ambiguous. They may even continue to have the same function of commending.<sup>16</sup> However as Frege noted, meaning and reference are distinct, as are meaning and function (or meaning and use).<sup>17</sup> Ziff argues that the use of 'good', for example, is distinct from the function of commending.<sup>18</sup> The question of the meanings of value terms will be briefly considered below.

**2.30** A comprehensive account of the nature of value judgements needs to consider firstly, the *semantics* of value judgements, in particular the nature of the referent of the value predicate; and secondly the *function* of making value judgements.

**2.31** The first important aspect of value judgements has already been dealt with. The conclusions reached can be summarised as follows. A value predicate refers to a property which is an emergent part of the value object. As stated in Chapter One, a whole is that which is formed by unifying abstracting (see §§1.25–28). A new whole (the value property) to which the value predicate refers, is 'created' by each individual making a new value judgement. Intuitively each individual selects different parts of the value object on the basis of which to abstract an emergent value property. Thus different people typically differentiate value objects so as to form differently differentiated wholes. Hence they abstract different value properties from these wholes.

### 3. Value-Judgement implies a standard for X (see §2.77, p.19)

#### The function of value judgements

**2.32** The second important aspect of value judgements to be considered is their function. There are three spheres in which value judgements play a central role: the moral, the aesthetic and the scientific — the realms of the good, the beautiful and the true.

**2.33** It is the existence of contingencies, change and above all of alternatives, that make value judgements so important in each of the three spheres. The nature of the contingencies and the perceived significance of value judgements, however, differ in each sphere. The importance of value judgements has not been easily recognised in science, for example. Even if it has been, as in moral decision-making, for a variety of reasons to be explored in the course of the thesis, they are nevertheless regarded as troublesome.

**2.34** The general function of making value judgements in each sphere is to communicate the valuer's viewpoint, *which generally involves novelty and creativity*. This is so for three reasons. Firstly, each individual valuer generally has a unique perspective. Secondly, as argued above, generally value properties are created anew with each new value judgement. Thirdly, the lack of conceptual regimentation in value predicates permits conceptual novelty in a way that factual predicates do not. From an intersubjective point of view the general function of making value judgements is that it enables the unique perspectives of individuals to be made intersubjectively available. Thus the individual's resources enhance the resources of the group.

**2.35** The perspective of an individual is likely to be unique or novel for personal, historical, cultural, social and biological reasons. These differences can often be elided by language — either because the person doesn't have the skills required to use language creatively; because they do not have the incentive or because they do not have the opportunity. Furthermore, language is standardised in form (syntax) and content (semantics) exactly in order to facilitate communication. But for that reason also language can mitigate against verbal expression of novel conceptions or perceptions.

**2.36** The variability and inspecificity of the value predicate or term, its open texture, linguistically permits each valuer to create or abstract anew the value property. The pro or con connotation of value judgements reflexively signals the personal mode. Thus the sign serves to indicate by p-implication that the source of the judgement is individual and personal.

**2.37** The function of making a value judgement can be seen as the set of illocutionary acts it is typically used to perform.<sup>19</sup> The function and the semantics of value judgements interact. Value judgements have the function they do because of their semantics and their semantics reflect the functions they can be



utilised to perform. The function of value judgements, which is to communicate an individual perspective, is permitted and facilitated by the semantics of value predicates, in particular by the emergent nature of the value property and the consequent variability and inspecificity of value predicates.

**2.38** Value judgements semantically speaking tread the fine verbal line between sufficient semantic and syntactic precision for communication of a viewpoint to be possible, but not so much precision that an individual and unique viewpoint (as represented by the emergent value property) cannot be formulated and signalled. Thus value judgements bridge the gap between communicability and creativity. As will be seen below, aesthetic objects, in a different but related way, face the same task. Hence it is not surprising that the importance of value judgements is most clearly acknowledged in the aesthetic sphere.

**2.39** As will be seen in a later chapter, where the functions of making factual and value judgements are compared, the function of making value judgements is diametrically opposed to that of making factual judgements. The latter typically function to linguistically standardise, or bring about the convergence of individual perspectives.

### Value judgements in the aesthetic sphere

**2.40** In the aesthetic sphere the function of making value judgements is to communicate the individual perspective *in relation to the perception of and interpretation of aesthetic objects*. This function is partly related to the nature and function of aesthetic objects themselves. The aesthetic function is to demonstrate through a unique and particular material form (where ‘form’ is taken to refer to those aspects of objects available to sensuous apprehension — touch, sight, taste, sound, etc.) some “content”. Typically aesthetic objects are themselves unique and individual. Value judgements permit the individual’s peculiar response to the generally unique aesthetic object to be verbally communicated, yet without being overly specific, from a semantic point of view, about the referent of the value predicate. Thus referential language is stretched to the limits in the aesthetic context.

**2.41** Picasso’s “Guernica” like Goya’s sketches of the Spanish Civil War depicts the horrors of war. Yet the work of each artist communicates its content by means of a unique and particular form. It is this unique and particular presentation of content by means of a material medium or form that characterises the aesthetic sphere.

**2.42** The particularity and uniqueness of each aesthetic object both permits and requires a corresponding unique response from the observer/critic. Aesthetic objects are not generally standardised in either form or content since that would conflict with their aesthetic function. There is no “grammar” or “vocabulary” of art, as it were. There are of course what are called conventions, styles — and metaphorically — “languages” of representation.

By the same token there are, critical schools aside, no standardised or conventional means of interpreting these unique forms, *i.e.* there is no science of critical interpretation of aesthetic objects.

**2.43** Thus each individual making an aesthetic value judgement is mirroring the unique function of aesthetic objects which is to make a unique formal “statement”. The observer/critic making a value judgement makes a unique personal statement about the value object. It is here that the creativity of the critic and the creativity of the artist can become entangled — to the benefit of neither. However, there is undoubtedly a creative element in making an aesthetic value judgement. It consists of selecting those parts of the value object on the basis of which to apply the emergent value property and of abstracting the value property from these parts. It is this close relation between aesthetic value judgements and the unique function of aesthetic objects that secures the central role of value judgements in the aesthetic sphere. Value judgements are acknowledged as germane to critical evaluation of aesthetic objects.

**2.44** Thus the essential tension in art and art criticism (the latter including the making of value judgements about aesthetic objects) is between the novelty of form and the communicability of content. When the artist satisfactorily resolves this tension there is maximum novelty of form and maximum communication of content. Value judgements reflect this tension. As spelled out above value judgements tread the fine line between novelty and communicability in regard to the emergent value property.

**2.45** *To summarise:* making value judgements in the aesthetic sphere is a response to the variability, individuality and hence interpretability of aesthetic objects. It is these features of aesthetic objects that elicit the requirement for individual perception of and interpretation of aesthetic objects. This function value judgements are semantically well-suited to perform. The isomorphism between aesthetic objects and the semantics of value judgements makes the function and significance of value judgements in the aesthetic sphere relatively obvious.

### Value judgements in the moral sphere

**2.46** In the moral sphere the function of value judgements is to communicate the *individual’s perspectives in relation to decisions about action*.<sup>20</sup> Again the semantic features of value judgement, their variability and inspecificity permit novelty in relation to dealing with the manifold contingencies of human behaviour and affairs. Individual judgements are required in order to permit both the application of and extraction of moral principles in specific situations. As Kant argued each action has associated with it some principle or maxim and that moral actions are those which are associated with properly universalizable moral principles.<sup>21</sup>

**2.47** Moral judgements tend towards the general for three reasons, two contingent and one criterial'. Firstly, the regularities, as opposed to the contingencies, of human society and behaviour permit of principles to be devised: principles or proto-laws forbidding theft, murder, lying etc. Secondly, the need exists to standardise behaviour so as to make it predictable and hence to increase social cohesion. This also makes it desirable to generalise moral notions as imperatives, principles or codes. Finally, as Kant argued so strongly it is of the essence of moral judgement that it be universalizable and general in form as well as in practical application.<sup>22</sup> This point will be discussed further in Chapter Seven.

**2.48** However, the need to operate with these principles in the diverse and complex moral situations in which people find themselves, requires the mediation of decisions by individuals regarding what ought to be done. As will be argued in Chapter Seven this requires value judgements since typically there are alternative actions, and hence alternative principles of action available to the agent. Making value judgements constitutes, it will be argued, a rational way of choosing between alternative courses of action.<sup>23</sup>

**2.49** In the moral sphere therefore, it is not novel objects but the novel contingencies of action and their relata (motives, intentions etc.) and the concomitant need to extract and/or apply moral principles that leads to the requirement for making value judgements.

**2.50** Moral judgements regarding what is right and wrong can be regarded as value judgements (a position also to be argued for in Chapter Seven). An alternative is to regard such judgements as teleologically related to value judgements regarding what is intrinsically good.<sup>24</sup> In either case however it is recognised that value judgements are integrally involved in making moral decisions. Due to uncertainty about the possibility of rationally assessing value judgements, they are nevertheless regarded as problematic. The rational assessability of value judgements is the topic of Chapter Six.

### Value judgements in the scientific sphere.

**2.51** The primary function of value judgements in the scientific sphere is to communicate the individual's personal assessments of the proper course to take in the pursuit of knowledge. Such assessments are required to accommodate the experimental and theoretical changes intrinsically involved in the pursuit of scientific knowledge. Essentially the point is this: if there is no purely objective basis for decision-making in science, then making value judgements can constitute part of a rational process of making choices in regard to experimental procedures and results and ultimately in regard to theories.<sup>25</sup>

**2.52** The basic arguments for this position will be put in the following chapters. Briefly, they are as follows. "Theory" is required for observation. Therefore, theory proper is ultimately not determinable by observation alone. Hence it is

not determinable by anything purely objective. Hence in order to decide which theory to accept non-observational means are also needed. As will be argued in Chapter Five these non-observational means include arguments — both deductive and non-deductive. If it is accepted that value judgements p-imply objective reference and a standard then, as will be spelled out in a later chapter, the implications of this are that value judgements are, like factual judgements, rationally and intersubjectively assessable by non-deductive argument and observation. Hence making value judgements can constitute part of the rational process of deciding which theories to accept.

**2.53** Value judgements can be seen to be involved in theory choice in two respects. Firstly, judgements about simplicity, explanatory power, heuristic power etc. can be regarded as, at the very least, involving value judgements, akin to aesthetic judgements based on emergent properties of a theory according to some standard. These judgements, for example that a theory is simple, could then constitute essential premises in arguments in favour of accepting a particular theory. This can be illustrated in regard to what is currently regarded as the most likely rational criterion for theory choice — simplicity.<sup>26</sup>

**2.54** If there is a quantitative measure of simplicity (such as, for the sake of simplicity) the number of new entities introduced by a theory, then we are no longer dealing with value judgements but with quantitative judgements. As will be further argued later in this chapter, measurement or quantitative assessment is interestingly related to making value judgements. However, the standards in the case of measurement (such as for example the standard metre) have been fixed and intersubjectively agreed upon. Therefore, judgements made in the light of this standard are accepted as a fact. The standard itself becomes a theoretical presupposition of an observational judgement (see §§3.19–25). Measurement can be seen as the convergent point of factual and value judgements because the pro and con (and hence personal) implications disappear. Though a standard is still involved it is articulated and intersubjective. The quantity, the property involved in measurement (*e.g.* length) is not newly emergent each time the measurement is made but is fixed (*e.g.* is 2") according to the fixed and intersubjective standard.

Furthermore, length is not an emergent part of an object but an emergent element. These points will be taken up again when comparing factual and value predicates in Chapter Six.

**2.55** However insofar as the standard has not been agreed upon and is not fixed and there is no quantitative measure of simplicity, then simplicity can be seen as a value property which is emergent and which is abstracted from objective features of a particular theory. This is analogous to the way in which various aesthetic properties might be abstracted from objective features of an aesthetic object and assessed in the light of an unarticulated or partially articulated standard.

The standard may be extremely complex insofar as the aspects of the theory that constitute its simplicity have not been analysed into elements identifiable independently of a particular theory.<sup>27</sup> If however the standard is articulated and is converted into an intersubjective standard and the features that constitute simplicity are converted into elements and are named by factual predicates, then a qualitative judgement of simplicity may become a quantitative or factual one.<sup>28</sup>

**2.56** The second respect in which value judgements are involved in theory choice is in regard to assessing non-deductive arguments in support of a particular theoretical claim. Judgements about support can, like judgements about simplicity, be seen as value judgements. On the other hand, if there is a more exact measure of support, such as is provided by means of a modified probability calculus under a particular interpretation, then judgements of support can be seen as factual judgements.<sup>29</sup> Arguably these latter judgements of the probability of a hypothesis on the evidence, are factual judgements insofar as the relation between hypothesis and evidence can be assigned a quantity. Insofar as judgements of support are value judgements then support can be seen as an emergent property of a particular argument assessed according to a complex and unarticulated standard which may differ from person to person.

**2.57** It is in the scientific sphere that the role of value judgements has been most difficult to recognise and accept. This is in part because of empiricist doctrine regarding the nature of value judgements, in particular that they are not susceptible of rational assessment. With the extensive revision of views about the nature of science that has taken place in the last twenty years in particular, this is slowly changing. Recognition of the integral role that value judgements play in the pursuit of scientific knowledge has also been growing.<sup>30</sup> It is the basic contention of the present work that to acknowledge this does not necessarily commit one to the view that science is irrational. Rather it requires a revision of, amongst other things, what it is to be rational.

**2.58** Value judgements function in the scientific sphere as they do in the other two spheres. They function to represent and communicate personal evaluations ultimately in regard to choice of the true or most acceptable theory of how things are. However, in science there are strong intersubjective constraints on such personal judgements, since science as an activity is highly institutionalised. This, as Bacon prophetically perceived, is essential if it is to fulfil its promise as a means of securing socially beneficial knowledge.

**2.59** In some respects however, the role of value judgements is most critical in the scientific sphere. If it is not, in principle, possible to determine which theory is appropriately related to the existing evidence on observational grounds alone, then if it is accepted that value judgements are rationally justifiable and objectively based, it can be argued that value judgements are required for rational theory choice.<sup>31</sup>

**2.60** Thus the tension in science is the obverse of that in the aesthetic sphere. The aesthetic challenge is to create a form for representing unique and personal revelations. The scientific challenge is that of making creative, personal discoveries in the framework of a pre-existing and intersubjectively determined context and of expressing these in an intersubjective mode. It is for this reason, amongst others, that the role of value judgements, so visible in the aesthetic sphere, is so disguised and undervalued in the scientific sphere and so difficult to incorporate into an acceptable account of science.

**2.61** Accepting an important role for value judgements in science also conflicts with the received view of the latter. The received view of science is that science is objective. And so it is in certain respects. However, what has been revealed in the philosophical investigations of science in the last two decades is that there are ineradicably “subjective” elements in the methods of science, and even more shocking, that these may in principle be necessary for acquiring knowledge by scientific means. These elements involve utilising rational means — including making value judgements — to arrive at scientific knowledge. The rational means are necessary because observation is not sufficient. All this will be further elaborated in subsequent chapters.

**2.62** The salient point of the analysis and discussion of value judgements is that though they may have a personal source, they have objective reference and can be made intersubjective, *i.e.* can be articulated and justified according to rational principles. Value judgements have dual subjective/intersubjective features as will be discussed in the section below.

**2.63** Value judgements in science are made by an individual scientist in the face of the contingencies of investigation, in which she/he finds her/himself, regarding ultimately which theories are acceptable. They communicate the invaluable “on-the-spot” judgements of the individual to the group. Thus they are integral to facilitating the advance of science — as integral as is the knowledge which is often the result of these individual investigations. This function is constrained by the intersubjective mode and orientation of science.

**2.64** Whilst art publicly celebrates the individual effort, science publicly celebrates the intersubjective or group one. However though the emphasis is considerably different, both disciplines rely on individual effort. In addition both disciplines must, insofar as they aim at intersubjective communication, rely on intersubjective means. These may be materially created anew by each individual creating an aesthetic object and conceptually re-created by each observer/critic out of their own personal resources. Alternatively these means for creation and interpretation may already be available as they are to the members of the scientific community.

**2.65** Therefore value judgements in science have the function of communicating the result of rational decision-making in regard to choice of a correct theory — whether a theory to test or one to accept on the basis of experimental evidence. However, these evaluations are made in an intersubjective context comprising what Kuhn termed a paradigm: common theoretical frameworks; common procedural techniques; common background acquired through formal education and informal induction into the profession; and common formal (mathematical) and non-formal languages used to communicate these discoveries.

## Objectivity and subjectivity

**2.66** The present account of value judgements does justice to both their subjective and objective elements.

‘Subjective’ generally means:

- i. having only a personal source
- ii. being therefore unreliable since not intersubjectively based
- iii. not having reference to an external reality (being only about one’s own response)
- iv. misperceiving reality due to personal bias.

‘Objective’ generally means:

- i. having an impersonal (objectively validated) source
- ii. hence being reliable
- iii. making reference to that which has external reality
- iv. impersonally (correctly) perceiving external reality.

**2.67** The main thrust of the present analysis is that value judgements have both components. However, they are neither clearly subjective nor clearly objective in the above senses. They can be said to have a personal source (which as has been argued in the last section contributes to their important functions in the three major spheres) yet they are, it will be argued in Chapter Five, rationally and intersubjectively assessable. The p-implications of value judgements indicate the subjective element, *i.e.* they make reference to the attitudes of the speaker — pro or con — and to the standard. The standard is likely to be personal and unarticulated yet is capable of being intersubjective and articulated. The logical form and the semantics indicate the objective element, *i.e.* that the value property is applied in virtue of objective properties of the value object. Yet the value property is itself emergent and in a sense created or abstracted by the person making the value judgement again a subjective element.

**2.68** There are three main reasons for thinking that there are both subjective and objective aspects of value judgements. Firstly, it best explains the frequent and extensive use of value judgements. Secondly, it best explains the cleavage in the standard analyses of them — some claiming that they are totally objective and some claiming that they are totally

subjective.<sup>32</sup> Thirdly, it follows from a revision of the nature of factual judgements as themselves having a subjective element, and a consequent revision of the relationship between factual and value judgements, these being traditionally opposed. The latter point will be the subject of Chapter Six. The first point can be supported by appeal to the fact that people constantly make value judgements in all kinds of contexts and argue about them. Furthermore, when they do, they make reference constantly to the value object or situation in order to settle their disputes. This is best explained by accepting that (a) value judgements have an important function and (b) that an object or situation is being referred to in some way in making the value judgement.

**2.69** The semantical complexity of value judgements may explain, in part, the problem of analysing them adequately. It is the inspecificity of reference as well as the variability of reference of value terms that may have in part led people to conclude that value terms do not objectively refer to properties of objects at all (as did positivists and other emotive theorists). To be semantically inspecific about which aspects of a table contribute to its ugliness is not to thereby deny that the aspects are in some sense being referred to.

**2.70** The denial of the objective reference of value terms has led to problems with the meanings of these terms. Moore, rightly I think, argued that we cannot define ‘good’ in terms of any set of natural properties.<sup>33</sup> He concluded that therefore the term denoted a simple non-rational property.<sup>34</sup> Given the present analysis of value judgements, one would not expect to be able to define value terms in terms of any fixed or even family set of properties, either natural or non-natural.

**2.71** ‘I’ is a term which refers to the speaker and hence its reference is context-dependent. Likewise the referent of a value term, for example ‘ugly’, is context-dependent. The referent of the term ‘ugly’ is determinate or specific in a particular case in that it refers in virtue of, and p-implies, objective features of the value object. However, ‘ugly’ does not logically imply or refer to or mean those objective features.

**2.72** Neither does the variability and context-dependence imply ambiguity. The fact that ‘I’ refers to different speakers in different uses of it does not imply that it has a different meaning in each case. The meaning of ‘I’ insofar as it can be said to have one, is something like a verbal “pointing” to the person speaking. In fact it could be argued that ‘I’ is able to be used in this variable way precisely because its meaning stays constant: it always signifies the person speaking.

**2.73** Clearly value terms do have some meaning which stays constant. This is the best explanation for preferring one value term to another. One chooses to use ‘ugly’ rather than ‘hideous’ presumably, in part, because of the meaning of these terms.

**2.74** However the important point in regard to value terms for present purposes is the following. In the case of value terms because of their semantics, *meaning is no guide to the reference of the terms.* The meaning of value predicates



cannot be defined in terms of the referent of value predicates. This suggests that value predicates are likely to be, as indeed it turns out they are, difficult to define. This is because whilst they have the form of class names yet they do not, it has been argued, refer to that which can be identified by means of a class name. In order to identify some property by means of a class name it must be an element which can, by definition, be identified independently of that to which it belongs.

**2.75** Value predicates cannot be defined in terms of that to which they refer because they refer to an emergent part, which (by definition) is itself not able to be identified independently of identifying the value object. *It thus emerges that a necessary condition of being able to define a predicate in terms of that to which it refers is that the predicate in question refer to an element — i.e. something that can be named by a common or class name.*

**2.76** Since value predicates refer to emergent parts, they are variable and inspecific in regard to their objective reference. Value predicates do not logically specify the objective features of the value object in virtue of which they are applied. Hence the reference of value judgements is inspecific. Value predicates refer to the value property in virtue of different features of the value object in each new value judgement. Hence the reference is variable. Nevertheless value judgements are made in virtue of objective features of the value object.

### Condition Three for being a Value Judgement: — a ‘standard’

**2.77** *Condition Three: The judgement p-implies a standard by means of which X is being judged to be Y.*

It can be argued that the most characteristic feature of value judgements is that they appeal tacitly or explicitly to standards. Frankena says:

In fact all evaluations properly so called are at least implicitly made by reference to some standard or some set of general judgements about what is good-making or prima-facie good.<sup>35</sup>

**2.78** Standards will be regarded as *conceptions of states of affairs*. A conception is a mental representation which may be verbal or non-verbal in form. A special case of a state of affairs is a state of being. A state of affairs as generally conceived of as a time-slice of the physical world, which includes existences of various kinds in various relations to each other. A state of being refers to an individual object which persists as a unity in time and space and through changes. A state of being is a notion, which, as will be seen, is especially important in regard to aesthetic evaluation.

**2.79** Strictly speaking a state is itself an abstraction, in that according to current scientific metaphysics, it is believed that all things are in process. What appears to us to be a state

(with all the implication of being static) is really in dynamic process. The phenomenal world is really constituted by unceasing activity.<sup>36</sup>

**2.80** States of affairs (and states of being) can be generally described by, and can in that sense be seen as equivalent to, a set of premises which constitute a description of them. There is however an important difference between a *conception or perception* of a state of affairs, and the *description* of that conception or perception. This difference is particularly salient in the present case. Generally more information is carried in a conception or a perception of a state of affairs than in any description of it.<sup>37</sup> We can perceptually take in more information about a scene, or our mental representation of a scene will often be richer than, can be easily described. Metaphorical description is the closest linguistic analogue to a perceptual or conceptual representation. This is because of the juxtaposition in a metaphor of the object with its metaphoric counterpart in the metaphoric context.<sup>38</sup> The richness of the associations thus generated all-at-once, as it were, is similar to the juxtaposition of diverse elements that is only fully possible in pictorial representation.

**2.81** Standards are likely to be unarticulated, difficult to articulate and to be personal rather than intersubjective. Standards do not need to be articulated in order for a value judgement to be *made*. Hence they are likely to be unarticulated. However, they do need to be articulated in order for the judgement to be *justified* since the latter is an intersubjective process. That standards are typically conceptions thus explains why they do not need to be articulated in order to make the value judgement. The problem of describing one's conceptions explains why value judgements can be so difficult to articulate. The function of value judgements, which is to communicate an individual perspective, makes it likely that the standard will be personal rather than intersubjective.

**2.82** That which can be intersubjectively agreed upon has (logically) to be intersubjectively accessible. This means that either it must be observable as a material phenomenon or it must be describable and hence communicable. Standards, conceived of as non-verbal or rather pre-verbal conceptions of states of affairs are not, as such, intersubjectively available entities. However, standards can be communicated, *i.e.* articulated and hence can be made intersubjective.

**2.83** In case there is some baulking at the idea of conceptions, *i.e.* mental representations which, since the linguistic turn and the associated influence of behaviourism, have been ousted as respectable entities from much mainstream Anglo-Saxon philosophy, there is empirical evidence for the existence of conceptions and for their nature from several sources. Firstly, it seems obvious from introspection and from general knowledge of people's thought processes that people do not always and often do not think linguistically. Of course to communicate their thoughts or to describe them, people must use language. However that does

not change the fact that there appear to be internal representations which (telepathy aside) are not in principle apperceptible by anyone except the person having them. It is logically not possible to apperceive someone else's conceptions directly.

**2.84** Sophisticated psychologists and ordinary philosophers of science are well aware by now that the unobservability of entities in principle or directly does not constitute a good reason to dismiss the existence of such entities.<sup>39</sup> In fact such entities constitute the foundational ontology of contemporary physical theory.

**2.85** Using Quinean criteria we are committed to the existence of those entities which our true or accepted-as-true statements commit us to.<sup>40</sup> Entities unobservable in principle, such as cognitions, are increasingly the subject of investigation by psychologists.<sup>41</sup> There is at least one journal of cognitive psychology and there is growing interest in mental representations and images within psychology though the field is still new.<sup>42</sup>

**2.86** General philosophy (as opposed to philosophy of science) has fallen behind empirical psychology somewhat in its willingness to shed the methodologically and empirically sterile behaviourist research programme. Since Chomsky it has become increasingly respectable within psychology to accept the existence of internal psychological processes and entities that are causally efficacious and that cannot be cashed out behaviouristically.<sup>43</sup> Chomsky, with his now-famous review of 'Verbal Behaviour', instigated a widespread and successful critique of the foundations of behaviourist learning theory.<sup>44</sup> Other psychologists had, with somewhat less success, been criticising the methodology and its findings for some time previously.<sup>45</sup> From a psychological point of view it seems that we frequently use mental representations which may be linguistic, pictorial or even more abstracted from sensory experience. These are seen to have theoretical and practical significance and are subject to empirical investigation in several different areas within psychology.

**2.87** There is additional evidence for both the existence and the nature of conceptions from investigations into the creative thought processes of artists, scientists and mathematicians.<sup>46</sup> The topic of creative thought has been generally neglected by psychologists and philosophers alike.<sup>47</sup> Since Reichenbach's distinction between the context of discovery and the context of justification, scientific discovery in particular has received short shrift in philosophy of science until relatively recently.<sup>48</sup> Central to the enterprise of explaining creative thought is the need to acknowledge the existence of mental representations as explanatory entities which though unobservable in principle can nevertheless be permitted to be the object of legitimate scientific investigation. In order for this to be possible behaviourist methodology must be discarded and the similarity (in respect of dealing with unobservables) in the ontologies of physics and psychology acknowledged.

**2.88** Standards provide criteria for assessing the value or worth of something. *Assessing worth is placing it along a qualitative dimension in accord with the extent to which it realizes or doesn't realize the state of affairs which constitutes the standard.*

**2.89** A comparison with measurement might best illustrate this point. Measurement and evaluation are closely related. As previously mentioned measurement is the closest factual analogue to evaluation. The standard in the case of measurement may be a concrete object, *e.g.* the standard metre in Paris. In the case of measurement as opposed to evaluation the dimension involved is quantitative and not qualitative. The quantities are marked by the numerals 1, 2, 3, etc. in the appropriate units, depending on the degree of precision with which the measurements must be made. The standard provides the basis for establishing whether an object has a particular property — the quantitative property that belongs to the object assessed in relation to the standard. If the dimension involved is, for example, its length, this dimension goes from shorter to longer, from say 1 mm (or less) to 1000 metres (or more) etc. The object in question is then assigned a quantity — a numerical value according to the standard. Given the standard, it is a matter of fact whether the object possesses the property or not.

**2.90** Evaluation is a process similar in certain respects to measurement. As with measurement there is a standard in evaluation. However, the standard is typically *not* a physical object but a conception of a state of affairs — a mental object. As a consequence the standard is frequently not actually intersubjective in the way that standards for measurement are. However, the standard in value judgements is potentially intersubjective insofar as it can be articulated or otherwise shared and can then quite literally become a standard. The standards of some culturally accepted value judgements are intersubjective standards in this way. For example the standard for appropriate feminine or masculine behaviour derives from a shared cultural stereotyped conception of Woman or Man. The property of being feminine or masculine, regarded as a value property, is assigned on the basis of the standard as is the case with measurement. As is also the case with measurement, one cannot ask whether a woman is feminine without having some standard of femininity in mind.<sup>49</sup>

**2.91** There are also some important differences between measurement and evaluation. The property assigned to the value object on the basis of the standard is an emergent part and not an emergent element. The emergent part does not strictly speaking correspond to objective features or refer to objective features of the value object though the value predicate is applied in virtue of objective features of the value object and p-implies that there are such. Therefore 'beautiful' is not a factual predicate though applying it to an object can be justified as appropriate on the basis of objective features of the value object. A flower may be said, for example, to be



beautiful because of its colour, its perfume, the perfect shape of its petals etc. A quantity on the other hand is an emergent element of an object as discussed in §§1.45–49, Chapter One.

**2.92** Another important difference between measurement and evaluation is the role of the standard. In measurement the standard is necessary in order to make the measurement but once the standard is accepted, whether or not the object in question possess the quantity in question, is a matter of fact.

**2.93** However, standards in evaluation are necessary not only for *assessing* a value judgement but for *being* a value judgement. The standard is required to form the differentiated whole on the basis of which the emergent value property is abstracted. We need a standard to determine what, in the case of a particular object, constitutes its beauty. The standard is of course also required in order to assess whether the application of the value predicate is justified. It is required in order to analyse the value object into the elements that will justify the application of the value predicate.

**2.94** Yet another difference between measurement and evaluation is that the dimension involved in evaluation is qualitative and not quantitative. The dimension is also usually not so precisely demarcated: good' through 'reasonable' to 'bad; 'beautiful' through 'pleasant' to 'ugly'; 'right' through 'permissible' to 'wrong. The dimension may not always be linear nor the qualities completely distinct. 'Pretty', 'refined', and 'delicate' may be said to cluster together rather than to be in a strictly linear relation and might move towards 'crude' or towards 'ugly' depending on the context.

**2.95** The most important property that evaluation shares with measurement however is *order*. That is the property that justifies calling evaluation the assignment of a property along a qualitative dimension. 'Right' and 'wrong', in the case of moral judgement; 'beautiful' and 'ugly' in the case of aesthetic judgement; 'simple' or 'complex' in the case of scientific judgements mark the boundaries of the dimension involved. One may want to extend the boundaries to include 'perfect' in the case of aesthetic judgement and perhaps 'best' in the case of moral judgements. All other relevant value judgements could be placed in some more or less ordered relation to these boundary judgements in each of the relevant contexts. We mark the general direction of the judgement, its sign, by the pro or con p-implication of the value predicate.

**2.96** If we say that something is beautiful we p-implicate a pro-attitude towards it. Another perhaps less subjective sounding p-implication is that we would place it towards the "top" or "positive" end of the qualitative dimension. That is to say in relation to the standard being employed, the object realizes to a high degree the state of affairs which the standard represents. In a similar way, if we judge something to be two inches long, then in relation to the Imperial Foot, it would be allocated a particular position at the bottom or 'short' end of that quantitative dimension.

**2.97** Though some judgements have the form of value judgements they are not so according to the previous

definition of value judgements. The truth contained in the emotivist interpretation of aesthetic and moral judgements is that the same statement can be used to express a value judgement (in which case the three conditions for being a value judgement will be fulfilled) or it can be used to express an attitude very close to saying for example 'Ugghh!'. The two uses are not discontinuous and it can in individual cases be difficult to tell. However, it is clear that the same statement forms can be used in quite different ways.<sup>50</sup>

All that is required in order to claim that there *are* at least two distinct uses of statements both having the same form, is that there be clear cases of each — of making judgements and of expressing attitudes. It seems clear that there are such. A person can say: 'That painting is awful' and it can be basically nothing more than an expression of distaste. However, it can also be a genuine value judgement. The connotation will still be present but as well as involving a standard, the value judgement will be about objective features of the painting and not simply about an internal response of the judge.

**2.98** The standards p-implicated by value judgement may be articulated or unarticulated; the person may be more or less aware of appealing to them. They may range from an unarticulated awareness of rejecting the object of which the person may be more or less conscious to the articulated, conscious aesthetic standards of the observer/critic, *e.g.* simplicity, harmony of line, good workmanship, etc. The standard or standards may be intrinsic to the object, *i.e.* relate to the particular properties which the object appears to be attempting to realise or they may be extrinsic to the object. That is to say they may be based on personal or social standards of good taste .

**2.99** Thus if a table is roughly carved and it is judged to be ugly on the basis of its rough finish, this may be either because the finish is judged to be too rough for a table of that kind (an intrinsic standard) or too rough in comparison to a French-polished table (an extrinsic standard).

**2.100** Standards have two functions. Firstly, they constitute the bases upon which relevant features of the value object are selected. It is from the differentiated whole so constituted that the emergent value property is abstracted. Standards also constitute the grounds for justifying the value judgement. Given that the selected standard is articulated and then accepted, it forms the intersubjective basis for assessing the value object and determining whether or not the value object can justifiably be said to have the value property in question.

**2.101** Thus to summarise: the notion of standards being used here is that of pre-linguistic or non-linguistic entities which can however be described like any other mental event or entity, though with some loss of information that is inherent in the transition from conception or perception to description. As pointed out above conceptions, being mental events, are not directly observable except by the person who has them. Even then one would have to say they are directly apperceptible rather than observable which latter implies the

use of the ordinary senses. The latter are clearly not employed in apperceiving mental entities.

**2.102** Therefore standards are not standards in the sense of being commonly accepted as a matter of fact. However, being articulable or describable, they can become commonly accepted and often do. Any society has and arguably needs shared values especially moral ones. The reasons for terming these entities standards, however, is that they are a potentially intersubjective basis for qualitative assessment of the value object. They have the same function as a public standard though they happen to be private. Most importantly insofar as what is concerned is a value judgement and not an expression of emotion, they constitute a basis for assessing the value object. To say that a standard is involved in a value judgement is to say that there is evaluation going on: that the value object is being assessed in the light of some selected basis for doing so. This is precisely what makes it a judgement of value.

### Assessing value judgements

**2.103** From the above account of value judgements it follows that assessing value judgements involves two sorts of questions:

1. Given the standard,  
how adequate is the judgement?

This is a question of whether the properties of the value object are such as to justify the application of the value property. This requires analysis of the value object: perhaps analysing it into lesser wholes or elements and then collecting or synthesising these elements into structured sets that approximate the whole.

**2.104** A clear example of this process can be seen in F.R. Leavis' discussion of William Blake's poem 'The Sick Rose'. He quotes the first line of the poem:

O Rose, thou art sick.

and goes on to say:

To call a rose 'sick' is to make it at once something more than a thing seen, 'Rose' as developed by 'thy bed of crimson joy' evokes rich passion, sensuality at once glowing, delicate and fragrant, and exquisite health. 'Bed of crimson joy' is voluptuously tactual in suggestion, and...more than tactual — we feel ourselves 'bedding down' in the Rose, and there is also a suggestion of a secret heart ('found out'), the focus of life, down there at the core of the closely clustered and enclosing petals.

**2.105** The above quotation also illustrates the reliance on the suggestions and associations (p-implications) of the terms in order to explain how the poem achieves its effect. It also illustrates the process of unpacking the richness of the metaphorical language.<sup>51</sup>

**2.106** Leavis also makes an even more explicit comment on his methodology in his discussion of another poem, D.H. Lawrence's 'Piano':

No more need be said about the elements of this kind in the poem. It is a complex whole, and its distinction, plainly is bound up with its complexity.<sup>52</sup>

**2.107** The process of justifying a value judgement can be represented as an argument which supports the conclusion that the aesthetic value object has property X, with the premises describing the elements of the value object and their relations so as to justify the claim that the value predicate has been appropriately applied.

**2.108** This account of the means of justifying the application of the value property implies that there are several different loci for novel interpretation, in addition to differently differentiating the whole; in particular selecting different elements to justify applying the value predicate and collecting or synthesising these to form different and differently structured sets.

**2.109** The second sort of question in regard to justifying a value judgement concerns the acceptability of the standard.

2. Is the standard appropriate as a basis  
for the value judgement?

To quote Leavis again:

The reader who cannot see that Tennyson's poem [Break, break, break]...yields a satisfaction *inferior in kind* [my italics] to that represented by Wordsworth [Proud Maisie], cannot securely appreciate the highest poetic achievement... "Inferior in kind" — by what standards? Here we come to the point at which literary criticism, as it must, enters overtly into questions of emotional hygiene and moral value — more generally (there seems no other adequate phrase), of spiritual health.<sup>53</sup>

**2.110** Assessing the standard is a matter of deciding whether an articulated conception of a state of affairs is *justified as a basis for comparison*. This can be done either by evaluation directly, *i.e.* by assessing the standard in terms of some other which is not in question at the time (as Leavis assesses the inferiority of poetry in terms of a standard of spiritual health). Alternatively it can be done by putting forward arguments (which themselves have to be evaluated as good or bad arguments) for the conclusion that the standard is appropriate. It will be argued in a later chapter that standards are assessable by non-deductive argument.

**2.111** For example, questions concerning the claim that human happiness should be a standard for moral value judgements involve settling questions concerning the possibility of attaining human happiness; the projected

consequences of accepting such a standard; the importance of human happiness (a value judgement which hence involves appeal to a further standard); problems of clarifying conceptually and practically what happiness is; etc. Arguments pertaining to all these and related questions would have to be evaluated. The justification of value judgements by non-deductive justification of standards and of the application of the value predicate will be discussed further in Chapter Five.

**2.112** As already discussed there are three important spheres of evaluation. These are the moral sphere, the aesthetic sphere and the scientific sphere. The way in which standards are employed in each of these spheres will now be briefly illustrated. As stated above standards have to be justified as a basis for comparison or assessment. Thus the proper question in regard to standards is whether or not the standard is appropriate as a basis for assessing the worth or value of something.

### In the aesthetic sphere

**2.113** In the aesthetic sphere a sufficient condition of a standard being appropriate is if it is an appropriate extrapolation from the object itself. That which is extrapolated is a conception of a state of being. The aesthetic object is then evaluated in terms of the extent to which it tends towards that conceived state of being. The state of being towards which the object tends and which the standard represents, could be termed the tendency of the work. The object is judged to be satisfactory or not to the extent to which it realises the conception of its tendency which is the standard. Aesthetic appreciation amounts then in part to assessing the gap between that which has been realised and the ideal or intended object (extrapolated as the standard of evaluation) towards which the actual object tends — its tendency. This tendency also represents the potential of the work to be other than it is.

**2.114** This potential always exists for at least two reasons. Firstly, the actual process of materially creating an aesthetic object means that there will generally be imperfections which are an inevitable result of the difficulties of the creative process in some material medium. Secondly, the possibilities inherent in the work to be other than it is derive from aspects which have been realised. What an aesthetic object always suggests by being what it is, are other things it isn't but could have been. The actual height of the sculpture could have been different — slightly taller or shorter. The colours in a painting could have been darker or lighter or more intense etc. Each actual feature of the value object suggests a different possibility just by its very existence. Some of these possibilities if realised would have made a better or worse work. It is on the basis of awareness of these possibilities in relation to the actuality of the aesthetic object that an appropriate aesthetic standard is selected by an observer/critic.

**2.115** Other standards may be more external to the value object. Leavis' standard of moral excellence in judging poetry is an example of an external standard. Considerations relevant to evaluating the standard may be varied. The standards may be deemed too external to the aesthetic object in question. For example, intellectual depth or concreteness of imagery may not be desirable as a basis for assessing Shelley's 'Ode to a Skylark'. Other considerations may be whether the standard is morally desirable (*e.g.* should beauty or technical excellence be used as a basis for judging a film such as 'Clockwork Orange' which depicts sadism in an aesthetic way); whether the standard is attainable, *i.e.* is it possible to realise; or whether the standard is relevant, *e.g.* whether the degree to which a painting represents the real world should be a basis for judging a work such as 'Blue Poles'.

### In the moral sphere

**2.116** In the moral sphere the standard is generally a conception of some ideal (both in the sense of desirable and in the sense of perfect or near-perfect) state of affairs.<sup>54</sup> Thus conception of a state of affairs where no one is killed may be the standard for judging that killing is wrong. General considerations also apply to assessing whether a moral standard is justified. Whether a state of affairs in question is possible or probable is relevant to deciding whether or not to adopt a conception of such a state of affairs as a standard of right or wrong. For example it is argued in favour of repealing anti-abortion legislation that it is not possible to stop. It may be argued that what is right in these circumstances is to make abortions as safe and quick and painless for mother and foetus as possible, where the standard is a conception of a state of affairs in which there is the minimum amount of pain.

**2.117** The question regarding whether the standard is itself morally desirable (according to some other standard) may also be relevant. Thus human happiness can be used as a standard of right and wrong but the question of whether human happiness is itself an ultimate good or an intrinsic good or the only morally worthwhile value can be asked at a meta-level. Whether the conception of a state of affairs used as a standard for judging right or wrong is compatible with other fundamental moral principles is also important. For example, one could argue that a conception of a state of affairs in which one's own interests are served cannot constitute the standard of right and wrong, because it conflicts with the basic moral principle of having concern for others as persons. An argument against abortion and euthanasia is that it constitutes murder, *i.e.* that it is not compatible with the fundamental moral principle of not killing another human being.

**2.118** Other considerations in relation to evaluating moral standards may include considering the consequences of a state of affairs, for example one in which no one is ever killed. This may have a bearing on whether a conception of such a state of affairs is appropriate as a standard for judging behaviour. An argument *for* euthanasia consists of the amount of pain and suffering caused by not terminating life in the case where there is extreme suffering and no hope of recovery. How clearly a state of affairs can be conceived can also be a consideration in determining whether a conception of that state of affairs is appropriate as a standard. For example a state of affairs in which everyone is happy can be difficult to conceive insofar as it is difficult to clarify what happiness is (or equivalently to define 'happiness').

**2.119** Moral philosophers disagree about whether the rightness or wrongness of an act is so in virtue of the non-moral value it brings into being (*e.g.* balance of good over evil) or whether there are what could be called intrinsically morally valuable properties which make acts, etc. right or wrong,

**2.120** What this amounts to on the present view is whether the standard for judging something to be right or wrong is a moral or non-moral standard. (See Chapter Seven for a discussion of what it is to be moral.) If the standard is non-moral (*e.g.* conception of a state of happiness) then something is right in virtue of something non-moral that it brings into being. If the standard is a moral one then something is right in virtue of some intrinsically moral state. For present purposes this is not an important question to decide. The important point is that on the present view judgements of right or wrong are in either case value judgements. 'Right' and 'wrong' are value terms which p-imply approval or disapproval respectively, of the object of the moral judgement; they refer to an emergent part of the situation in question; they p-imply objective properties of the situation on the basis of which the judgement is being made and they p-imply a standard according to which the value object is being judged to be right or wrong. The notions of right and wrong will be further discussed in Chapter Seven.

## In the scientific sphere

**2.121** The role of standards in evaluating reasoning in pursuit of truth or acceptability in the scientific sphere is probably the most contentious and least clear of the areas discussed so far. Some of the reasons why this is so have already been indicated when discussing the function of making value judgements in the scientific sphere. Furthermore in order to satisfactorily discuss value judgements and standards in science it is necessary to consider amongst other things, the nature of non-deductive argument; the function of reason in arriving at knowledge about the world; the role of value judgements in argument; the rational assessability of value judgements and the nature of factual

judgements, all matters which will be taken up in subsequent chapters. Discussion of the role of standards in the scientific sphere is therefore of necessity the most sketchy and speculative.

**2.122** The standard for evaluating mathematical theories in which a high degree of abstraction is involved and mathematical symbolism is used to represent a state of affairs, is, it is suggested, some conception of elegance or simplicity. In this case the standard for judging the theory is somewhat akin to those used in aesthetic contexts. The conception of elegance or simplicity in terms of which the mathematical theory in question is evaluated, is extrapolated from the mathematical form and content of the theory itself. This is assuming of course that these notions have not, and cannot be given a quantitative or precise analysis.

**2.123** Standards of simplicity as discussed in relation to non-mathematical theories may consist of some complex, overlapping set of features constituting an ideal theory. In the latter case, standards in the scientific context which are involved in choosing a theory are closer to standards in the moral sphere which generally constitute some ideal state of affairs.

**2.124** Other criteria may also be applicable in evaluating non-mathematical and mathematical theories: fit with other theories, explanatory power, relation to evidence; predictive power; boldness etc. Even these may be seen as involving value judgements and hence standards. In the case of fit with other theories, for example, the standard involved would be a conception of some state of affairs on the basis of which a theory is regarded as fitting with other theories. This is not to say that some objective feature such as consistency may not constitute part of the grounds for determining whether two theories fit or not. But insofar as the objective features which are said to constitute fit cannot be articulated so as to fully capture the notion, the claim that judgements of fit are value judgements and that fit is an emergent property, gains plausibility. Correspondingly the notion that there is a conception of fit, constituting the standard, on the basis of which the value property is abstracted from the objective features of a theory also gains support.

**2.125** This completes discussion of the three conditions necessary for being a value judgement. In the next chapter the nature of factual judgements will be discussed.



## CHAPTER TWO NOTES

1. cf. Nowell-Smith (1969), pp.80-83.
2. From Keats' 'Ode to Melancholy', Verse 2.
3. Ryle (1974), p.484; cf. Wittgenstein (1968), pp.20e, Para. 43; p.54e Para. 139.
4. Quine, (2) in Quine (1961), pp.42-43; Nowell-Smith (1969), p.99; Goodman (1973), p.94.
5. Quine (1960), pp.61-67.
6. Strawson & Grice (1974), p. 645.
7. Kaplan (1946), esp. p.286; Putnam (1962), pp.368-372; Ravetz (1971), p.202. Also see Achinstein (1964); see Shapere (1966) (a) for a discussion of the evolution of the concepts of Impetus Theory (pp.71-80).
8. Morton (1971).
9. Cairns & Cairns (1976), pp.79-90; and pp.212-214 for empirical work on semantic features in language acquisition. Katz & Fodor (1964).
10. Nowell-Smith (1969), p.112.
11. *Ibid.*, p.85.
12. Hare (1952), pp.84-85.
13. Nowell-Smith (1969), p.87; p.161.
14. cf. Körner (1971):

"Quite generally an evaluative proposition is a proposition to the effect that an object possesses a value attribute 'in virtue of' possessing one or more descriptive attributes (*i.e.* an attribute whose application to an object does not, or not only, express that the object has value)." (p.9)

This quotation was discovered after the present writer's view of value judgements was formulated.

15. Nowell-Smith (1969) arrives at the same conclusion regarding the inspecificity of value terms for somewhat different reasons:

"We must, however, be careful not to make a mistake analogous to that of supposing that a given word [good] is the name of just one object or property, The commonest practical words do not have just one use. They have many uses..." (p.95)

Rather than explain the inspecificity of value terms in terms of different uses, the present view accounts for it more exactly in terms of the semantics of value predicates.

16. Hare (1952), p.94.
17. Frege (1974), p.119.
18. Ziff (1960), pp.227-232.
19. Alston (1964), pp.39-41. Alston argues further that meaning is a function of illocutionary acts. On the present view the function of a judgement is used as a technical term and is identical with the set of illocutionary acts.
20. Nowell-Smith (1969), Chapter 8, esp. p.113.
21. Kant in Paton (1966), p.84.
22. *Loc. cit.*
23. Nowell-Smith (1969), Chapter 8. Also Hempel,(2) in Hempel (1965), pp.88-90.
24. Frankena (1963), p.14.
25. Hempel, (2) in Hempel (1965);

"We noted that as a rule the observational evidence on which a scientific hypothesis is accepted is far from sufficient to establish that hypothesis conclusively." (p.91)

and

"...the method of establishing scientific hypotheses 'presupposes' valuation: the justification of rules of acceptance and rejection requires reference to value judgement." (P.92)

- See also *Proceedings*, Volume I (1975), esp. articles by Sperry (*op.cit.*); de Bie; Skolinowski; Taylor; Laszlo. See also Maslow (1959) for empirically based accounts of values, esp. articles by Hartman; Margenau; Maslow. Such accounts are quite consistent with the present view that value judgements are distinct from factual judgements. These empirical accounts of value are accounts of the empirical base and processes of valuation which result in value judgements. They have the same sort of empirical bearing on the analysis of value judgements that the empirical studies of perception have on the understanding of factual judgements. The latter relation will be discussed further in Chapter Four.
26. Goodman (1976), pp.96-97. Also Barker (1961), p.273. Historically this view was proposed by Mach (1953), p.6, and Duhem (1954), p.21. Duhem refers to a paper of Mach's regarding the latter's view on the importance of "intellectual economy" in science (n.1, *loc. cit.*).
  27. Bunge (1963), Chapter Four, esp. pp.51-52.
  28. Goodman (1976), Chapter VII, esp. p.284.
  29. Thus, insofar as the relation of support is analysed on the basis of interpretations of the calculus of chance, which allows a probability equal to a numerical quantity to be assigned to a judgement, on the basis of given evidence, the relation of support between the judgements concerned are factual judgements. See Salmon (1967), pp.56-96, for a discussion of different interpretations of the probability calculus used to analyse inductive support.
  30. Schrödinger (1957), pp.85-94. Barber (1979); Rose 8 Rose (1979); Rothman (1979). See also Note 25 above.
  31. See Note 25 above.
  32. For a statement of the view that value judgements are subjective, see Ayer (1970), Chapter VI, esp. pp.102-103; p.108. For a statement of the view that they are objective, see Baier (1977).
  33. Moore (1948), pp.8-13.
  34. *Ibid.*, p.15.
  35. Frankena (1973), p.80. Also Feigl (1952), p.672; p.678; Hempel (1965), p.86.
  36. Born (1951), p.277. Capek (1961), p.279; pp.285-287.
  37. Berger (1972), pp.7 and 8. Arnheim (1974), p.2.
  38. Black (1962), pp.38-42.
  39. Weimer (1974), p.418. Pylyshyn (1979), pp.20-21.
  40. For references see Notes 14 & 15, Chapter One.
  41. See Note 8, Chapter One.
  42. Neisser (1976), Introduction, esp. p.5; Anderson (1980).
  43. Chomsky (1965), p.17; p.164; (1975), p.23. See also Weimer (1974), pp.415-420. See also Note 2, Chapter One, for references on mental events as causally efficacious.
  44. Chomsky (1964).
  45. Beach (1950); Breland and Breland (1961).
  46. Hutchinson (1941); Newell, Shaw & Simon (1963); Poincaré (1975); Wallas (1975); Holton (1978), esp. Introduction.
  47. Medawar (1967), p.151; p.155. See also McCleod (1963), esp. pp.177-178.
  48. The distinction between discovery and justification will be discussed further in Chapter Five.
  49. 'Feminine' can also be a factual predicate if it is defined, for example, as 'not having a Y chromosome'.
  50. Alston (1964), pp.35-36.
  51. Leavis (1968), p.229.
  52. *Ibid.*, p.217.
  53. *Ibid.*, p.214.
  54. It is being assumed that the conceptions in question are such that they can be described by a set of propositions and hence can be made intersubjective (see Chapter Two, Paras. 2.80; 2.82).

## Ch.3 — FACTUAL JUDGEMENTS: a special case?

**3.1** In this chapter the nature of factual judgements (to be abbreviated to ‘facts’) will be investigated. The empiricist/common-sense notion of a fact is argued to be unacceptable. Firstly, it will be argued that facts should be regarded as comprising both theoretical and observational judgements; and secondly, that even in the case of observational judgements, sensory experience is not sufficient either to establish their truth or falsity or to confirm them but that additional non-observational assumptions are always required.<sup>1</sup>

### The nature of factual judgements

**3.2** The first important thesis about the nature of facts to be established is that the notion of a fact is very broad. It properly includes both observational judgements and theoretical judgements. Theoretical judgements are judgements about that which cannot, for logical and factual reasons, be directly observed (*e.g.* black holes, sub-atomic particles, numbers, etc.) or about that which is relatively indirectly related to observation (genes, atoms, the constitution of the earth’s core, etc.). Observational judgements are judgements about that which can be directly observed or about that which is relatively directly related to observation (tables, chairs, animals, the sun, etc.). The reason for the broadness of these definitions will emerge in the course of the discussion.

**3.3** The two definitive features of a fact in the empiricist paradigm (of which the common-sense view is just an extension) are generally accepted as being (a) its relation to reality and (b) its relation to sensory experience, *i.e.* to observation. A fact is taken to be *about*, in some sense, the real world.<sup>2</sup> Thus facts have ontological import. The fundamental empiricist assumption is that knowledge of the world is acquired by observation.<sup>3</sup> Hence factual judgements are established to be true or false, on the empiricist view, by means of observation. It is these two features — the realist import and an impeccable method for establishing truth or falsity, that are taken to characterise facts on an empiricist/common-sense view. The consequences of accepting this view of facts are: **i.** disputes about facts can in principle be resolved by an objective means, *viz.* observation; **ii.** truth or falsity is appropriately applied to single facts such as ‘The table is brown’; and **iii.** hence facts are clearly suitable for use in the premises of arguments.

**3.4** Value judgements (to be abbreviated to ‘values’) are contrasted in the empiricist paradigm with facts. Values are generally not regarded as having reference to the external world at all.<sup>4</sup> They are construed as merely expressing an individual’s feelings or opinions or they are regarded as being about the individual’s interests or emotions.<sup>5</sup> It is taken that

there is no objective method by means of which disputes about value judgements can be resolved. If values are expressions of opinion or emotion then there is not even a genuine dispute to resolve. One cannot sensibly dispute someone’s emotions or interests. It is also highly controversial as to whether truth or falsity is applicable to values and whether they can appear with facts in the premises of arguments.

**3.5** In the present chapter the notion of facts as ordinary conceived will be investigated, ultimately for the purpose of demonstrating that the differences between facts and values are not such as to prevent the latter being assessed jointly with facts as premises of arguments.

**3.6** The attempt by logical positivists to demonstrate that theoretical judgements can be derived from observational judgements is generally accepted to have failed.<sup>6</sup>

If theoretical judgements cannot be derived from observational judgements, or otherwise eliminated, then it must be concluded that theoretical judgements are an essential and irreducible component of scientific knowledge. Hence if both theoretical and observational judgements are necessary to advance our knowledge of the world, then both can and should be regarded as constituting the facts with which science deals.

**3.7** The role of theoretical judgements in science has always been problematic in an empiricist framework precisely because they are about what is not directly observable. However, it did not seem possible to satisfactorily eliminate them. Even on an instrumentalist view of theoretical terms they were accepted as necessary even if they were not seen to have realist import.<sup>7</sup> If theoretical judgements could not be derived from observational judgements then the next task was to show that they were appropriately related to observational judgements. This was necessary so as to distinguish legitimate scientific theoretical judgements from unacceptable metaphysical ones. It was proposed that acceptable theoretical judgements were those which were confirmed by observational judgements. As this was first formulated by Ayer, acceptable theoretical judgements were those from which true observational judgements were derivable.<sup>8</sup> This criterion of confirmation proved inadequate, however, to distinguish scientific theoretical from merely metaphysical judgements.<sup>9</sup> More complex hypothetico-deductive and probabilistic accounts of the appropriate confirmation relation between theoretical and observational judgements were developed by others such as Hempel, Carnap and Reichenbach.<sup>10</sup> What all the accounts had in common was that they all implied that (a) observational and theoretical judgements were distinct, and (b) that observational judgements were epistemically privileged in that it was on the basis of observational judgements that theoretical judgements were to be confirmed.

**3.8** The distinction between theory and observation assumed in the positivist framework became the source of a fundamental objection to the programme.<sup>11</sup> The arguments for the theory-ladenness of observation, however, are generally somewhat unsatisfactory. They often do not serve to demonstrate that there is no legitimate distinction between theoretical and observational judgements.<sup>12</sup> Rather what they show is that observational judgements depend on theoretical judgements, which assumes a distinction. An attempt to spell out the proper relationship between theoretical and observational judgements will be made in the course of this chapter.

**3.9** For the present it will be accepted that there is a distinction between theoretical and observational judgements; that theoretical judgements are necessary for acquiring scientific knowledge and hence that factual judgements should be taken to include both theoretical and observational judgements.

**3.10** On the definitions given above only observation judgements are about what is directly observable. So even if it is accepted that theoretical judgements are facts, it may be argued that some facts are “hard” facts and that some are “soft” facts, and a distinction between kinds of facts may be drawn. Observation judgements are “hard” facts, being about what is directly observable. They include judgements such as ‘The sky is blue’; ‘The water is hot’; ‘This piece of wood is 4 cm. long’. This fits with the common-sense intuitions of many philosophers, laypeople and scientists about what sort of judgement constitutes the paradigm of a factual judgement. It fits also with empiricist dogma about the role of observation in acquiring knowledge, and hence of the foundational role of observation judgements in an empiricist philosophy of science.

**3.11** Thus it seems reasonable to conclude that observation judgements represent those judgements that are most directly related to observation — those judgements which are most characteristically and obviously facts. It also seems reasonable to conclude that it is these “hard” facts that constitute the foundation of knowledge. It is to these that the “soft” facts, more remotely related to observation, must be properly related.

**3.12** However, it will be argued that even in the case of the most characteristic and obvious example of facts — observation judgements — the relation to observation is, in a fundamental sense, indirect in that observation alone is not sufficient to establish the truth or falsity of single observational judgements or even of sets of observational judgements. This would seem to constitute compelling grounds for rejecting the common-sense positivist distinction between “hard” and “soft” facts and the consequences that follow from accepting it. It can then be argued that observational judgements do not and cannot play the foundational role in science that the positivist/empiricist programme seeks to attribute to them. If such a position is

accepted it leads to a revision not only of the notion of a fact but of the relationship between facts and values.

**3.13** It is the aim of this section to demonstrate the untenability of the empiricist/common-sense notion of an observational judgement, which would allow the former to constitute a foundation for scientific knowledge. Firstly, ‘synthetic judgement’ will be defined as ‘a judgement which can be verified or falsified by direct observation; or which can be derived from such a judgement’.<sup>13</sup> This will be the first definition of ‘synthetic’. Hence it will be designated ‘synthetic-1’. Only verification will be dealt with as the points made also hold for falsification. The only candidates for synthetic-1 judgements, given the failure of what could be termed the theory-elimination programme of the logical positivists, are observational judgements. Theoretical judgements are clearly not synthetic-1 judgements. The question to be answered is: are there *any* synthetic-1 judgements? It will be argued that there are none. This is the second important thesis about the nature of facts — no facts are synthetic-1 judgements.

**3.14** The claim that there is no analytic-synthetic distinction has received much attention in the literature.<sup>14</sup> Many of these arguments are pertinent here. An outline of some of the central arguments will be presented and the reader will be referred to the extensive literature for more detailed discussion.

**3.15** The first argument that there are no synthetic-1 judgements is that no set of judgements about experiences (no set of sense data statements) is logically sufficient to establish the truth of a synthetic-1 judgement. Observational judgements such as ‘There is a table in the next room’ are not logically equivalent to any set of sense data claims about seeing, feeling, etc.<sup>15</sup> Linguistic phenomenalism, if true, implies that if an observational judgement is reducible to sensory experiences then it is logically verifiable by them. The strongest way of showing that there are synthetic-1 judgements verifiable by direct observation, would be to show that there are judgements which are logically equivalent to a set of judgements about sensory experiences. However, it is generally accepted that linguistic phenomenalism is a failed programme and that there is no reason to think that such a reduction could ever be successfully carried out.

**3.16** There are a series of arguments from within the positivist paradigm which were used to demonstrate that there were no judgements verifiable in virtue of experience. From this it was concluded that the initial positivist enterprise of trying to identify judgements verifiable in virtue of experience, upon which to found a reconstruction of scientific reasoning, was a failure.

**3.17** These arguments included the following:

- i. Such a view is at best unclear and at worst is just a fiction.<sup>16</sup>
- ii. Such a view involves a category mistake we cannot deduce anything from experience.<sup>17</sup>
- iii. No one has succeeded in characterising the properties of such judgements.<sup>18</sup> Hence it is reasonable to assume it cannot be done.<sup>19</sup>

**3.18** The logical positivists who first formulated the notion of a synthetic-1 judgement in the course of articulating the verification principle, came to accept that synthetic-1 judgements did not exist.<sup>20</sup> However, if the notion of a synthetic-1 judgement is weakened it may still be argued that synthetic judgements of this weaker sort exist. 'Synthetic judgement' would then mean 'judgement which can be confirmed by direct observation'. This second definition of the term 'synthetic' will be designated 'synthetic-2'. The arguments below are intended to establish that there are no synthetic-2 judgements, *i.e.* that there are no judgements which can be confirmed by direct observation alone.

**3.19** Firstly, the notion of a presupposition will be briefly discussed. There are two standard notions of a presupposition. One which is of interest primarily to philosophers and logicians, is called logical presupposition. Another which has been of interest primarily to linguists, is called pragmatic presupposition. The former is defined as follows: 'statement A presupposes statement B iff A is not true or false unless B is true'. This definition is due to Strawson, following Frege.<sup>21</sup> Pragmatic presuppositions are according to the linguist Fillmore "those conditions which must be satisfied before the sentence can be used [so as to perform an illocutionary act]."<sup>22</sup>

**3.20** Neither of these standard notions of a presupposition quite fits with the concept of a presupposition as it is used here. The first one deals with statements, which are by definition capable of being true or false, and are so independently of their context of use.<sup>23</sup> The second notion deals with sentences as uttered in a particular context.

**3.21** There are two features of a logical presupposition that distinguish it from logical entailment. The first is best illustrated by what happens when a logical presupposition fails. If a logical presupposition fails this does not show that the presupposing statement is true or false, whereas if in the case of entailment, if A entails B, then if not-B then not-A. The second feature is that if A presupposes B then if A is false then B is true, whereas this does not hold where A entails B.<sup>24</sup>

**3.22** It has been argued that observation judgements are not capable of being shown to be true or false on the basis of sensory experience. It is clear that observational judgements are not being treated here as purely logical entities but are being dealt with in an empirical context, *viz.* in the context of confirmation by means of sensory experience. Therefore, since observational judgements are not being considered

purely as statements abstractly capable of truth or falsity independently of any empirical context, but as judgements in a context of confirmation by sensory experience, a weaker notion of presupposition than that of logical presupposition is required.

**3.23** On the other hand the context in question is not just the context of utterance of a judgement taken but is more general. It is the context of a use of a type of sentence that is of interest rather than the context of utterance of a sentence token.<sup>25</sup> It is not simply the conditions relating to the use of a judgement to perform an illocutionary act that are in question since this is too narrow, but the general conditions in relation to the confirmation of any observational judgement. Confirmation of an observation judgement by sensory experience includes its use, but is broader than its use on a particular occasion.

**3.24** Hence the following is proposed: judgement A presupposes another judgement B iff judgement B must be accepted as true or confirmed in order for A to be confirmed or disconfirmed. In the present context if the presupposition fails then it follows that the judgement can be neither confirmed nor disconfirmed. This corresponds with the view that if a *logical* presupposition fails the presupposing statement is not capable of being true or false. This sort of presupposition will be called empirical presupposition, abbreviated to e-presupposition. If A e-presupposes B then acceptance of B as true or confirmed is necessary for the confirmation or disconfirmation of A.

**3.25** The present notion of an e-presupposition fits well with the view of p-implication (presumptive implication) discussed in Chapter Two. It was there argued that p-implication was an empirical relation, spelled out in terms of entrenchment, that held between a value judgement and either other judgements, or conditions such as a conception of a state of affairs that constituted the standard p-implied by a value judgement. It was also suggested that logical implication was a limiting case of p-implications that were so well-entrenched that they were regarded as part of the meaning of a term.<sup>26</sup> E-presupposition would then constitute an even weaker relation than p-implication (which is in turn weaker than logical implication). E-presuppositions of a judgement are, relatively speaking, even less well entrenched than the p-implications of a judgement.

**3.26** The present notion of an e-presupposition is somewhere between logical and pragmatic presupposition, as defined above. Logical and pragmatic presupposition can also be seen as related to each other via entrenchment. Logical presupposition can be seen as pragmatic presuppositions which have become relatively well-entrenched. The hierarchy of entrenchment would be as follows: logical implication; p-implication; logical presupposition; e-presupposition; pragmatic presupposition.



**3.27** This account in terms of entrenchment puts enormous weight on the notion of entrenchment (though arguably no greater than Goodman put on it in his initial use of the term).<sup>27</sup> If it did turn out that the notion of entrenchment was (as it is here assumed to be) univocal, it may be possible to unify the pragmatic and logical features of judgements more satisfactorily than has been done to date. In any event neither the present notion of e-presupposition nor that of p-implication rely on accepting the much stronger theses about entrenchment in regard to logical implication and in regard to logical and pragmatic presuppositions. It is however of interest to note that such a unified account of implication and presupposition based on the notion of entrenchment could, *prima facie*, be provided. In the discussion to follow the notion of a presupposition that is used will be that of an empirical presupposition, which will be referred to simply as a presupposition.

**3.28** The basic argument to demonstrate that there are no synthetic- judgements is to show that observational judgements, the most likely candidates for synthetic-2 judgements, cannot be confirmed by direct observation alone but require non-observational assumptions in order to be confirmed.<sup>28</sup> That is to say observational judgements presuppose non-observational judgements. If in order to confirm an observational judgement it is necessary to accept non-observational judgements as true or confirmed, then observation alone cannot be sufficient to confirm an observational judgement. Hence there are no synthetic-2 judgements.

**3.29** The simplest case of a synthetic-2 judgement will be examined — an ordinary judgement about directly observable phenomena, *viz.* ‘The table is brown’.

**3.30** The first point in regard to any such observation judgement is that insofar as it uses names it involves abstracting, *i.e.* selection and unification (see Chapter One, §§1.6–9). It need not be assumed that in order to use the term ‘table’, for example, one must have an explicit definition of ‘table’. Typically this will not be the case. For family terms, which most common names are, it will not even be possible to give a definition (logically necessary and sufficient conditions) if indeed such can be given for any ordinary language, non-technical term (or even for scientific terms such as ‘electron’; ‘gravitational field’; or ‘kinetic energy’).<sup>29</sup>

**3.31** It seems reasonable to claim, however, that there must be criteria of application if a term is to be used appropriately. The role of criteria in naming is one of the things that the account of abstracting is capable of explaining. Naming involves abstracting criteria for the application of a term, criteria which need not, however, be articulated (see Chapter One, §§1.52–58). The relationship between criteria and definitions need not be settled here.

**3.32** There is an important consequence of accepting that a judgement like ‘The table is brown’ involves abstracting. In Chapter One it was argued that naming requires abstracting.

Naming requires classification of the object in question, whether it be a particular or a property. In Chapter One it was argued that the features that constitute the named object — the criteria for being regarded as that kind of object — are selected and unified. Thus classification can be seen as the abstracting of the features on the basis of which an object is named. Hence naming itself is carried out according to principles which do not derive from what is directly observable but which constitute part of the means for organising what is directly observable so as to name it. Hence these principles are logically prior to being able to describe what is directly observable. Popper makes a similar point when he argues that even to say ‘That glass is full of water’ implies classification which goes beyond what is directly observable.<sup>30</sup>

## Analyticity

**3.33** There is an objection to the above line of argument for the claim that observational judgements presuppose non-observational judgements. It is argued that since these presuppositions have to do with meaning they are analytic. Therefore they cannot bear on claims about experience since they are true in the face of all experience, necessarily true, logically true, etc. To forestall such a reply it will be argued that there are no analytic judgements in the sense of judgements *which are immune from revision in the face of experience*.<sup>31</sup> In any event it will be argued that these meaning-related or analytical presuppositions form only one class of non-observational presuppositions of observational judgements.

**3.34** There are many problems in regard to the notion of meaning. But there are at least as many difficulties with the notion of analyticity. As Quine has pointed out the two concepts are closely linked.<sup>32</sup> Therefore to make good the objection that the first class of non-observational presuppositions are really analytic and hence cannot count in regard to confirming a judgement, it is necessary to give an account of analyticity.

**3.35** It will be taken that the only important feature of being analytic that would have any force in the present context is that it is a judgement so different in kind from a synthetic-2 judgement that it could not be regarded as a relevant presupposition. The special kind of irrelevance that would constitute support for such a claim would be that the presupposition is not relevant to observation at all. Hence a fortiori it cannot be relevant to confirming any particular observational judgement. Thus it is *immunity from revision due to observation* (or more generally experience) that will be taken to be the decisive feature of analytic judgements for the purposes of the present discussion.

**3.36** None of the other interpretations of ‘analytic’ would by themselves pose any special problems. It does not for example follow logically from the claim that a judgement is

about meaning or is logically true that it is immune from revision in the face of experience. This was indeed the general assumption. However, it was part of the force of arguments by Quine and others against the analytic/synthetic distinction that this assumption did not seem to be warranted.<sup>33</sup>

**3.37** If it can be shown that there are analytic presuppositions which are immune from experience, and hence irrelevant to experience, then it may be argued that they should be discounted in the argument that non-observational assumptions are required in order to confirm synthetic-2 judgements. Are there then judgements which are immune from revision in the face of direct or indirect observational experience? Whether the observational experience that leads to revision of analytic judgements is direct or indirect does not matter for present purposes. The general consensus of opinion is: no. Below is an outline of some arguments that support such a view.

### Arguments against analyticity

**3.38 a.** As a matter of fact the meanings of terms change over time. Presumably this is not arbitrary but due to changes in the world, *e.g.* changes in weaponry, customs, mores, etc. Tracing the etymology of words bears this out. **b.** Meanings and definitions which are paradigms of analytic judgements, express connections between terms. In what sense are these connections necessary? Necessity, along with analyticity, logical truth, meaning, synonymy, is yet another of the inter-definable set of terms which cannot be independently defined.<sup>34</sup> If the connections between terms have empirical causes (a point made above) it seems unreasonable to presume that at some point of time they suddenly become immune from any further connection with experience. Even if one does not fully accept a behaviourist account of language acquisition, it must be acknowledged that the links between particular terms constitute an association learned from experience. Hence it seems reasonable to assume that these links are revisable on the basis of experience.

**3.39** Definitions not only have empirical causes but they have empirical consequences. If a definition is accepted it will follow that certain other judgements are true (or false). *E.g.* if 'table' means 'an object with four legs' it is false that an object with one leg (a pedestal table) is a table. Whether providing criteria and giving definitions are regarded as one and the same thing or whether one follows logically or empirically from the other, a definition clearly has consequences that relate directly to what is observed.

**3.40** Definitions maybe decisions, choices or conventions.<sup>35</sup> Being a convention, however, does not imply being arbitrarily chosen but only being chosen, and since it seems that definitions are not typically arbitrarily chosen, then it follows that there are reasons for choosing them, some of which may and typically do; relate to observation.<sup>36</sup> Definitions are argued for on grounds such as the consequences of accepting

them (*e.g.* it is argued that 'abortion' means 'murdering innocent foetuses'); their scope; their precision, etc. In one clear sense it cannot be said to be merely arbitrary that 'bachelor' means 'unmarried man' nor would it be arbitrary if due to change of social awareness 'bachelor' come to mean 'unmarried man or woman'.

**3.41** If there are no synthetic-1 judgements in the sense of judgements verifiable by experience, then there is no *prima facie* ground for limiting cases of such judgements, *i.e.* judgements *immune* from revision by experience or true in the face of any experience. Therefore the existence of analytic judgements has to be independently argued for and their nature outlined. At least they cannot simply be defined in terms of synthetic-1 judgements.

**3.42** Quinean arguments against analyticity are well-known and were mentioned above. Terms such as 'necessary', 'logically true', and 'true in virtue of meaning', all depend on a notion of synonymy, which has not itself been satisfactorily explicated.<sup>37</sup> There are additional arguments by Quine to the effect that synonymy can only be properly explicated behaviourally but that behaviourally one cannot distinguish between analytic and synthetic judgements.<sup>38</sup> Behaviourally, reference is opaque and translation is indeterminate.<sup>39</sup>

**3.43** Meaning is notoriously difficult to explicate, even apart from the Quinean arguments about its dependence on the notion of synonymy.<sup>40</sup> Hence the notion of meaning does not seem likely to provide a basis for an adequate account of analyticity.

**3.44** The preceding arguments relate to ordinary language. However they all gain more force when the issue of analyticity is investigated in the context of philosophy of science. Within the philosophy of science it has become necessary to articulate the nature of analytic truths and the relation of the former to experience. The impetus to do so comes from within an empiricist framework where anything that constitutes scientific knowledge has to be either an observation judgement; or be appropriately related to an observational judgement; or be a logical truth, *i.e.* analytically true. This was made explicit in the verifiability principle.<sup>41</sup> Thus the acceptance of an analytic/synthetic distinction was fundamental to logical positivism. Only analytic or synthetic judgements are acceptable in an empiricist framework because only deduction or observational experience are seen to lead to knowledge and truth. Hence the logical positivists, following Hume, divided truths exclusively and exhaustively into analytic and synthetic judgements.

**3.45** Philosophical investigations into the concept of analyticity, within and related to the empiricist philosophy of science, were precipitated by Quine in *Two Dogmas of Empiricism* (though anticipated by philosophers of science such as Norman Campbell).<sup>42</sup> The problem received considerable attention from Putnam, White and others.

The conclusion has been in general that in science there are no judgements, either in principle or in fact, immune from revision and these include logical principles.<sup>43</sup> The primarily philosophical studies, some of them by scientists such as Campbell, have been increasingly supplemented by historical examples.<sup>44</sup> Historians of science have provided further support for the view that scientific judgements are not timelessly analytic or synthetic.<sup>45</sup> They are at best only analytic or synthetic relative-to-a-particular-time. Since science is just common-sense “gone self-conscious”, and since in the context of philosophy of science these particular issues have been thoroughly and intensively investigated, there seems to be good grounds for rejecting the standard assumptions regarding analyticity and immunity from revision by experience.<sup>46</sup> Furthermore the notion of timeless analytic truths has been rejected even by some of those philosophers who had the strongest vested interests in defending it, *e.g.* positivists such as Carnap.<sup>47</sup>

**3.46** The positivist move to call analytic claims conventions, doesn’t suffice to make them immune from revision by experience. As already stated it doesn’t exclude the possibility that there are reasons for adopting these conventions, *i.e.* it doesn’t imply arbitrariness.

**3.47** Morton White, for instance argues that calling such analytic claims conventions does nothing to establish that they are immune from revision by experience and in fact this seems to be false for many of the judgements said to be conventions or definitions.<sup>48</sup>

**3.48** Hilary Putnam argues that most of the interesting judgements in science are such that they are as a matter of fact neither immune from revision nor able to be verified by direct experience, *i.e.* are neither analytic nor synthetic.<sup>49</sup> He argues for example that many of the judgements regarded by the positivists as conventions (and hence analytic) such as ‘ $e=mc^2$ ’, are just those judgements which as a group or cluster determine the referent of the terms in observational judgements.<sup>50</sup> This supports the view that these conventions, so-called, are non-observational presuppositions of the observational judgements. Hence they are judgements which are required to confirm the observational judgements insofar as they are required to establish the referent of the terms in them. Furthermore these “conventional” judgements are themselves subject to revision on the basis of experience.

**3.49** Putnam’s view provides a powerful argument for the position that the analytic/synthetic distinction cannot be used to identify scientific judgements — the purpose for which the positivists tried to use it. Putnam’s position is a weaker version of the one here argued. This is that not only are there no interesting judgements in science which are analytic or synthetic, but no synthetic-1 or synthetic-2 judgements at all. Nor are there analytic judgements in the relevant sense of ‘analytic’.

**3.50** It is not being denied of course that there are judgements about linguistic connections. The fact that they are such, however, does not imply that they are immune from revision due to experience and can therefore be excluded from being regarded as legitimate non-observational presuppositions. Hence it is concluded that analytic presuppositions, *i.e.* presuppositions about the meanings of words, can be regarded as at least one class of non-observational presuppositions of observational judgements.

**3.51** Even if one does not accept the above arguments, about analytic or meaning presuppositions being one class of relevant non-observational presuppositions of observational judgements, there are other classes of non-observational presuppositions of observational judgements. These can be regarded as either an infinite set of claims (which cannot as a set be confirmed by direct observation) or as a *ceteris paribus* clause equivalent to the claim that there are no other countervailing causes operating, which claim is also non-observational.

**3.52** In order to confirm an observational judgement such as ‘That table is brown’ on the basis of sensory experience, it is necessary to assume that one is not hallucinating; that the table does not change colour every other second, but too fast to be seen; that it will not disappear or change into something else; that it is not a hologram; that one is not being hypnotised; that one’s eyes are functioning properly, etc.

**3.53** Thus there are two alternatives: to presuppose a set of negative and/or positive judgements (such-and-such is the case or is not the case, as the case may be) or to presuppose one very general negative judgement (the *ceteris paribus* clause) that there are no countervailing conditions obtaining. Either of these alternatives clearly involves non-linguistic presuppositions since they are not about language. They are however also non-observational since they are not presuppositions about what is directly observable. It is not directly observable that all other things are equal or that each of an infinite set of judgements is true or has been confirmed.

**3.54** This problem is acute in the experimental situation. In drawing an inference from an experiment it is presupposed that there are no additional relevant variables operating and hence that the conclusion drawn on the basis of the operation of the known variables is correct. The presupposition that there are no additional relevant variables operating is a non-observational one.

**3.55** This is sufficient to make the case that, as well as linguistic, non-observational presuppositions there are *non-linguistic*, non-observational presuppositions of an ordinary observational judgement such as ‘The table is brown’. Lakatos argues that there is a tacit *ceteris paribus* clause in all scientific laws — the paradigm of scientific judgements.<sup>51</sup> The above argument establishes that there is a *ceteris paribus* clause (or its equivalent) operating at an even more basic level, *viz.* at the level of observational judgements.

**3.56** Even if the above arguments about the two classes of non-observational presuppositions of ordinary observational judgements are not accepted, there is yet another class of non-observational, non-linguistic assumptions required to confirm an observational claim. These are what could be called metaphysical or high-level theoretical judgements which may no longer be accepted from a scientific point of view but which persist in the language. These metaphysical judgements can be seen to be involved in determining the referent of terms in observational judgements in a way which corresponds to the determining of the referent of observational terms by clusters of laws in a scientific context.<sup>52</sup>

**3.57** The judgement that the table is brown can be said to presuppose metaphysical judgements that are in fact contrary to those held by science. The notion that there are separate objects such as tables, chairs etc. which is a view consistent with a Newtonian framework, is contrary to currently accepted Einsteinian notions of matter.<sup>53</sup>

**3.58** Another metaphysical judgement presupposed by the very syntactic structure of the observational judgement that the table is brown is that colour is something that inheres in or belongs to objects. This is contrary to the current view that the object surfaces absorb light of certain wavelengths and reflect light of other wavelengths which human beings, in virtue of the structure of their visual system, interpret as the object having a certain colour.

**3.59** These sorts of presuppositions about the nature of matter and colour can clearly be termed metaphysical or theoretical. This latter notion was earlier defined so as to signify judgements about that which was not directly observable in fact or in principle; or about that which was relatively indirectly related to observation. This class of presuppositions express metaphysical views about the world which are clearly not confirmable by direct observation. Hence they are non-observational presuppositions.

**3.60** It is interesting to speculate how the Einsteinian world view could be expressed linguistically. Perhaps something like: 'Table-energy-vortex-brownizes' might fit more closely with such a world view. David Bohm proffers some interesting suggestions for language revision which would bring language more closely into line with contemporary quantum theoretical views about the fundamental nature of matter.<sup>54</sup> Feyerabend also argues in *Against Method* that ordinary language is replete with "dead" theoretical assumptions.<sup>55</sup> Most such metaphysical judgements, though they are about what is not directly observable, are clearly related to what is observable, though exactly how is extremely difficult to articulate. The problem is that there is a sense in which it is true of even the most metaphysical judgements, such as 'God is good' or 'The Absolute is One', that they can be related to that which can be observed, e.g. instances of God's goodness as evidenced to individual people or the unity, which it is claimed, can be apperceived beneath changing and diverse phenomena.

**3.61** It was these metaphysical judgements that the positivists hoped to eliminate as non-scientific by means of the verification principle.<sup>56</sup> However, it was just this sort of judgement that turned out to be fundamentally and irreducibly a part of science. To distinguish the scientific metaphysical judgement from the non-scientific metaphysical judgements has proved to be an impossible task.<sup>57</sup> This is what one would expect however if, as argued above, such metaphysical judgements are required in order to confirm even the most ordinary observational judgement.

**3.62** This completes the discussion of the three classes of non-observational presuppositions required to confirm an ordinary observational claim: the linguistic or analytic presuppositions that relate to language; either the ceteris paribus clause or the infinite set of judgements that guarantee that there are not other relevant causes operating; and finally, the metaphysical judgements, embedded in the language, which represent high-level theoretical judgements about the nature of things. If observational judgements presuppose non-observational judgements, then the latter are required in order to confirm even an ordinary observational judgement. Therefore direct observation is not sufficient to confirm the latter. Hence there are no synthetic-2 judgements.

**3.63** Thus it can be concluded that while there are judgements about language; judgements about what is directly observable and judgements about what is not directly observable, none of these are immune from revision in the face of experience. It may be, as Quine suggests, that judgements in the first category are more likely to be immune from revision than the latter, but even that seems to depend on circumstances.<sup>58</sup> Some physicists are prepared to give up theoretical views regarding time, space, causation and even consciousness in the face of experimental evidence; some however are prepared to give up two-valued propositional logic.<sup>59</sup>

**3.64** If observation is not sufficient even in the case of ordinary language observation judgements to confirm them, it is instructive to look at the role of ordinary language judgements in the scientific context. They are of particular interest in relation to the empiricist attempt to philosophically found knowledge on ordinary language judgements about what is directly observable.

**3.65** It was argued above that there are no synthetic-1 judgements, i.e. judgements verifiable by experience. This was accepted quite early by the positivists themselves. It was also argued above that there are no judgements confirmable by experience alone, i.e. there are no synthetic-2 judgements either. The remaining candidate for epistemically privileged judgements are what will be called *d-observational judgements*, i.e. ordinary language judgements about what is directly observable. These are judgements such as 'That ball is red'; 'This liquid is hot'; 'That object is square'; 'The pointer is at 0'. It will be accepted that while these are not confirmable by experience alone and may presuppose



non-observational judgements, nevertheless they constitute, in a sense to be spelled out, the epistemically-privileged judgements upon which to found science. It will be argued below that even this, the weakest positivist position worthy of the name, is not tenable.

### Ordinary ‘direct-observation’ — in science?

**3.66** There are three sorts of questions that can be asked about the role of ordinary language d-observational judgements in science:

1. *Do* they actually play a foundational role in science?
2. *Can* they play a foundational role in science?
3. Insofar as they can play such a role, *should* they?

#### 1. Do d-observational judgements have a foundational role in science?

**3.67** Achinstein and others have argued that it is not the case that d-observational judgements do have a foundational, or indeed any, role in science.<sup>60</sup> “Observational judgements”, so-called, which are *actually* used by scientists include theoretical terms and “theoretical judgements” include observational terms.<sup>61</sup> Hence the observational judgements actually used in science are not in any important respects identifiable with d-observational judgements.

**3.68** It could be replied that this is to miss the philosophical point about the role of d-observational judgements in science. It is not the judgements that scientists *actually* use that is important in a rational reconstruction of science, which is what the positivists claimed to offer. It is what is being claimed in principle that is important in such a reconstruction. This is that the scientists’ “observational judgements” (whether containing observational or theoretical terms) can be shown ultimately to rely on judgements about what is directly observable, *viz.* physical judgements about colour, temperature, meter readings, shape, etc.<sup>62</sup> In what sense then do the scientists’ “observational judgements” (and hence ultimately all scientific judgements, observational or otherwise) rely on d-observational judgements?

**3.69** One way of maintaining that d-observational judgements can constitute an epistemic foundation for scientific discourse, in the face of the fact that they are not actually so used by scientists, is to introduce a distinction between what is directly observable and what is indirectly observable. An i-observational judgement is a judgement about what is indirectly observable. Thus scientists may say that they can see that the pressure in the tank is 40 lbs per square inch but really they are not observing the pressure directly but indirectly. What they are observing directly is a pointer on a gauge. Similarly physicists may say that they can see the electrons in the cloud chamber but what they really see directly are “tracks” on a photographic plate. They can be said to see the electrons indirectly. Thus there will always be something that the scientist observes directly, some shape, colour, numeral, etc. in virtue of which s/he will say that s/he

observes something else indirectly. Strictly speaking electrons, pressure etc. are all observed indirectly in virtue of seeing something else directly. Thus the direct/indirect distinction is intended to account for the relationship between scientists say they observe and d-observational judgements.

**3.70** There are two sorts of responses that can be made to this move. Firstly, the direct/indirect distinction can be accepted but it can be argued that this does not achieve what the empiricists wish it to achieve, *viz.* to show that d-observational judgements have epistemic priority. Secondly, the direct/ indirect distinction can itself be questioned. Both these lines of argument will be pursued here. Firstly, given that the direct/indirect distinction is accepted, it will be argued that this is not sufficient to demonstrate that d-observational claims have epistemic priority even in a rational reconstruction of science.

**3.71** It has been argued previously that in order to confirm observational judgements in a non-scientific content, non-observational assumptions are required. The following arguments are intended to establish the necessity for such non-observational judgements in order for d-observational judgements to have an appropriate role in a scientific context. They would stand irrespective of whether previous arguments, that such judgements are presupposed by observational judgements, are accepted or not. *The present arguments are intended to show that in order for d-observational judgements to play the role required of them in the empiricist reconstruction of science, non-observational judgements must be assumed to be true or confirmed.* Hence d-observational claims cannot by themselves constitute the requisite epistemic foundation for science.

**3.72** Whenever it is argued that an entity or object is being observed indirectly (*i.e.* an i-observational judgement is being made) in virtue of something else being observed directly (*i.e.* a d-observational judgement is being made) then a linking assumption is clearly involved. Thus if a person claims to see a fire, when what he or she sees directly is smoke in the distance, then in order for this claim to be accepted it must be assumed that fire and smoke are either causally or conceptually linked. (It could be argued for example that ‘fire’ means ‘flames and/or smoke’.) In this case where it is possible, as a matter of fact to see the fire as well as the smoke directly (by flying over it in a helicopter for example), the assumption linking the d-observational to the i-observational judgement, which would allow one to say that the latter depends in some sense on the former, is clearly d-observational.

**3.73** There is, however, an important difference between this sort of case and cases of indirect observation where it is *not* possible to see directly that which is being observed indirectly. These sorts of cases are in fact the most typical in a scientific context. In these cases *the assumptions linking what can be seen directly with what, ex hypothesis, can only be seen indirectly are generally non-observational.*

For example they will be assumptions to the effect that a track on a photographic plate *is* really the track of an electron. This is clearly a highly theoretical, and not a d-observational assumption, since one cannot see both the electron and the track. Without the assumption linking the two, however, there is no reason to think the track the track of an electron in virtue of which the latter can be seen indirectly.

**3.74** These assumptions linking d-observational and i-observational judgements will in general be themselves *non-observational* in science, *i.e.* not able to be confirmed by direct observation, since wherever indirect observation is used in science it is used just because direct observation of the entity in question is not possible. It cannot be confirmed by direct observation that electrons leave tracks of a certain kind in a Wilson cloud chamber or that distant stars are moving away from the earth at speeds approaching the speed of light. These phenomena are said to be observed indirectly in virtue of other phenomena observed directly according to the empiricist view. However, in order for what is d-observable to be relevant to what is i-observable it must be assumed that it is appropriately linked to what is i-observable. The assumptions linking what can be observed directly (*e.g.* tracks on a photographic plate) to what cannot (electrons) are *not* themselves d-observational judgements. This is of course true in relation to all i-observable entities, whether they be i-observable in fact or in principle.

**3.75** Therefore it can be argued that dependence of the requisite kind by i-observation judgements on d-observation judgements has not been established. In order to connect i-observational judgements to d-observational judgements, non-observational linking assumptions are required.

**3.76** It may be thought that this conclusion can be avoided by a revision of what constitutes a d-observational judgement. Previously a d-observational judgement was taken to be an ordinary language judgement which was about what was directly observable and which was able to be confirmed by direct observation, though not by direct observation alone. However this is ambiguous between being able as a matter of fact to be confirmed by direct observation and being able as a *matter of principle* to be confirmed by direct observation.<sup>63</sup> It has been argued by the positivists that what is important in the account of science is not what can as a matter of fact be confirmed by direct observation but what can in principle be confirmed by direct observation. Hence d-observational judgements should be taken to be judgements which are capable in principle of being confirmed by direct observation (even if not by direct observation alone). On this interpretation of being d-observational most of the assumptions linking judgements about what can be observed directly with judgements about what can only be observed indirectly are not non-observational, *i.e.* theoretical, but are d-observational.

**3.77** This sort of argument is unsatisfactory, for reasons similar to the inability to satisfactorily demarcate scientific judgements in terms of judgements which were testable in

principle. Basically the problem is that this notion of being d-observable is too broad and too weak to identify intuitively d-observational judgements. By weakening the notion of being directly observable so as to make at least most of the assumptions linking d-observational judgements with i-observational judgements d-observational, other problems arise that are in conflict with the original intention of making such a move.

**3.78** Firstly, to say that something is directly observable in principle is to say it is logically possible to observe it directly. What can be observed directly, as a matter of logical possibility, is limited only by what can be imagined and coherently said. The interior of the sun, demons (if they existed), black holes, a beam of light and God herself, are all in principle directly observable. In fact almost anything that can be thought of is in principle directly observable, *depending on what other assumptions one is prepared to make, i.e.* being able to travel at the speed of light, having x-ray vision, being able to observe in more than three dimensions, etc. All of these are, at least *prima facie*, coherent assumptions. Furthermore, it has already been argued that in order to confirm any observational judgement some additional non-observational assumptions are required. The question then becomes: how many and what kind?

**3.79** In addition, the notion of being directly observable is generally used as a convenient special case of perceptual knowledge. If the notion of being observable is extended to include being perceivable, then infra-red rays, gravitational forces and the wind, none of which are, strictly speaking, directly observable, can all be regarded as nevertheless directly perceivable.

**3.80** Thus if one uses the broad notion of being d-observational, then to say that the assumptions linking d- and i-observational judgements are d-observational. becomes a very weak claim. It becomes so weak that *d-observation claims can no longer be identified with ordinary language observational claims* such as ‘The sky is blue’ or ‘The water is hot’ or ‘The ball is round’. ‘Electrons have spin’; ‘God is androgynous’; ‘Tachyons travel faster than light’ are now also d-observational. The original reason for wanting to claim that the assumptions linking d- and i-observation judgements were themselves d-observational, was because of the positivist/empiricist assumption that d-observation judgements were epistemically privileged. However, it can be argued that to try and achieve this end by broadening the notion of being d-observable has consequences which are, or should be, unacceptable to an empiricist.

**3.81** The purpose of introducing d-observation judgements was ultimately to defend the “scientific” nature of science by founding it on ordinary language, d-observation claims. However, if the notion of what it is to be directly observable is broadened as suggested above, it is no longer capable of such a task. Assumptions linking judgements about God to judgements about mystical experience are on a par with

assumptions linking noises through the wall with people in the next room; assumptions linking electrons to cloud chamber tracks are on a par with assumptions linking bones with dinosaurs. All these linking assumptions become d-observational. Thus on this broad view almost nothing comes out as not d-observational. This is clearly contrary to the ordinary notion of being d-observational from which empiricists started.<sup>64</sup>

**3.82** Thus to summarise the problems for an empiricist with defining ‘d-observational’ as ‘being able to be observed directly in principle’, these are:

1. It is counterintuitive and contrary to the ordinary usage of ‘directly observable’.
2. Hence it is contrary to the original intent of the empiricist programme.
3. The notion can no longer be used to distinguish foundational judgements from those which would not be intuitively satisfactory as a foundation.

**3.83** However, no matter how broadly ‘d-observational’ is defined, there are still at least some non-observational assumptions required to connect d-observational and i-observational judgements in a scientific context. There are entities posited in physics, viz, entities occurring at the quantum level such as baryons, tachyons, etc., which are not only unobservable in principle but are possibly not even measurable. It has been argued that measurement of entities of this sort cannot be carried out without affecting the entities in question.<sup>65</sup> This ultimately raises problems not only with measuring these entities, but with the nature of measurement itself, and with the knowledge of the external world that can be obtained by means of it.<sup>66</sup>

**3.84** It becomes hard to conceive, therefore, how such entities could be regarded as directly observable in principle, no matter how widely the notion of d-observable was defined. Hence even the broadest definition of ‘d-observational’ does not prevent some non-observational assumptions being required in particular in the context of physics.

**3.85** Physics is a discipline most of whose fundamental entities fall into the ‘unobservable-in-principle’ category. This (rather paradoxically for an empiricist) makes physics the most theoretical of disciplines with other disciplines such as chemistry, biology, and possibly even psychology being less theoretical, and hence for an empiricist, more certain. Since physics is also the most successful and indisputably scientific of disciplines, this creates a further problem for an empiricist. It seems as though the model discipline is one in which direct observation doesn’t play as great a role as in the other “softer” disciplines.

**3.86** There is however a final point which can be made in regard to the relationship between direct and indirect observational judgements which does not rely on whether the linking assumptions involved are d-observational or not d-observational. It counts tellingly against the empiricist view of science.

**3.87** It is clear that most of the assumptions that link d-observational judgements to i-observational judgements in science, are not as a matter of fact confirmable by direct observation, whether in principle they are or not. As pointed out above, wherever i-observation judgements are used in science it is generally the case that the entity in question cannot as a matter of fact be observed directly, though something else can be in virtue of which it is said to be observed indirectly.

**3.88** It was argued above that the only way that d-observational judgements could be regarded as fundamental in science was if it was accepted that there were assumptions linking them to i-observational judgements. However, whatever the nature of these assumptions — whether non-observational or d-observational in the broad sense — they have to be accepted as true or confirmed, if the appropriate relationship between d- and i-observational judgements is to hold. *They have to be accepted as true or confirmed* even though some of them are unconfirmable by direct observational and some of them, though confirmable, may never as a matter of fact be confirmed. This has been the point of calling them assumptions — judgements which are accepted as true or confirmed. *It is the necessity of accepting unconfirmed and/or possibly unconfirmable judgements as true*, that constitutes the problem for the empiricist in accepting that assumptions are required in order to link d-observational and i-observational judgements.

**3.89** Thus d-observational and/or non-observational assumptions have to be accepted as true or confirmed in order to permit d-observational judgements to be regarded as a foundation for scientific knowledge. This seems contrary to the empiricist view of science. The point is not just what can be confirmed but what has to be accepted as confirmed. In order to link d-observational and i-observational judgements in the way empiricists require, so as to support the claim that d-observational judgements can play a foundational role in scientific discourse, the assumptions linking these, must be accepted as confirmed or true whether these latter have been confirmed or have been shown to be true, as a matter of fact.

**3.90** The same point holds in regard to the non-observational presuppositions of observational judgements. In order for an observational judgement to be confirmed, the non-observational judgements it presupposes have to be accepted as true or confirmed. This follows from the definition of an empirical presupposition (§3.24).

**3.91** Therefore it seems that the move to broaden the notion of being d-observational creates more problems than it solves. In any case it cannot solve the problem of entities which are even in principle not directly observable. If the notion of d-observational is not broadened however and the notion is left at the intuitive level of ordinary language observation judgements, then it must be accepted that most if not all of the assumptions linking d-observation and i-observation are non-observational. Either option creates a problem for the empiricist.

**3.92** If non-observational assumptions are required in order for d-observational judgements to play the role required of them in the empiricist account of science, then d-observational judgements are not foundational in the sense required of being epistemically privileged. Rather i-observational are linked to d-observational judgements by non-observational assumptions. It is the d-observational judgements, *together with the non-observational assumptions that are foundational*. Furthermore, as pointed out, the assumptions which are required in order to allow d-observational judgements to play the role required of them, have to be accepted as true or confirmed whether or not they are confirmable by direct observation and whether or not they have been confirmed as a matter of fact.

**3.93** All of this demonstrates the interdependence of the theoretical and observational components of scientific knowledge and counts against the foundational empiricist view. This is not to say one cannot identify theoretical and observational judgements, but they remain interconnected and inseparable in theory as well as in the practical activity of acquiring knowledge. Holism is to that extent true: separation of theoretical and observational judgements can be effected but only provisionally.<sup>67</sup> Thus not only is it the case that facts include both theoretical and observational judgements but they are epistemically equally important in scientific discourse.

**3.94** Surprisingly, given the reliance on the notion of being directly observable, positivists provided few clear accounts of what it was to be directly observable. Those provided were generally sketchy. Carnap for example suggested being able to be confirmed quickly with the unaided vision in two or three observations as a definition.<sup>68</sup> These accounts make explicit the judgements which, it may be argued, are intuitively and normally presupposed in claiming that something is directly observable and which thus exclude other presuppositions, which would permit the broadening of the notion of being directly observable in the manner suggested above.

**3.95** However, leaving the adequacy of these accounts of what it is to be d-observable aside, suppose this kind of account is accepted as the basis of the direct/ indirect distinction. It is then not at all clear that it can be argued that d-observational judgements are, even intuitively speaking, epistemically privileged. Whatever intuitive plausibility there

was in claiming that they should play a foundational role in science seems to disappear. As has already been argued no observational judgements (including d-observational judgements) are either synthetic-1 or synthetic-2. They are not true in virtue of experience nor are they confirmable in virtue of experience alone.

**3.96** It may be argued that the appeal of d-observational judgements is that there is ready agreement about them. Firstly, however, people do not always agree about meter readings or about shape or colour and secondly, it is not clear that there is more agreement about these sorts of judgements than about what can be seen on slides through a microscope or in photographs of cloud chamber tracks.

**3.97** It can be further argued that there are reasons *not* to use d-observational judgements as a basis for science. They provide less information. It is generally accepted that indirect observation via a telescope or satellite or an electron microscope provides more information than the unaided eye. The claim that such judgements presuppose non-observational judgements has no force since it has already been argued that d-observational judgements also presuppose non-observational judgements.

**3.98** Furthermore, if i-observation judgements do not depend on d-observation judgements alone but on d-observation judgements together with non-observational assumptions then it would seem more economic simply to regard i-observational judgements (together with their non-observational presuppositions) as basic. It would also fit better with what scientists actually use as their "observational" claims.

**3.99** Therefore it can be concluded that, as it stands, the direct/indirect distinction is not very clear. However, insofar as it can be made clear, it is not at all evident that there is any plausibility in claiming that d-observational judgements should play a foundational role in science.

**3.100** This completes the arguments that ordinary d-observational judgements do not and cannot by themselves, play a foundational role in a reconstruction of scientific discourse. Insofar as they can, it is not clear that they should do so.

**3.101** It was argued above that another way of replying to the claim that d-observational judgements constitute an epistemic foundation for scientific discourse, was to reject the direct/indirect distinction altogether. This will only be dealt with briefly. Achinstein has argued that this distinction is in fact very unclear both within science as well as outside of it.<sup>69</sup> Achinstein argues basically that the notion of being directly observable has not been satisfactorily clarified; that what counts as direct or indirect observation depends largely on the context and that intuitions are not a very good guide in the matter.<sup>70</sup>

**3.102** It has already been mentioned above that the logical positivists failed to provide more than a superficial account of what it was to be directly observable, considering the weight



of argument that the distinction between being directly and indirectly observable was to carry. If the distinction is rejected, then the claim that d-observational judgements play the role they do in science in virtue of their relationship to i-observational judgements, cannot be made.

**3.103** This concludes the series of arguments intended to undermine the empiricist notion of a fact by showing that the most paradigmatic case of a fact, a d-observation judgement, is such that

- i. it cannot be verified
- ii. it cannot be confirmed by experience alone but presupposes non-observational judgements
- iii. it does not, and cannot alone constitute a satisfactory foundation for science
- iv. insofar as it can constitute a foundation for scientific knowledge, it is not clear that it should.

**3.104** To summarise briefly what is being claimed on the basis of the above arguments, it is not being claimed that observation is not important in science, just that theory is at least as important (as Bacon made clear).<sup>71</sup> Furthermore, it is not being claimed that there are no judgements exclusively about language (definitions, conventions, etc.) but only that this does not imply that they are immune from revision on the basis of experience. Nor is it being claimed that there is no distinction between judgements which are about what is directly observable (observational judgements); judgements about what is not directly observable (theoretical judgements) and judgements about language (“analytic” judgements). It is just that the difference between these three depends on the nature and extent of the relationship to observation rather than on the absolute differences in kind suggested by the standard analytic/ synthetic and theory/observation distinctions.

**3.105** It is worth commenting once more on the definition of observational and theoretical judgements as given above in terms of what these judgements were about. It turns out that it was an assumption made by the positivists, though an unrecognised one, that judgements which were about or referred to what is directly observable were also confirmed by direct observation. However, this turned out not to be so. The weaker definition given here of observational and theoretical judgements is intended to reflect this conclusion.

**3.106** Empiricism is right to the extent that it emphasises the important role of observation and wrong to the extent that it overemphasises its importance and attempts to justify it as the foundational or epistemically privileged basis for knowledge. Hume, who formulated the empiricist doctrine in its most lucid fashion also courageously followed it to the sceptical end to which he saw that it led. An alternative course is to reject the assumption about observation on which empiricism is based.

**3.107** Within the context of empiricist philosophy of science it has become most important to analyze the notion of a fact. Hence it is not surprising that it is in this context that the notion of a fact, departing the furthest from empiricist/common-sense views, has emerged. One could argue, as does Feyerabend, that the common-sense of today is the philosophical or scientific theory of yesterday.<sup>72</sup> Empiricism has been a philosophical doctrine which has dominated philosophy of science and has even affected scientists’ views of how they do science. It has also permeated the wider society. It has, in particular, widely influenced Anglo-Saxon philosophy where it has had significant consequences in regard to ethics and value theory. In a similar way Newtonian physics continues to dominate the layperson’s conceptions of time and space.

**3.108** The empiricist view of a fact has been the constant in the fact-value debate. However, as a result of developments in the philosophy of science the notion of a fact has come under severe scrutiny. It is to the credit of the philosophical method, and whatever other complex psychological or sociological factors are involved, that the positivist’s commitment to the empiricist programme led to its eventual undermining both from without and from within, in the attempt to solve the problems generated by the programme. As a result, the empiricist/common-sense notion of a fact was shown to be untenable.

**3.109** The revision of the empiricist/common-sense notion of a fact has important consequences for many other philosophical problems in value theory, epistemology, and ethics. Some of these problems will be taken up in later chapters. In the next chapter the revised notion of a factual judgement and its relationship to truth and knowledge will be discussed.

## CHAPTER THREE NOTES

1. 'Assumption' is used to refer to a judgement which is assumed to be true or confirmed.
2. See Strawson(1964) (a) pp.114-118, for a brief discussion of what it is to say that a statement is *about* something.
3. Hume (1962), pp.41-42: "...so the only solid foundation we can give to...science must be laid on experience and observation." (p.42)
4. Carnap (1959), pp.76-77. Ayer (1970), p.108.
5. Stevenson (1959), p.277, and Ayer (1970), p.108, hold the former view. Perry (1926), pp.115-117 and Ziff (1960), p.213, hold the latter view.
6. Hempel, (1a) in Hempel (1965), pp.99-120, esp. pp.104-106.
7. Hempel, (4) in Hempel (1965), p.186.
8. Ayer (1970), pp.38-39. See also Introduction, pp.11-13, for a later formulation.
9. Hempel, (1a) in Hempel (1965), pp.106-107.
10. Hempel, (3) in Hempel (1965), pp.28-29. Carnap (1971), pp.7-165, esp. pp.7-9 and pp.25-27. This was the first of a two-part presentation of Carnap's later views on inductive logic. The second part appears in Volume II of the same series. See also Reichenbach (1971), esp. Ch. 1 and 11.
11. Duhem (1954), pp.144-146; pp.163-164. Achinstein (1968), Chapter Five. Shapere (1969), pp.115-121. Achinstein (1970). Suppe (1974), pp.80-86. Hesse (1974), Chapter One, esp. pp.9-16. Hesse (1980), Ch.3, esp. pp.63-73.
12. See Feyerabend (1965), p.213; and Kuhn (1970), pp.126-129, for statements of the view that observational statements are theory-laden. See Kordig (1971), Ch.I, for criticisms of these and other writers with similar views.
13. Hempel, (1a) in Hempel (1965), p.103.
14. White (1956), Ch. VIII and IX. Quine, (2) in Quine (1961). See Strawson and Grice (1965) for a rejoinder to Quine. Putnam (1962) (a), pp.364-365, argues that there is no interesting analytic/ synthetic distinction in science (though there is a trivial one in ordinary language).
15. Hirst (1959), Ch.IV, esp. pp.74-86. See also Quine (1960), pp.1<sup>4</sup>5, for a less scholarly but more literary discussion of phenomenalism.
16. Schlick (1959), pp.210-213. Neurath (1959), p.199.
17. *Ibid.*, p.204. Hempel (1934-35), pp.50-51.
18. Carnap (1959), p.63.
19. Neurath (1959), pp.201-202.
20. Carnap (1953), p.47. Neurath (1959), p.201. Hempel, (1a) in Hempel (1965), p.107.
21. Strawson (1963), p.175.
22. Fillimore, quoted in Garner (1971), p.37.
23. Strawson (1964) (b), pp.33-35.
24. This holds only if internal and external negation are regarded as equivalent. See Van Frnossen (1968), p.138.
25. Garner (1971), pp.23-24.
26. See Paras. 2.13 and 2.14.
27. Goodman (1965), pp.94-96. Goodman uses the concept of entrenchment to solve his "new riddle of induction".
28. The term 'non-observational' is intended to be broader than the term 'theoretical'. It refers also to judgements about language and metaphysical judgements.
29. See Note <sup>30</sup>, Chapter One, for reference on family terms. See also Putnam (1962)(a), pp.368-372, who extends the notion of a family term with the idea of a law-cluster concept.
30. Popper (1972)(b): "Every description uses universal names...every statement has the character of a theory..." (pp.94-95)
31. Quine, (2) in Quine (1961), pp.42-43. •
32. *Ibid.*, p.22.
33. See Note 14 above for references.
34. Quine, (2) in Quine (1961)1 pp.29-30.
35. Carnap (1967), pp.236-240.
36. White (1956), pp.262-263. Putnam (1962), pp.379-380.
37. Quine, (2) in Quine (1961), pp.27-32.
38. Quine (1960),p.37 (on stimulus-synonymy); p.66 (on stimulus-analyticity),
39. *Ibid.*, pp.73-79 (on indeterminacy of translation and opacity of reference).
40. Alston (1964), Ch.I. Lehrer (1970).
41. Schlick (1959), p.225. Hempel, (1a)in Hempel (1965), p.103.
42. Campbell (1957), pp.52-54. Quine, (2) in Quine (1961).
43. See Note 14 above for references.
44. Campbell
45. As will be discussed in Chapter Five, history of science becomes relevant to philosophical questions like these. once the a priori empiricist account of scientific method is rejected (Hesse (1980) Ch.1). See also Laudan (1979) and McMullin (1979) for a defence of the relationship between history and philosophy of science. The historical studies of the development of theories and concepts demonstrate the many and *op.cit.* complex factors that effect the development of the latter. They also show the arbitrariness of separating judgements and components of theories into analytic and synthetic. See Burian (1977); McMullin (1970). See also Fleck (1979), Ch. Two, esp. pp.50-51. for a discussion of the historical development of the concept of syphilis. See also Hesse (1961) for a historical approach to the development of concepts in mechanics. Finally, see Duhem (1954), pp.268-270, for general remarks on the importance of historical investigation in understanding physics, esp. p.269: "*To give a history of a physical principle is at the same time to make a logical analysis of it.*"
46. Quine (1960), p.3.
47. Carnap (1967), pp.236-240, argues that meanings in natural language can be empirically discovered. He also argues that intentions or meanings in science are becoming (my italics) more precise (p.241). Both the above views imply that what constitutes an analytic truth is empirically determined and hence is subject to revision on empirical grounds.
48. White . (1956), Ch.XIV.
49. Putnam (1962) (a), p.364.
50. *Ibid.*, P.376.
51. Lakatos (1970), pp.101-102.
52. Putnam (1962)(a)on law-cluster terms. Feyerabend (1970), pp.304-307.
53. Capek (1961), p.255.
54. Bohm (1980), pp.28-47.
55. Feyerabend (1975), pp.85-92.
56. Carnap (1959), pp.73-78.
57. See Krips (1979) for a discussion of a paradigm case of a non-scientific discipline on Popperian criteria of what is unscientific. Popper's criterion was weaker than that of the positivists, yet Krips argues it failed to forbid even the paradigm example.
58. Quine, (1) in Quine (1961).
59. Weizecker was one quantum physicist who was prepared to give up two-valued logic. See discussion in Heisenberg (1963), Pp.156-159. See also Putnam (1974)(b), pp.55-61, esp. pp.55-56, for a philosophical justification of this move. Wheeler (1957) proposed a many-worlds interpretation of quantum mechanics. See also Zukav (1979), p.106, for a discussion of the Wheeler-Everett-Graham hypothesis. See also Zukav (1979), pp.301-314, for a discussion of some novel conclusions about energy transfer currently under considerations by quantum physicists.
60. Putnam (1962)(b), p.241. Achinstein (1968), pp.158-165.
61. Achinstein (1968), pp.161-162.
62. See Carnap (1953), pp.63-64 and (1966), pp.225-226; Hempel, (4) in Hempel (1965), pp.178-179, for views on what it was to be directly observable.
63. Carnap (1953), p.69. Schlick (1959), p.210.
64. See Note 62 above for references.
65. Heisenberg (1963), Ch.3.
66. *Ibid.*, pp.49-55; pp.126-127.
67. Duhem (1954), pp.183-188, esp. p.187. Quine, (2) in Quine (1961), p.41. See also Harding (1976) for a collection of essays on the Duhem-Quine thesis.
68. Carnap (1953), p.63.
69. Achinstein (1968), pp.172-178.
70. *Ibid.*, pp.177-178.
71. Bacon (1960), pp.98-99: aphorisms, Book One: Paras. CIV; CV; CVD).
72. Feyerabend (1975), Ch.7.

## Ch.4 — TRUTH AND KNOWLEDGE

### Introduction

**4.1** In the last chapter it was argued that the empiricist/common-sense view of a factual judgement was untenable. If this conclusion is accepted, there are important consequences for views about the truth of factual judgements and, more generally, for views about acquiring knowledge by means of sensory experience.

**4.2** The revised view of a factual judgement is as follows. Factual judgements are judgements which purport to be about the world and which can be said to be true or false. The notion of a factual judgement is to be construed very broadly. It includes all judgements about the natural world such as would be accepted by the majority of scientists. These would include judgements such as:

1. Neutrinos have spin but no mass.
2. Gravitational force between two objects is inversely proportional to the square of the distance between them.
3. The Crab Nebula is X million light years from Earth.
4. Spiders are arachnids.
5. Coelenterates are organisms without a backbone.
6. Humans evolved from simpler organisms by random mutation and natural selection.

**4.3** Included also would be common sense judgements such as:

7. Some tables are round.
8. There are approximately 800 million people in China.
9. Margaret Thatcher is Prime Minister of Great Britain (at present — 1983).
10. Human beings generally have two arms and two legs.

These are judgements which the majority of people would accept.

**4.4** In particular, factual judgements include both theoretical judgements, *i.e.* judgements which are about what is not observable and observational judgements, *i.e.* judgements which are about what is observable. Neither of these sorts of judgements are such that they can be either verified or confirmed by observation alone. In order to confirm even observational judgements, non-observational assumptions are required. Both of these sorts of judgements are necessary in order to acquire knowledge and both have equal importance from an epistemic point of view.

**4.5** For present purposes what is required is a notion of a factual judgement which has been revised sufficiently to permit a new relationship between factual and value judgements to be formulated. Essentially what is involved is a weakening of the notion of a factual judgement and a strengthening of the notion of a value judgement so as to justify the claim that they are both rationally assessable and hence can figure jointly in arguments.

### Truth

**4.6** Given the revised view of facts; and in virtue of the claim that one of the most important differences between facts and values is that only the former can properly be said to be true or false, it is important to discuss the notion of truth. The correspondence theory of truth has been, since Tarski, regarded as the most satisfactory account of truth available. Therefore only this theory of truth will be considered here.

**4.7** In considering the notion of truth it is necessary to distinguish between the *meaning* of 'true' and the *criterion* (or criteria) for establishing the truth of a judgement. Thus 'corresponds with reality' may be what 'true' means but it may not be possible to use correspondence with reality as a criterion for establishing the truth of a judgement.

**4.8** Correspondence with reality, if interpreted literally, cannot, in principle, be a criterion for establishing truth or falsity. If 'correspondence' is understood as signifying a relationship that obtains between a judgement and the world, then the traditional objection to the correspondence theory of truth holds. This objection is that there is no way in which correspondence can be established — no independent perspective from which the judgement and the reality can be compared to see whether or not they correspond.<sup>1</sup>

**4.9** There are additional objections to this view; one objection is that it implies that language has an atomistic and foundational structure. Such a position is exemplified by Wittgenstein in the *Tractatus*, Wittgenstein claimed that there are factual judgements which are such that they correspond to or "picture" states of affairs. These judgements are the atomic "elements" of language. Out of these atomic sentences other compound sentences are hierarchically and truth-functionally constructed.<sup>2</sup> Wittgenstein's *Tractatus* was in fact one of the sources for the development of the positivist thesis about the existence of basic statements: those whose meaning was given in the verification of them — the method of verification being by observation.<sup>3</sup> There seems no reason to think, however, that there are any basic or atomic sentences in this sense; nor that more complex factual judgements are formed as hierarchical compounds of them.<sup>4</sup> The positivist thesis that theoretical judgements can be derived from observational judgements can be seen as an epistemic extension of this foundational view of language.

**4.10** Another objection to the correspondence view of truth comes from consideration of the relationship between language and reality that 'correspondence' implies. If the correspondence relation is symmetrical, then reality is composed of objects and their relations, *viz.* there is 1:1 mapping between judgements and the world.<sup>5</sup> However, it seems as though language represents the world at several removes at least, rather than corresponding to it. Everything that is known from a physiological and/or psychological viewpoint about perception and language, supports the view that incoming perceptual data is, in some sense or other,

‘selected as a result of complex cognitive, linguistic and physiological processes.’<sup>6</sup> Thus the data itself is modified and transformed during perceptual processing in such a way as to represent the source of the information, *viz.* the external world, rather than structurally reflecting it in the way the correspondence theory seems to suggest.

**4.11** Furthermore, for the perceptual data to be linguistically processed, *i.e.* for what is perceived to be linguistically transcribed, it requires further modification.<sup>7</sup> The overall language available to express the information as well as the sub-languages, technical or otherwise, available to the individual, all causally intervene between the judgement and reality. If this picture is complicated further by consideration of the cognitive factors that interact with both linguistic and perceptual ones; and with feedback through all the systems to each other, the complex causal chain involved makes it very unlikely that there is any sort of straight correspondence between language and reality.<sup>8</sup> The second objection, therefore, to the correspondence theory of truth is that it is not consistent with what is currently known about language, cognition and perception, all of which mediate between our experience of reality and what is said about it. This argument will be elaborated later in the chapter.

## Tarski’s account of truth

**4.12** It may be that while correspondence to reality cannot provide a criterion of truth, or may not fit with empirical views about how true judgements are arrived at, ‘corresponds to reality’ may be what is meant by ‘true’. Tarski’s account of truth in terms of the notion of satisfaction, which has been seen as an account of the correspondence theory of truth, is sufficiently important to require mention in any discussion of truth.<sup>9</sup> It will be argued below that Tarski’s account is at best only a partial account of truth as correspondence.

**4.13** Tarski’s account was originally intended to apply to formal languages in which the language/metalinguage distinction could clearly be made.<sup>10</sup> It is also, it has been argued, applicable to natural languages.<sup>11</sup> This is controversial but it will be accepted.<sup>12</sup> The core thesis of Tarski’s account involves the T-sentence. The T-sentence is a sentence of the following form:

‘Snow is white’ is true iff snow is white.<sup>13</sup>

**4.14** Tarski himself made clear that the T-sentence was never intended to be a criterion of truth but was intended to formally explicate a semantic notion, the notion of truth, in terms of a more primitive notion, that of satisfaction.<sup>14</sup> The T-sentence implies that a given sentence in the meta-language is true iff the object language sentence which it names, holds of the objects to which the object language sentence refers, where reference is spelled out in terms of the primitive notion of satisfaction.<sup>15</sup> Intuitively this can be seen to capture the

notion of truth as correspondence, *viz.* a sentence is true iff the world is ordered in the way the sentence says it is.

**4.15** It is important to note, in regard to what will be said later, that Tarski’s theory does not get out of the linguistic circle. In the first part of the T-sentence a sentence is being named in order to state that it is true iff the object language sentence that is named, holds of the world.

**4.16** The notion of truth as correspondence involves essentially three elements: that which corresponds, *viz.* the judgement; the relationship of correspondence; and that to which the judgement corresponds, *viz.* reality. Tarski’s theory of truth is primarily a semantic theory and not a theory of reference.<sup>16</sup> It deals with the concept of truth and not how reference takes place. It is intended to spell out the notion of truth as a semantic notion. This it does successfully. Truth is defined in the theory in terms of the satisfaction of sentences by sequences.<sup>17</sup> The notion of satisfaction is left as a primitive notion. Tarski’s theory cannot however be seen as a full-blown theory of correspondence. It deals incompletely with the second and third elements of such a theory, *viz.* with the relation of correspondence and with the question of what true judgements correspond to.<sup>18</sup>

**4.17** One of the clearest and simplest elucidations of Tarski’s work is to be found in Quine’s *Philosophy of Logic*. As Quine points out the open sentence ‘x loves y’ is satisfied by a sequence iff the first thing in the sequence loves the second thing in the sequence. Hence it is satisfied by the sequence (Romeo, Juliet). Quine comments:

“In this way one is told what it means to say of any predication in the object language that it is satisfied by a sequence of things. One is told this only insofar, of course, as one already understands the predicates themselves: for note how [‘loves’] got reused in the explanatory parts of the above [paragraph].”<sup>19</sup>

**4.18** On Tarski’s view what does the satisfying are sequences. These are ordered n-tuples of objects, described by terms in the natural language, or more formally by variables which are placeholders for names of objects. Hence understanding the notion of satisfaction by a sequence depends on two things. Firstly, it depends on an understanding of the terms involved. Hence, as Quine points out, the account of satisfaction by a sequence assumes a prior understanding of the meaning of the terms in the language.<sup>20</sup> This bears on the controversial question of whether Tarski’s account of truth can also be regarded as an account of meaning.



**4.19** Secondly, and more important, for present purposes, it depends on an intuitive understanding of the notion of reference. In Tarski's system truth is defined in terms of the primitive relation of satisfaction. What is satisfied are basically open sentences (though, trivially, so are closed sentences since the latter are satisfied by all sequences or none). What does the satisfying are sequences. Thus it may seem that Tarski has in fact given an account both of what is satisfied and what does the satisfying and hence of correspondence where the latter is regarded as equivalent to the notion of satisfaction. However, this is not so for the following reasons.

**4.20** Tarski's explication of the notion of truth and satisfaction hinges crucially on a distinction between the object language and the meta-language — intuitively between the language that is *about* the world and the language that is *about* the language that is about the world... Strictly speaking such a distinction does not exist in a natural language. However, by means of the convention of single quotation marks or simply by appeal to the 'language used to talk about the object language' it can be indicated that a sentence is being referred to and not used. Hence the distinction between meta-language and object language, which in a formal system can be clearly demarcated by different symbology as well as by listing predicates and domains relevant to each, can be approximated in a non-formal language.

**4.21** Talk of sequences or ordered pairs takes place in the meta-language — again to quote Quine:

"When I say that the pair  $\langle 3, 5 \rangle$  satisfies the sentence 'x < y' I am assuming for the time being that the sentence 'x < y' belongs to the object language and that the domain of objects of the object language includes the numbers 3 and 5; but I do not need to assume that this domain includes the pair  $\langle 3, 5 \rangle$  [sic]. The pair belongs to the apparatus of my study of the object language and this is enough."<sup>21</sup>

**4.22** Thus intuitive distinctions are drawn between the language used to talk about the object language; the object language itself and the domain of objects to which the object language refers. The issue is then: what is the relationship between the object language and the domain of objects to which it refers? Satisfaction is a relationship that holds between sequences (meta-linguistic objects) and the object language sentences (also referred to or named in the metalanguage). Thus talk of satisfaction belongs to the meta language. Furthermore, as Quine argues, to avoid paradox, the notion of satisfaction *must be restricted to* the meta-language.<sup>22</sup> In fact part of Tarski's contribution was to capitalise on the distinction between language and meta-

language so as to allow him to talk of truth without generating the so-called linguistic paradoxes such as the Liar paradox.<sup>23</sup>

**4.23** However, if there is no object language correlate of the notion of satisfaction (and if none is possible without paradox), then since truth is defined in terms of the former relation it leaves open the question of what the relation is between the object language sentences and the objects in the domain of the object language. In addition it leaves open the question of what object language sentences relate to.<sup>24</sup>

**4.24** This incompleteness in no way reduces the profound significance of Tarski's elegant elucidation of the meaning of 'true' However, it cannot be taken as a full-blown theory of correspondence. It leaves open the question of what the correspondence relation comes to, *i.e.* the nature of the second term of the correspondence relation; as well as the question of how to account for what is corresponded to, *i.e.* the nature of the third term of the correspondence relation. Hence Tarski's theory of truth does not provide a thoroughgoing account of truth as correspondence.<sup>25</sup>

### Strong empiricism and the notion of reality-as-it-appears

**4.25** In what follows an answer is suggested to the question of what object language sentences relate to. The term 'relate' will be used so as not to beg any questions about the truth relation. The question of what the truth relation is, will be taken up later in the chapter. It is suggested that what object language sentences relate to is not reality *as such* but *interpreted* reality. What this suggestion amounts to is elaborated below. Interpreted reality is that reality which it is possible to know. Thus it is being claimed that true sentences relate to reality not as such but as it can be known.<sup>26</sup>

**4.26** In order to initially clarify the notion of interpreted reality, it will be discussed in relation to the perhaps more familiar, or at least more easily explicable, notion of reality-as-it-appears. A distinction between things as they appear and things in themselves has been suggested many times in many different contexts. Plato, and more recently Kant, were its most illustrious proponents in the Western philosophical tradition and it is a distinction basic to Hindu and Buddhist philosophies.<sup>27</sup>

**4.27** Under one interpretation, the claim that there are things in themselves and things as they appear is a fundamental tenet of contemporary physical theory. This is shown most clearly by the fact that physical theory, which purports to tell us about the nature of matter, contradicts what is able to be seen by means of the unaided senses, *e.g.* that there are material objects.<sup>28</sup>

**4.28** What is not clear is whether, as Kant claimed, there are things in themselves which are unknowable by means of the senses or by any other means.<sup>29</sup> For Kant it was a contradiction in terms to talk of knowledge other than by means involving the senses since he defined knowledge in terms of that which is arrived at as a result of both sensory apprehension and concept.<sup>30</sup> It follows that there can be no knowledge other than by means involving the senses, on Kant's view. Nevertheless Kant posited that there was a world of noumena, of things-in-themselves, which we could apprehend by means of the mind though to be consistent he could not (and did not) say that we could know anything about the objects in that world.<sup>31</sup>

**4.29** If however what constitutes knowledge is left open, then the question of how we come to know, whether by the senses or by other means, and what we can have knowledge of, is also left open. In what follows it is proposed that the concept of knowledge be so construed that the means by which we can come to know and what we can have knowledge of is left open.

**4.30** Within the Anglo-American philosophical tradition, the most influential view about how knowledge is acquired has, for approximately the past 200 years, been empiricism. The central thesis of empiricism can be stated as the claim that all knowledge of the external world derives solely from the senses.<sup>32</sup> It will be argued that this claim is false. If the arguments for this conclusion are accepted, then it also follows that if 'world of appearances' is understood to mean 'the world as it is known solely via the senses' then there is no world of appearances. **4.31** The case for arguing that it is false that all knowledge of the external world derives solely from the senses has in part already been put in arguments for the claim that there are no synthetic judgements, *i.e.* judgements which can either be verified or confirmed by experience. It will become clear that rejecting the claim that there are synthetic judgements is equivalent to rejecting the empiricist thesis under what turns out to be the most defensible interpretation of it. This is a point already made by Quine, Putnam and White amongst others.<sup>33</sup> The earlier arguments will be briefly reviewed in the course of the following discussion. Additional reasons for rejecting the empiricist thesis will also be given.

**4.32** The empiricist claim that all knowledge derives solely from the senses can, in the first instance, be interpreted in at least two ways. Firstly, it can be understood as equivalent to the claim that all knowledge *originates* solely from the senses. Alternatively it can be understood to mean that all knowledge relies ultimately on the senses in a much weaker sense, in that it requires *confirmation* by means of the senses alone. The latter is much weaker than the former since the latter is consistent with arriving at claims (later to be confirmed as true) by means of intuition, dreams, lucky guesses, mistakes or even with holding them innately. In this context knowledge refers only to propositional knowledge and not to the much

more complex and problematic notions of knowing how and tacit knowledge. The above two claims can each be further divided into two sub-claims, *viz.* that knowledge originates by either (i) a direct or (ii) an indirect causal chain from the senses; and that knowledge can be confirmed either by (i) the aided or (ii) the unaided senses. The latter distinction will be taken to be equivalent to the distinction between being able to observe something directly, *i.e.* with the unaided senses and being able to observe something indirectly, *i.e.* with the aided senses.

**4.33** Each of these claims constitutes a progressive weakening of the empiricist position and each will be evaluated and rejected. Hence it will be argued that the empiricist thesis, under these four interpretations, is false. It is possible both to state and reject these positions so clearly because of the historical development and elaboration of the empiricist position by, for example, the logical empiricists and because of criticism of these elaborated doctrines by both empiricists and by critics of empiricism such as Feyerabend *et al.*

**4.34** The first claim to be examined is the claim that *all knowledge originates directly from the senses*. On the face of it this is an empirical claim, and as such it appears to be false. There are some claims which we regard as constituting knowledge which could not have been obtained directly via the senses because they contradict the information which is obtained directly via the senses (*e.g.* that there are no simultaneous events; that the sun does not rise in the sky but the earth revolves around the sun; that space is non-Euclidean) or because they concern that which cannot in principle be seen (*e.g.* photons or any particles smaller than photons).

**4.35** The second claim can now be advanced as a weaker defence of the empiricist thesis: it can be argued that even though not all that we regard as knowledge is derived directly from the senses, it is derived indirectly from the senses by means of some causal chain or other. However, until an explicit account is given or even sketched as to the means whereby it can be argued that all knowledge claims whatever derive from a sensory source, then this claim remains weak and imprecise as to be indefensible.

**4.36** It may then be granted that the claim that all knowledge originates (either directly or indirectly) from the senses is not tenable but that knowledge nevertheless relies on the senses in that the senses are required to *confirm* knowledge claims. If this is interpreted as meaning that the *unaided* senses are required to confirm knowledge claims, then arguments pertinent to the first version of the thesis are also relevant here. Scientific knowledge, according to arguments in Chapter Three, includes both theoretical and observational judgements. If this is accepted, then theoretical judgements, which are, by definition, about what is not observable, logically therefore cannot be confirmed by means of direct observation. Theoretical judgements include judgements about the past; judgements about that which is in

the micro-domain; or judgements about that which is very far away. Therefore *some* knowledge claims cannot be confirmed by the unaided senses. Hence not *all* knowledge claims can be confirmed by the unaided senses. Furthermore, as was argued in Chapter Three, since all observational judgements (including d-observation judgements) presuppose non-observational judgements, *no* knowledge claims are confirmable by the unaided senses *alone*.

**4.37** The last move available to the empiricist is then to claim that while not all knowledge claims can be confirmed by the unaided senses (and none by the unaided senses alone), those knowledge claims that cannot be confirmed by the unaided senses can be confirmed by the senses supplemented by instruments such as microscopes, telescopes, computers and other technological and mathematical tools, *i.e.* by indirect observation. What this comes to is the claim that those knowledge claims not confirmable by direct observation can be confirmed by indirect observation. Hence all knowledge claims are confirmable by either the aided or the unaided senses.

**4.38** However, there is a problem with accounting for indirect observation which has already been discussed in Chapter Three. If it is claimed that i-observational judgements are dependent on d-observational judgements, in that whenever something is observed indirectly it is in virtue of observing something directly, then *non-observational* assumptions are required to link the i-observational judgements to the d-observational judgements. Therefore it is direct observation together with the non-observational linking assumptions that confirm those judgements which cannot be confirmed by direct observation. Furthermore, as argued in relation to the previous claim, no knowledge claims are confirmable by direct observation alone (*viz.* without non-observational assumptions). This is so even without taking into consideration the additional linking assumptions required to account for indirect observation. Hence the appeal to indirect observation does not suffice to establish that even the supplemented senses can confirm knowledge claims without requiring non-observational presuppositions.

**4.39** Even if it is claimed that i-observational judgements do not depend on d-observational judgements, then non-observational assumptions relating to the supplementary technology in question are still required (*e.g.* the theory of optics in the case of the telescope). Hence once again indirect observation is by itself not sufficient to confirm knowledge claims.

**4.40** Therefore whether knowledge claims are confirmed by the senses supplemented by technological aids or by the unaided senses, non-observational assumptions are still required. Observation alone, whether supplemented by instrumentation or not, is never sufficient to confirm knowledge claims. Therefore neither the aided or unaided senses alone can confirm knowledge claims.

**4.41** This completes consideration of the four interpretations of the empiricist thesis. Since none of these

interpretations are defensible, it is concluded that the thesis is untenable and that it is not the case that all knowledge derives solely from the senses. In fact the obverse seems to be true. Since even in the weakest sense, *viz.* confirmation, sensory experience alone cannot establish that a claim constitutes knowledge (and hence is true), it can be concluded that *no* knowledge derives solely from the senses in the weakest sense. A fortiori it does not derive solely from the senses in any stronger sense.

**4.42** For the empiricist therefore there appear to be two choices: either to take the Humean course of denying that we have any knowledge or to accept that there is a way of acquiring knowledge *other than solely by means of the senses*. Neither alternative seems attractive. One seems to vitiate the activity of science and as such is effectively a redefinition of 'knowledge' so that nothing which we would presently call knowledge would count as such. Such a move would require considerable justification. The second alternative amounts to a rejection of strong empiricism.

**4.43** If it is accepted however that no knowledge derives solely from the senses then there is another consequence besides the rejection of the empiricist doctrine. This is that there is no world of appearances as defined. That is to say, if 'the world of appearances' is understood to mean 'that which we come to know solely by means of the senses' then there is no world of appearances.

**4.44** Furthermore, the above arguments for the weaker empiricist thesis that no knowledge claim is confirmable solely by means of the senses, are sufficient to show that what we can come to know is an *interpreted or theory-laden reality*. That is to say *insofar as non-observational assumptions are required in order to confirm knowledge claims, then what does the confirming of the knowledge claim is the sensory experience together with the non-observational presuppositions*. In that sense therefore all we can know (by means of the senses) is an interpreted or theory-laden reality. In the next section even stronger arguments will be put that this is the case.

## Summary

**4.45** It has been argued that the strong empiricist thesis that all knowledge derives solely from the senses is, under four progressively weaker interpretations, false. The first interpretation: that all knowledge originates directly from the senses is empirical and false. The second interpretation that all knowledge originates indirectly from the senses is too weak to be defensible. The third interpretation that all knowledge is confirmable by the unaided senses alone is also empirical and false; the fourth interpretation that all knowledge claims are confirmable either by the aided or unaided senses is also false since sensory experience alone is insufficient to confirm knowledge claims.

**4.46** Furthermore, if these arguments are accepted it follows that no knowledge derives solely from the senses in the weakest and most defensible sense. Since no knowledge derives from the senses in any stronger sense either, it follows that no knowledge derives solely from the senses. From this it can be concluded that there is no world of appearances, *i.e.* the world as it can be known solely by means of the senses.

**4.47** In addition, from the arguments that demonstrate that sensory experience alone is insufficient to confirm knowledge claims, it follows that only sensory experience together with non-observational presuppositions is sufficient to confirm knowledge claims and in that sense therefore all that we can know via the senses is interpreted or theory-laden reality.

**4.48** In the light of what has been said above regarding empiricism, a strong empiricist thesis could be regarded as any view that claims that the senses are sufficient to acquire knowledge. This thesis has been rejected. In addition, the view that there is a world of appearances, *i.e.* reality-as-it-appears solely via the senses, has been rejected.

**4.49** A weak empiricist thesis on the other hand would be any view that accepts that the senses are *necessary* for knowledge. Therefore any view that includes the weak empiricist thesis implies that all that we can know is interpreted reality since, as argued above, all we can know via the senses is interpreted reality.

### Weak empiricism and interpreted reality

**4.50** Consideration of the empirical account of the way in which knowledge is acquired from the senses, has interesting implications in the present context. Supposing that the strong empiricist claim about knowledge is rejected in favour of weak empiricism. Then it still remains pertinent to ask what role the senses play in acquiring knowledge about the world. This does not imply that all knowledge about the world either originates from or is confirmed solely by the senses. It does however recognise that the senses do play a necessary role in acquiring knowledge. The issue is: what sort of role do they play? This is clearly an empirical question.

**4.51** It is of interest to note that Hume originally tied questions of epistemology to questions of psychology, a link that while it still remains, has been submerged in the historical development of empiricism.<sup>34</sup> Intuitively it is clear that any question regarding the way in which knowledge is acquired from the senses must incorporate some sort of view regarding the precise role and function of the senses in this regard. This is in part clearly an empirical matter. The notion of what it is to be empirical will be taken up again at the end of the chapter.

**4.52** The claim that all we can know by means of the senses is interpreted reality is supported most directly by arguments based on the role of the senses in acquiring knowledge. It was argued previously (§§4.33–36), that it is empirically indefensible to claim that all knowledge originates solely from

the senses. However, it seems uncontroversial that most, and possibly all, knowledge originates if not solely from the senses, then at least by means which involve the senses.

**4.53** Empirically based theories of perception support the view that (a) even sensorily derived information is not derived solely via the senses and (b) that at least some knowledge is derived via the senses if not solely.<sup>35</sup> In the previous section, in discussing the strong empiricist thesis regarding knowledge, two interpretations of how knowledge could be derived from the senses were offered: *viz.* sensory experience as a source of knowledge and sensory experience as confirming claims to knowledge. Though the strong empiricist thesis was rejected, these two ways of understanding how knowledge derives from the senses remain pertinent. The conditions under which sensory experience confirms knowledge claims have already been discussed in Chapter Three. The concern of the present section is with how knowledge claims originate from the senses (though not the senses alone).

**4.54** In talking of knowledge, only propositional knowledge will, in the first instance, be considered. Judgements and propositions will for the purposes of the present discussion be taken to be identical. Insofar as judgements originate via the senses, judgements can be regarded as the product of a process which begins with sensory information, *i.e.* data obtained by means involving the senses, and ends with judgements. Thus sensory data is transformed into judgements.

**4.55** The main point to be made in regard to sensory information is that it is not pure and unadulterated data as the empiricist model has it. Such a view is supported by what is empirically known about perception. The information acquired by means involving the senses (but not solely) is, even at the sensory level, governed by causal interaction with non-sensory, linguistic and cognitive systems.<sup>36</sup> Knowledge claims and/or beliefs, however these latter are to be ultimately physiologically and/or psychologically cashed out constitute elements of such systems. Thus perception is said to be a constructive process as well as a selective one.<sup>37</sup>

**4.56** Since contemporary views of perception are opposed to the idea that there is any level at which we receive pure unadulterated sensory information about the world, they illustrate that empiricism tacitly incorporated a proto-psychological theory of perception. Contemporary views of perception contradict the empiricist notion that there is a level of unadulterated sensory input (reflected in the discredited notions of sense data) which is only later “contaminated” by theory. The empiricist theory of perception — essentially a passive theory of perception — is just plain wrong.



**4.57** If this is accepted, it follows that all we can have knowledge of via the senses (with the senses involved either in confirmation of knowledge claims or constituting a source of knowledge) is interpreted reality. *Interpreted reality is reality as it is modified by the means of coming to know about it.* Given acceptance by the weak empiricist thesis, the means necessarily include the senses.

**4.58** The structure of this argument is important to note. It is a deductive argument. The first premise is the weak empiricist thesis, that the senses are necessary for knowledge, which is assumed to be true. This thesis could be regarded, as Kant regards it, as a definition of knowledge. However this makes it contradictory to claim that knowledge can be obtained by means other than the senses. Not only does this seem counterintuitive but the claim that knowledge can be obtained by means other than the senses has been made (and understood, if rejected as false) within many philosophical and religious systems (and even some scientific ones).<sup>38</sup> Furthermore, arguments for changing definitions seem more messy than arguments for changing truth conditions, at least in the present philosophical climate. Changing truth conditions is likely to be regarded as more clearly empirical while the former is likely to be regarded as unrelated to empirical concerns.

**4.59** The first premise of the argument would read:

**P.1** If something is knowledge, then it is acquired via the senses.

The second premise is an empirical premise supported by what is known about how knowledge is acquired via the senses. It would read:

**P.2** If something is acquired via the senses it involves interpretation.

The conclusion that follows is:

**C.** If something is knowledge then it involves interpretation.

**4.60** In the above account not only were knowledge claims assumed to be the products of a process but a distinction was assumed between propositional knowledge and sensory information. What is obtained via the senses was termed sensory information. It could be asked therefore whether or not sensory information can be regarded as a kind of knowledge? So far only propositional knowledge has been discussed. If all knowledge is regarded as propositional then there can be no sensory knowledge. However, if it is allowed that there is non-propositional knowledge (tacit or dispositional knowledge for example) then some sensory information may be regarded as sensory knowledge.<sup>39</sup>

**4.61** A necessary (but not sufficient) condition of being knowledge is that it can be made intersubjectively available. That is if something is knowable it must be able to be known by anyone in similar circumstances (other things, such as intelligence, education, background, location, etc., being

equal). A consequence of what has been said previously in regard to the role of sensory information in acquiring knowledge is that, in principle, not all sensory information is available intersubjectively just in virtue of the people involved being physically located so as to receive the information. Since, as argued, sensory information has non-sensory (linguistic and cognitive) parameters, these would also have to be more or less similar in order for the location of the person to provide similar sensory experience and hence for the sensory information to be intersubjectively available and to fulfil the necessary condition for being sensory knowledge. This is contrary to the general assumption that sensory information is intersubjectively available in virtue of physical location alone (other things being equal).

**4.62** In regard to the empirical question of what is sufficient for acquiring knowledge, empirical data about how knowledge is acquired perceptually and cognitively, is incomplete. In regard to the putatively more philosophical question of what is sufficient for acquiring knowledge — this could reasonably be identified with the question of whether there is a scientific method and if so, what it is. This is a controversial issue though in general it is agreed that there is no rigorous scientific method.<sup>40</sup> Furthermore, the question of whether there is or not, is regarded by positivist philosophers of science as also, in part, an empirical one.<sup>41</sup>

**4.63** Therefore some sensory information may be regarded as knowledge, albeit non-propositional knowledge. *Sensory information can only constitute knowledge when the non-sensory parameters influencing perception are sufficiently similar for sensory information to be intersubjectively available (i.e. that being in a particular location is sufficient, other things being equal to obtain the same sensory information).* This will typically be the case, for example, in experimental situations in science, when in virtue of shared education and background presuppositions, the experiment is observable by another scientist though obviously not by just anyone who put themselves in the same physical location. The above view also makes clearer the reason for the necessity of a shared paradigm in “normal science”, viz. it is necessary in order for sensory information to count as sensory knowledge.<sup>42</sup>

**4.64** The empiricist view in contrast to this was that sensory information always constituted knowledge and hence was always intersubjectively available. The stability of the parameters in science and the ‘hidden curriculum’ of assumptions in scientific training makes these parameters invisible at least so long as science continues in its “normal” phase.<sup>43</sup> At least one of the features that characterises science is that the presuppositions of a discipline tend to stay fixed or at least to change very gradually. Hence arriving at agreement about factual judgements is possible. This point will be taken up again in Chapter Six, where factual and value judgements are compared.

**4.65** So far what has been discussed is knowledge. The chapter started out discussing the limitations of Tarski's correspondence theory of truth. The connection between the latter and the foregoing discussion is as follows. It was concluded above that all knowledge obtained via the senses was knowledge of interpreted reality. Hence it follows that the second term of the truth relation is interpreted reality. The concern of the present section will be with the nature of the relation between true judgements and interpreted reality.

**4.66** Suppose that the weak empiricist thesis, that the senses are necessary in acquiring knowledge, is accepted. Such a thesis would be accepted by most scientists and most philosophers of science whether of a rationalist or empiricist persuasion. Hence it would follow that if we know about the world then we know about it by means which necessarily involve the senses. On the basis of what is known (via the senses) about how we come to know about the world via the senses, it seems that the reality we come to know about is an interpreted reality. All this has been argued in the previous section.

**4.67** Knowledge claims are, it has been argued, the product of a process of coming to know. Hence it follows that true judgements which constitute knowledge, are a product of a process of coming to know which necessarily involves the senses (by the weak empiricist thesis). This process at the perceptual level involves selection and construction. Therefore knowledge acquired about the world has been acquired via selection and construction. Therefore the reality as we do come to know it is interpreted reality. From this it is inferred that what we can come to know via the senses is an interpreted reality. This is an empirical proposition and is subject therefore to modification by either empirical or philosophical considerations.

**4.68** So far the only part of the process of acquiring knowledge that has been considered is that part which concerns perception. This is obviously only part of the process of transforming sensory information into propositional knowledge. This process continues with the coding of the incoming stimuli into a linguistic form. Empirical knowledge of this part of the process encompasses knowledge about the coding process and the nature of language as a psychological system. Therefore the psychology and philosophy of language, as well as psycholinguistics, are involved in arriving at empirical conclusions about these matters. In addition questions regarding the functioning of the cognitive system; whether it is independent of, or interrelated with, the linguistic system; and the modes of encoding knowledge, whether propositional or non-propositional, are also involved. It is not possible to explore these issues any further here.

**4.69** However, the general nature of the arguments and of the conclusions are clear. The arguments involved are empirical. Furthermore, consideration of the process whose end result is a true propositional knowledge claim makes it

unlikely that the claim corresponds to reality as such; rather it relates to reality as it is known (and, it is inferred, as it can be known) — it relates to interpreted reality.

**4.70** On the basis of the above arguments therefore an even stronger claim can be made regarding the truth relation itself. Judgements regarded as the products of a process of coming to know via the senses do not as a matter of fact correspond to reality. Knowledge claims are, and indeed all language is, to put it succinctly, abstracted from experience and hence does not correspond to it.

**4.71** To accept this conclusion suggests that the notion that *judgements correspond to reality is a claim which is ultimately the outcome of inadequate proto-psychological or proto-empirical theorising*. As such it is a metaphysical or theoretical thesis with an empirical base and it does not seem to be supported by current physiological and psychological data. Secondly, the account of abstracting presented in the first chapter can now be seen not only as providing an analytical framework but as referring (though at a very general level) to part of the process of transforming sensory information and/or knowledge into propositional knowledge. This interpretation seems supported by current views on perception.

**4.72** It may be argued that the above constitutes a misinterpretation of the notion of truth as correspondence and the status of the claim that all judgements correspond to reality. 'True' means 'corresponds to reality' and hence it is a logically necessary claim that true judgements correspond to reality. However the consequences of definitions are open to discussion and if the sharp analytic/synthetic distinction is rejected, as it has been suggested it should be, then empirical considerations may well be pertinent to evaluating definitions, just as non-empirical ones such as simplicity or incoherence may be pertinent to evaluating factual judgements.

**4.73** If therefore a definition has as a consequence a claim which when interpreted substantively, conflicts with empirical data but which under the definition is logically true, then *this seems to provide at least one good reason to reject the definition*.

**4.74** The above arguments, if accepted, not only demonstrate that knowledge claims relate to an interpreted reality. They also establish that true judgements which constitute knowledge claims, cannot properly be regarded as corresponding to interpreted reality. That is to say the relationship between a true judgement and the reality to which it is supposed to correspond, is sufficiently abstracted, sufficiently theory-laden and mediated by interpretation at even the perceptual level, for it to be most misleading to claim that the relationship involved is anything like correspondence.

**4.75** Thus in addition to the purely philosophical arguments against the notion of truth as correspondence (no criterion of truth; assumptions about the nature of language etc.; the claim that even Tarski's theory has not, at least at the object language level, given an account of correspondence) are the

empirical arguments based on theories of perception. On the basis of these arguments it is concluded that the definition of 'true' as 'corresponds to reality' should be scrapped. Reasons for rejecting the definition have been given. An alternative definition and reasons for accepting it will be offered below. However, before doing so some contentious issues touched on above will be discussed at a little more length.

**4.76** Firstly, the relationship between the rejection of the analytic/synthetic distinction and empirically based evaluation definitions may require some further elucidation. If the analytic/synthetic distinction is rejected, then as Quine says, there are no judgements either verifiable in virtue of experience or true in spite of all experience. As has been argued in Chapter Three, there are no judgements verifiable or confirmable in virtue of experience and no judgements immune from revision on the basis of experience. This claim and some of its consequences have been explored in the preceding chapter.

**4.77** The consequences of claiming, however, that there are no judgements immune from revision in the face of experience has important implications in regard to definitions. It allows that, in principle, *definitions are to be evaluated on grounds which include their empirical consequences and other empirical considerations*. One such empirical consideration was offered above for not accepting the definition of 'true' as 'corresponds to reality'. Accepting that 'true' means 'corresponds to reality' leads to a judgement which, though logically true, is, when interpreted substantively, false. This judgement is that true factual judgements correspond to reality.

**4.78** The claim that definitions are conventions within science to be adopted and discarded for empirical reasons and with empirical consequences has been developed by White and Putnam, amongst others and was discussed in Chapter Three (§§3.43–48). In principle there seems no reason why this conclusion should not be more widely applied. Thus it was suggested above that the definition of truth was formulated on the basis of faulty empirical assumptions and ought to be rejected on the basis of more adequate empirical theorising.

**4.79** In addition to the question of using empirical arguments as a basis for accepting or rejecting philosophical definitions, there is a broader question regarding the relationship between a given process and its product, which relates also to the proper role of philosophical enquiry. The logical positivists regarded the proper sphere of philosophy as logical analysis, having separated science from philosophy on the grounds that the proper concern of the former was with what was empirical.<sup>44</sup> This in turn clearly derives from the sharp analytic/synthetic distinction and the division of truths into logical and empirical truths. Such a view of the proper sphere of philosophy has recently come under sustained attack by Richard Rorty, amongst others.<sup>45</sup>

**4.80** This view, about the proper role of philosophy, can be seen to have implications in regard to studying how something comes to be, as a matter of fact (which will be termed 'empirical process'); and the result of that process, which is its product. Thus acquiring knowledge can be seen as an empirical process and the products of that process are knowledge claims, including true judgements.

**4.81** Given initially the analytic/synthetic distinction (the distinction between truths of logic and truths of experience); a corresponding distinction can be drawn between science and philosophy. Philosophy is properly concerned with analytic judgements and science with synthetic ones. It follows that philosophy should not therefore, on this view, be concerned with *process*, but with *product*. Thus, for example, a demarcation is made between the proper spheres of philosophical psychology and empirical psychology with the domain of the latter being the empirical process of arriving at knowledge claims and the domain of the former being the analysis of knowledge claims. Of course the question as to whether knowledge claims can be satisfactorily understood in this fragmented fashion, raises very vexed and vexing questions about, amongst other things, the role of philosophy in relation to other disciplines. It also leads ultimately to consideration of the legitimacy of distinctions such as the analytic/synthetic distinction; and the related science/non-science and science/philosophy distinctions. The sharp analytic/ synthetic distinction was rejected in Chapter Three. As pointed out above if this distinction is rejected then the legitimacy of the other distinctions, particularly the one between science and philosophy, is also cast into doubt.

**4.82** It may be claimed that in general 'process' arguments (empirical arguments about how something comes to be) are not necessary in order to evaluate or investigate the product or what something is. It may be argued that we do not need to understand how a picture was painted in order to evaluate it. Similarly it may be argued that one can in principle investigate knowledge claims as such without understanding anything about how they came to be produced. However, there is a consideration which makes process particularly important in relation to product in the case of the process of acquiring knowledge, the product of which includes true judgements. This is the weak empiricist thesis itself: that the senses are necessary in order to acquire knowledge. This is, whatever else it is, also an empirical thesis about process. It was suggested above that empiricism is a philosophical view which has always implicitly included an empirical component. It includes as a necessary component an empirical thesis about the role of perception in acquiring knowledge.

**4.83** The implications of the empirical component of the weak empiricist thesis are twofold. Firstly, genuine claims about how knowledge is acquired must, in order to constitute knowledge claims, be based on empirical information (as Hume implied). Secondly, empirical information about how knowledge is acquired is hence also relevant to philosophical

definitions of truth. Therefore, irrespective of the more general arguments about the relationship between process and product, if the sharp analytic/synthetic distinction is rejected, the view that empirical arguments have bearing on philosophical conclusions receives particular support in the case of epistemological claims, such as the weak empiricist thesis. This is so although, somewhat paradoxically, empiricism, which is itself an epistemological thesis, was articulated by the logical positivists so as to support the very opposite view — that there is a sharp distinction between the domains of science and philosophy.

**4.84** The final issue that might be raised in regard to the above discussion concerns the notion of being empirical. This notion has been heavily utilised in the discussion so far and it should be clear from the way it has been used that it too has, in the course of rejecting the empiricist framework, been revised. This revision will now be made explicit. ‘Empirical’ is a term usually opposed to ‘philosophical’ or ‘theoretical’ in an empiricist framework. However, this can no longer be done in the same way in the alternative framework which has emerged in the course of the last two chapters in which even observational judgements are theory-laden (see §§4.43–44) and are based on sensory information, which is itself a function of non-sensory factors. In such a framework only a weak characterisation of ‘empirical’ is possible. ‘Empirical’ is traditionally defined in terms of its relationship to observation — a relationship which while it varies in strength — assumes the epistemic priority of observation. It is just this priority that has been rejected in the course of the discussion.

**4.85** What would characterise empirical investigation on the present view would not be that philosophical or theoretical considerations were absent. Indeed, it is hard to see how it could be otherwise given the contemporary post-positivist understanding of science as a social activity.<sup>46</sup> What distinguishes empirical investigation is the deliberate manipulation of observable data, *viz.* experimentation.<sup>47</sup> Philosophers only engage in “thought experiments”. This is not to say scientists, *qua* philosophers, do not. Einstein’s thought experiment about travelling as fast as a light beam is a well-known example.<sup>48</sup> Experimentation does not of course imply the absence of theorising or philosophical speculation, if previous arguments about what is required to confirm observation judgements are accepted.

**4.86** Philosophical speculation on the other hand need not exclude observational data drawn from other disciplines; or from common-sense or general knowledge. Quine in *Word and Object*, for example, appeals to a behaviourist account of language learning.<sup>49</sup> Insofar as philosophical speculation involves observational data, either drawn from experiment or based on common sense, it has an empirical component.

**4.87** Thus no sharp line can justifiably be drawn between empirical and philosophical investigation. Consistent with such a view, the above arguments about truth and knowledge have used both empirical and philosophical considerations in a manner that can only justifiably be rejected in an empiricist framework. This framework is, it has been argued, fundamentally unsatisfactory.

**4.88** Therefore it is suggested that the new notion of truth be as follows: ‘true’ means ‘fit with an interpreted reality’. No further attempt to explicate this relationship of fit will be made here. The main point to be made is a negative one: whatever relation true judgements have to reality it is not correspondence. Hence ‘true’ should not be so defined. This reverses the usual way of considering the question of truth, *viz.* accepting the definition and then seeing if under the definition truth can be attained. Given what is known about how knowledge and hence truth is attained, ‘true’ is defined so as to be consistent with that view. The definition of truth is thus based on empirical considerations. Whatever else they are, true judgements are products of the process of acquiring knowledge. Hence the definition of ‘true’ should be consistent with what is known of this process. The definition of ‘true’ as ‘fit with interpreted reality’ satisfies this requirement.

**4.89** Some reasons for accepting the proposed account of truth based on the consequences of doing so, will now be offered. Suppose that ‘true’ is accepted as meaning ‘fit with interpreted reality’.

**4.90** The first important implication is that a criterion for truth is possible in principle. We can come to know interpreted reality (in fact it has been argued it is all that we can come to know via the senses). Hence in principle it is possible to compare the judgement and the interpreted reality in order to establish whether they fit.

**4.91** Arriving at a satisfactory criterion (or criteria) for truth is in part an empirical matter. Therefore a correct account of the process of arriving at true judgements has relevance to establishing what the criterion is. Hence a correct account of how science succeeds in arriving at knowledge (and therefore at true judgements about the world) is relevant to establishing a criterion of truth. This criterion may end up being as complex as: whatever science does to acquire knowledge.

**4.92** This is not to say this is all that is relevant to establishing a criterion. Linguistic and philosophical considerations, such as an explication of the notion of reference and analytic accounts of the nature of judgements are also relevant. In addition understanding the nature of linguistic and cognitive processes is important.



Basically if it is accepted that we do have knowledge of the world then it seems that there is a criterion that we use for establishing that judgements are true. The problem is to satisfactorily spell out what that is. A definition of truth which allows that there is a criterion in principle for establishing truth seems more satisfactory than one which does not, other things being equal.

**4.93** The above view of truth is consistent with the revised notion of a fact. Indeed it constitutes part of an explanation of why experience can only confirm and not verify judgements, *viz.* because of the remote and complex relationship between true judgements and sensory information.

**4.94** This view of truth is consistent with the account of abstracting given in Chapter One, particularly if the latter is seen as referring at a very general level to psychological processes which are involved in relating language to sensory information.

**4.95** The above notion of truth is consistent with the increasingly rationalist account of science that has emerged in the last 30 years, and is supported by empirical theories of perception.

**4.96** In the course of the discussion of factual judgements and the appropriate notion of truth — the strong empiricist thesis that sensory information is necessary and sufficient for knowledge has been rejected. In addition many other associated theses such as the distinction between analytic and synthetic judgements; the distinction between theoretical and observation judgements and the notion of a fact have been re-evaluated.

**4.97** A more moderate view which could be termed rational empiricism has emerged in the course of the discussion.<sup>50</sup> It is rational (in the sense of ‘related to rationalism’) because not only the senses are regarded as necessary for knowledge but so is theorising and interpretation at many levels. It is empiricist because the senses are regarded as necessary for knowledge.

**4.98** Rational empiricism can be regarded as being constituted by the following theses. The senses are necessary but not sufficient for knowledge. All that can be known via the senses is an interpreted reality. ‘True’ means ‘fit with an interpreted reality’. Factual judgements are judgements about reality which include both theoretical and observational judgements. The distinction between theoretical and observational judgement is not a sharp one: it is a distinction between judgements which are about what is observable and judgements about what is not observable. There are no synthetic judgements. The analytic/synthetic distinction is no longer sharp. It is a distinction between judgement about language and judgements about the world. There are however no judgements immune from revision on the basis of sensory information and no judgements able to be confirmed on the basis of sensory information alone.

**4.99** There is no longer a sharp distinction between empirical and philosophical inquiry. The former deliberately manipulates sensory information in experimental situations but this certainly does not mean that a theoretical or philosophical component is not necessary. By the same token there is no reason in principle why conceptual and linguistic analysis should not incorporate theoretical and empirical data from other disciplines. This is what has, as a matter of fact, occurred in the philosophy of science and to some extent in the philosophy of language.

**4.100** It has emerged from the above discussion that the notion of a factual judgement was embedded in an empiricist framework. Hence the sharp distinction between facts and values also derives from the same framework. Having rejected this framework in the process of presenting a revised account of facts and of truth, the way is now clear to reassess the relationship between facts and values in the context of an alternative framework: rational empiricism. However, prior to being able to do so, it is necessary to consider one more empiricist tenet, *viz.* that only deductive argument is a legitimate form of argument. Therefore, in the chapter to follow the legitimacy of non-deductive argument will be considered.

## CHAPTER FOUR NOTES

1. Austin (1964), p.23, esp. n.13. Putnam (1981), p.74.
2. Wittgenstein (1972), 4.25; 4.411; 4.53.
3. Schlick (1959), p.225. Russell (1961), Ch.10. Ayer (1969), Ch.5. See also Hempel (1934-35), p.51, on the historical connection to the view in the *Tractatus*. See Notes 16-19, Ch.3, for references. See also Hempel (1934-35), pp.49-59, esp. p.59.
4. Wittgenstein was his own most severe critic. See (1968), pp.19e-26e, esp. Paras 39, 46 & 51.
5. Pitcher (1964), pp.9-14.
6. Gregory (1977), esp. pp.224-225. Kaufman (1979), Ch.13, esp. pp.357-359.
7. Gibson (1968), pp.280-282.
8. Forgas (1966), Ch.14, esp. pp.289-290. See also Ch.1, esp. pp.5-6. Gregory (1973), pp.60-62, esp. p.60.
9. Popper (1972) (a), p.322.
10. Tarski (1974), p.347.
11. Davidson (1967), pp.314-320. Field (1972), pp.347-354. Davidson (1974), pp.761-764.
12. Mackie (1973), pp.27-44, esp. 41-44, for a critical discussion of the Tarski-Davidson truth definition.
13. Tarski (1974), pp.343-344; p.350.
14. *Ibid.*, pp.345-346; p.352.
15. *Ibid.*, pp.352-353.
16. *Ibid.*, pp.345-346.
17. *Ibid.* pp.371-372 and n.15. See also Quine (1970), pp.37-38.
18. Field (1972), p.347; p.350. Putnam (1975), p.71. Hesse (1980), pp.142-143. Richard Rorty and Hilary Putnam also offer extended arguments for why Tarski's theory of truth *could* not be expected to be complete in the sense of providing an account of the correspondence relation and the "reality" which is corresponded to. Thus they conclude that Tarski's theory is in that sense necessarily inadequate. See Rorty (1980), esp. pp.295-299 and Putnam (1981), Ch.6, esp. pp.128-129 & pp.56-74, esp. pp.72-74.
19. Quine (1970), pp.40-41. See also Putnam (1978), pp.10-13.
20. Quine (1970), pp.40-41.
21. *Ibid.*, p.37.
22. *Ibid.*, pp.42-46.
23. Tarski (1974), pp.347-351.
24. If 'correspondence' is interpreted in the strong sense (*i.e.* 1:1 correspondence — see Pitcher (1964), p.9), this implies that if true propositions are composed of components then so is that to which they correspond (see Pitcher (1964), p.11).
25. Field (1972), pp.362-363. Hesse (1980), p.143. See also Note 18 above for other references.
26. Putnam (1978), pp.130-133.
27. Kant (1958), pp.272-273. See Koller (1970), p.149, for references on this distinction in Buddhist philosophy and Tomlin (1952), pp.241-242 on the Hindu concept of *maya*.
28. See Ch.3, Note 53. Also Eddington (1930), pp.xi-xiv.
29. Kant (1958), pp.265-266; pp.267-268.
30. *Ibid.*, p.314; p.24; p.162.
31. *Ibid.*, pp.267-273.
32. See Ch.3, Note 3, for reference.
33. See Ch.3, Note 14, for references.
34. Hume (1962), p.40.
35. See Note 6 and Note 8 above for references.
36. See Note 6 and Note 8 above for references.
37. "We think of perception as an active process of using information to suggest and test hypotheses." (Gregory (1977), p.224) See also Gregory (1973), pp.61-62.
38. See Lonergan (1970), Ch.XIV, esp. pp.411-416, on intuition as a mode of knowledge. See Meynell (1976), Introduction, esp. p.6, for a discussion of Lonergan's views. See Aune (1970), pp.31-36, esp. pp.31-32, for a discussion of intuitive knowledge in Cartesian rationalism. See Koller (1970), p.68, for a discussion of extraordinary perception in Buddhist philosophy and Takakusu (1975) for a discussion of introspective intuitionism in Buddhism. See Medawar (1969), pp.55-58 for remarks on the role of intuition in science and also Bohm (1980), p.51.
39. Polanyi (1969), pp.49-50; pp.53-54; pp.62-63 and pp 87-88.
40. Hempel, (2) in Hempel (1965), pp.82-84.
41. See Ch.3, Note 45, for references on the relation between history and philosophy of science. See also Hesse (1980), Ch.1.
42. Kuhn (1970), Ch.V.
43. *Ibid.*, Ch.III, esp. pp.25-30.
44. Ramsey (1959), pp.321-322. Ryle (1959), pp.334-336. Waismann (1959), pp.345-346.
45. Rorty (1970).
46. Barber (1962).
47. Suppe (1974).
48. Einstein (1960).
49. Quine (1960).
50. Polanyi (1969).

## Ch.5 — THE LEGITIMACY OF NON-DEDUCTIVE REASONING

### Introduction

**5.1** In the present chapter it will be argued that non-deductive, non-probabilistic reasoning is a legitimate form of reasoning. This will be done firstly by showing that non-deductive reasoning is a necessary part of even the most conservative account of the confirmation of theoretical judgements. Secondly, it will be argued that non-deductive reasoning is accepted as necessary and sufficient for the confirmation of theoretical judgements in less conservative accounts of scientific reasoning. Finally, it will be argued that non-deductive reasoning is regarded as both necessary and sufficient for justifying conclusions in the context of legal argument and in the sphere of moral reasoning.

The role of non-deductive reasoning in regard to the confirmation of observational judgements will then be briefly considered. The chapter will conclude with some remarks about the assessment of non-deductive arguments.

### The role of non-deductive reasoning in the confirmation of theoretical judgements

**5.2** Arguments will now be presented for the claim that non-deductive reasoning is required in even the most conservative account of the confirmation of theoretical judgements. As already argued facts consist of both theoretical and observational judgements. Given the failure of the verificationist programme to show that theoretical judgements are reducible to observational judgements, or are otherwise eliminable, the problem of establishing the nature of the relationship between theoretical and observational judgements remained. The logical positivists accepted that the appropriate relation between theoretical and observational judgements was that the former were confirmed by the latter.

**5.3** One of the most conservative deductivist accounts of the confirmation of theoretical judgements by observational judgements is the hypothetico-deductive account of confirmation. On this view theoretical judgements are confirmed by their confirmed observational consequences.<sup>1</sup> Thus the relationship between theoretical judgements and observational judgements is reconstructed in an epistemically respectable (*i.e.* deductive) way. There are, it will be argued, several respects in which the hypothetico-deductive account of confirmation requires non-deductive reasoning.<sup>2</sup>

**5.4** Auxiliary hypotheses. It is generally accepted that in order to derive observational judgements from theoretical judgements such as laws, auxiliary hypotheses are required.<sup>3</sup> These hypotheses include theories of instrumentation, theories of error and theories of experimental design.<sup>4</sup> In addition, supplementary laws may be required to deduce a confirmatory

instance of a law from that law. For example, Kepler's laws can be deduced from Newton's laws as predictions, if the following three assumptions are also made:

- (1) No bodies exist except the Sun and the Earth.
- (2) The Sun and the Earth exist in a hard vacuum.
- (3) The Sun and the Earth are subject to no forces except mutually induced gravitational forces.<sup>5</sup>

The claim that all and only relevant and appropriate auxiliary hypotheses have been selected is an assumption which is non-deductively justifiable.<sup>6</sup>

**5.5** '*Ceteris paribus*' clause. These are riders on a general law, or set of laws, to the effect that the law or laws hold — other things being equal? The assumptions that all other things are equal can only be 'non-deductively justified.

**5.6** *Initial conditions*. These are conditions which are such as to warrant them being utilised, together with laws and auxiliary hypotheses as premises from which to derive a confirmatory observational judgement. That the conditions are such as to warrant being termed initial conditions, *i.e.* that they are relevant in the construction of a hypothetico-deductive argument is an assumption which is non-deductively justifiable.

**5.7** An example discussed by Hempel illustrates the above point.<sup>8</sup> Hempel is discussing the hypothetico-deductive account of explanation. However, since for Hempel such an account of explanation is also an account of prediction (and hence a potential confirmation of the laws in question) it is relevant in the present context. The observational judgement which constitutes the prediction (or confirmation) is that when a glass tumbler is placed upside down on a plate after being washed in hot soapy water, soap bubbles form under the rim of the glass. They grow larger, then grow smaller and finally disappear back under the rim. The *laws* from which this prediction could be derived include the gas laws; laws about heat exchange; about the elasticity of soap bubbles; about surface tension, etc. The *initial conditions* are judgements about tumblers being immersed in hot soap suds (hot, that is, relative to the surrounding temperature); judgements about glasses being 'put upside down on a surface where a soap film has formed, etc.

**5.8** As Hempel remarks:

"Furthermore, reliance on general laws is essential to a D-N explanation; it is in virtue of such laws that the particular facts cited...possess explanatory relevance to the [predicted] phenomenon. Thus, in the case of Dewey's soap bubbles, the gradual warming of the cool air trapped under the hot tumblers would constitute a mere accidental antecedent rather than an explanatory factor for the growth of the bubbles, if it were not for the gas laws, which connect the two events."<sup>9</sup>

The judgement that a particular set of conditions constitute initial conditions and hence are appropriately related to the laws in question is a non-deductively justifiable assumption.

**5.9** That all and only relevant and appropriate auxiliary hypotheses have been selected; that all other things are equal; that all of the relevant set of conditions constitute initial conditions, are all assumptions that can only be non-deductively justified. They are theoretical judgements, universal in form, which cannot be deduced from any set of observational judgements.

**5.10** The selection of a theoretical claim for confirmation out of an infinite number, or a finite but very large number, of possible theoretical claims, or even out of two, is also clearly a non-deductively justifiable step. The reasoning involved is something like the following: there are sufficient grounds to select this theory for confirmation.

The problem of theory selection becomes particularly acute in the attempt to explicate non-deductive reasoning in terms of an interpretation of the formal theory of probability<sup>10</sup> In the currently most popular, personalist interpretation of probability as degrees of rational belief, for example, the problem is to determine the appropriate distribution of initial probabilities. Distribution of initial probabilities is required in order to be able to utilise Bayes' theorem in order to calculate the probability of a hypothesis, given the evidence. This distribution cannot itself be made probabilistically within the theory, but only non-deductively outside of it.<sup>11</sup>

**5.11** The logic of confirmation itself is non-deductively based; if observational consequences are confirmed, then a theory is confirmed.<sup>12</sup> This is clearly non-deductive in that the theoretical judgements concerned, cannot in principle be proved to be true by means of hypothetico-deductive argument. Observational judgements are non-deductively linked to sensory experience in that they can only be confirmed by it and not verified. Theoretical judgements are then non-deductively linked to observational judgements in that even if the observational judgements deduced from the theoretical judgement are confirmed, this only confirms the theoretical judgement which may, nevertheless, be false. Conversely, if the theoretical judgement is not confirmed, it may still be true. Furthermore, non-deductive reasoning is essentially involved even in deducing the observation consequences, as already argued.

Thus to call this mode of confirmation hypothetico-deductive is misleading. It is true the observational consequences are deduced from the theoretical judgement but only given non-deductively based assumptions and even the confirmation of the observational judgement in question can only confirm the theoretical judgement, not establish that it is true.

**5.12** As Hempel concludes in considering the prediction criterion of confirmation, *i.e.* the H-D account of confirmation:

“Thus, the chain of reasoning which leads from given observational findings to the ‘prediction’ of new ones actually involves, besides deductive inferences, certain quasi-inductive steps each of which consists in the acceptance of an intermediate statement on the basis of confirming, but usually not logically conclusive, evidence.”<sup>13</sup>

**5.13** Furthermore, if the conclusion of an hypothetico-deductive argument is the result of both deductive and non-deductive reasoning, then if the theoretical judgement in question is disconfirmed, not only is it not clear if the judgement is false, but it is not clear at what point the error lies.

By the same token, if it is true, it is not clear at what point the truth lies, since the claim might just as well have been deduced (and induced) from some other theory or from the same theory with other auxiliary hypotheses.

And this problem is distinct from, and additional to, that which arises from straightforwardly deducing observational consequences from a set of theories.<sup>14</sup>

**5.14** It can be concluded that if even the most conservative deductivist view of the confirmation relation between theoretical and observational judgements, turns out to require non-deductive reasoning, there is good reason to think it cannot be eliminated from any adequate account of science and therefore of how knowledge is acquired.<sup>15</sup> This conclusion is independent of the question: “how adequate is the hypothetico-deductive account of confirmation as an account of scientific reasoning?”<sup>16</sup>

**5.15** There are additional reasons for claiming that non-probabilistic, non-deductive argument is a legitimate and powerful form of argument. Efforts to demonstrate that non-deductive reasoning can be spelled out solely in terms of an interpretation of the formal theory of probability, thus making non-deductive reasoning ‘exact’ by providing a measure of confirmation, have, it is generally agreed, failed.<sup>17</sup> Again it is a separate question as to whether even if the attempts succeeded, they would be adequate to capture scientific reasoning. Arguably it is not true of most of the standard interpretations of probability.<sup>18</sup>

**5.16** This is not to say that the mathematical theory of probability is not enormously powerful and useful in, for example, statistical methods of experimental design and analysis. It is just that in order for probability theory to be useful in order to explicate non-deductive reasoning even partially, it must assume it.<sup>19</sup>

**5.17** This can be illustrated as follows. One of the most popular attempts to explicate non-deductive reasoning is by means of the personalist theory according to which probability is interpreted as degrees of rational belief. In order to utilise the probability calculus and Bayes' theorem in the appropriate way, *i.e.* to calculate the probability of a hypothesis given additional new evidence, prior probability of both the



hypothesis and the evidence must be calculated. These initial probabilities have to be distributed in an appropriate way and there seems to be no way of doing this within probability theory. Instead it seems that it must be done non-deductively.<sup>20</sup> A further problem pointed out by Glymour is that the personalist theory requires a closed set of theories and evidence.<sup>21</sup> That the set is so closed is also a non-deductively based assumption. The problem therefore with developing an account of non-deductive reasoning in terms of mathematical probabilities is that of trying to show that such an account is identical with or exhausts non-deductive reasoning. There seems to be good reason to believe this cannot be done.

**5.18** This completes the arguments which are intended to show that non-deductive, non-probabilistic reasoning is required in even the most conservative accounts of the confirmation of theoretical judgements. The following arguments are intended to show that non-deductive reasoning is not only necessary for confirmation, but is sufficient for it in less conservative accounts of scientific reasoning.

**5.19** It is not unreasonable to construe much of contemporary post-positivist philosophy of science as supporting the conclusion that reasoning in science has a non-deductive structure. That is to say that the reasoning used to establish conclusions as confirmed is, at least most of the time, non-deductive.

**5.20** Less conservative, post-positivist, accounts of science, such as those by Kuhn, Feyerabend, Hanson, and Lakatos, and later by Ravetz and Laudan, have in common a rejection of the view that the structure of scientific theories, in particular the relation between theory and observation, can be deductively reconstructed.<sup>22</sup> One of the strongest arguments in principle against this is that there is no theory-independent observation language.<sup>23</sup> If accepted, this view has important implications for many related issues such as views about theory change, about the existence and nature of a scientific method, about the demarcation between science, and non-science, and even about the rationality of science, as will be seen below.

**5.21** The arguments for the view that observational judgements presuppose non-observational judgements; and the view that all we can have knowledge of via the senses is interpreted reality, constitute arguments for the claim that there is no theory-independent observation language, under a clear interpretation of the latter. Just what the claim that there is no theory-independent observation language amounts to on the present view, will be taken up again later in the chapter.

**5.22** Basically, the shift in viewpoint within postpositivist philosophy of science can be seen to turn on the rejection of the deductive structure of scientific theories (*i.e.* that observational judgements are deducible from theoretical judgements or vice versa). This rejection can be for a variety of reasons: rejection of the analytic/synthetic distinction; rejection of the theory/observation distinction; arguments based on empirical studies of science.<sup>24</sup>

**5.23** As mentioned above one of the most powerful arguments against the logical positivists' account of scientific reasoning rests on the claim that there is no theory-independent observation language. Some of what are here regarded as the strongest arguments for this view, were put in Chapter Three. If this claim is accepted it follows that there can be no way of deducing theory from pure observation, in principle, since there is no such thing. It also follows that theory-change cannot be accounted for deductively on the basis of theories being either proved or disproved by pure observational judgements. This is not possible in principle if there is no theory-independent observation language. Nor can relation to pure observation distinguish scientific from non-scientific or metaphysical viewpoints (the basis of the original verification principle). Nor can it in general be claimed that there is a rigorous scientific method, *i.e.* deductive method, for advancing knowledge based on pure observation.

**5.24** Hence post-positivist philosophers of science generally concluded that the structure of scientific theory was not deductively reconstructable and was not, as a matter of fact, deductive. The relation between theoretical claims and observational claims was not able to be sharply delineated and they were related in complex and non-deductive ways. Hence the proposed criterion of a deductive relation to observation judgements was not available to demarcate scientific theories from non-scientific theories and it did not seem that there was a logically rigorous method for advancing knowledge. Some philosophers, such as Kuhn, even argued against there being any progress in science.<sup>25</sup> Rather he compared developments in scientific theories to political revolutions with theories being essentially incommensurable changes in world view.<sup>26</sup>

**5.25** Some even more radical philosophers of science, such as Feyerabend, concluded that since scientific reasoning is non-deductive and there is no theory-independent observation language, that science is irrational.<sup>27</sup> This somewhat extreme position rests paradoxically on acceptance of a view central to classical empiricism. This is that only deductive reasoning is legitimate and that non-deductive reasoning, not being deductive, is unacceptable.<sup>28</sup> Thus the alternatives seemed to be either that science was deductive and based on theory-independent observation or it was irrational. The above could be summarised by saying that there is a genuine dilemma given the rejection of the positivist view of science. Either science is basically irrational (*i.e.* non-deductive) or scientific reasoning has an essentially non-deductive rather than a deductive structure.

**5.26** Contemporary philosophy of science then took an empirical turn which in some ways further complicated the matter. Once the *a priori* programme of reconstructing scientific reasoning deductively on the basis of theory-independent observation claims was rejected, alternative accounts of scientific reasoning were increasingly supported by historical examples. Kuhn and later Lakatos and others, were responsible for giving philosophy of science a "historical

turn".<sup>29</sup> Kuhn and Lakatos accepted all of the above views; that there was no theory-independent observation language; that theory change could not be deductively accounted for, and neither could the structure of scientific theories.<sup>30</sup>

Furthermore, as mentioned above, Kuhn argued that theory change was akin to a political revolution and was influenced by many factors external to science: psychological, political and economic.<sup>31</sup> He argued that the only way to find out about theory change in particular, and science in general, was to study science from a historical point of view.<sup>32</sup>

**5.27** Kuhn concluded, or implied, that science was therefore basically irrational on new grounds: not only was it not the case that scientific reasoning and the growth of knowledge followed a strict deductive pattern but scientific conclusions were due to factors outside of science altogether. Hence he, like many influenced by him, concluded that they were necessarily non-cognitive factors — not having to do with knowledge at all.<sup>33</sup>

**5.28** There are many assumptions involved here about the nature of knowledge and about the relationship of science to the wider community which cannot be pursued. Some of these implications are explicit in the empirical studies of science which will be discussed below. However, what Kuhn argued explicitly and what Lakatos introduced as standard methodology into philosophy of science was that in order to find out about science it is necessary to look at science empirically. Philosophy of science took an empirical turn and the problems of developing an adequate account of empirical knowledge were welded to the problems of historiography and of the methodology of the social sciences.<sup>34</sup> Thus it emerged that the attempts to spell out the method by which we acquired empirical knowledge depended on a humanistic discipline, *viz.* history and on the social science generally regarded as the least scientific — sociology.

## Empirical studies of science

**5.29** Empirical studies of science are generally grouped together as social studies of science. They include sociology, history and philosophy of science and what is called the study of science in its social context. This involves looking at the factors external to science which influence science and at the influence in turn of the scientific community on the wider society.

**5.30** Philosophically, there are two basic lines of development within empirical studies of science. One is underpinned by the assumption that some of what scientists do leads to success and growth in science and that these factors can be at least partially isolated and articulated.

The challenge for these philosophers of science, therefore, is to articulate what portion of what scientists do, and have done in the past, is good science and leads to knowledge. If that can be done, and writers such as Ravetz and Laudan believe it can be, then a rational account of science which is historically

based will result. However, even for those still concerned to articulate what is distinctive about science, it seems that whatever it is, it is a long way from a deductive method.

**5.31** Ravetz, for example, concludes that the activity of science is enormously complex and has at least some components of craft that seem to be tacit in principle and hence impossible to articulate.<sup>35</sup> Therefore, some of what scientists do that makes for good science cannot be articulated.<sup>36</sup> Facts emerge as the end result of a process which is certainly non-deductive though nevertheless still to be regarded as rational. Laudan takes a basically Kuhnian approach with some individual twists. He accepts the view that there is normal science and revolutionary science. However, unlike Kuhn he accepts a notion of scientific progress and saves the concept of rationality in science by defining it in terms of scientific progress.<sup>37</sup> This implies that if progressive scientific reasoning turns out to be non-deductive, the latter is a rational, and hence a legitimate, mode of reasoning.

**5.32** It could be argued that according to both Ravetz and Laudan what emerges is a picture of science that involves non-deductive reasoning as part of the process of accepting and rejecting theories. They both argue implicitly or explicitly that there are good reasons for accepting or rejecting theories, some of which may not be purely cognitive, *i.e.* having to do only with the theory. Rather some reasons may revolve around whether for example, enough of one's peers regard a theory as worth developing. This reason is arguably a good reason though it may in some sense be external to the theory itself.

**5.33** There is another line of reasoning which goes even further. This is that science is part of the complex social structure and this social structure basically determines what constitutes knowledge.<sup>38</sup> Thus it is argued that there are no purely cognitive reasons, in principle, for accepting and rejecting theories. What constitutes knowledge is defined by the community on the basis, in part, of value judgements (which are assumed to be non-cognitive) and, in part, on causal grounds (which, it is also assumed, bypass cognitive processes).<sup>39</sup> Furthermore, science is ultimately influenced even in regard to determining what constitutes knowledge by non-scientific factors, economic and political ones in particular.<sup>40</sup> The above view is intended to be a brief account of an extensive group of theories termed sociology of knowledge.

**5.34** Proponents of this radical view are, like some post-positivist philosophers of science, inclined to conclude that science is a political, as opposed to a rational, process.<sup>41</sup> Thus again the rejection of classical empiricism can be seen to be accompanied by acceptance of some of its basic tenets, *i.e.* that deductive reasoning is the only legitimate form of reasoning and that only factual considerations are cognitive or rational whilst value judgements, for instance, are not.

**5.35** As opposed to this, within a rational empiricist framework, it can be argued that scientists have many good reasons for accepting and rejecting theories though some of these may be external to science and some may be value judgements; that scientific reasoning is at least partly non-deductive rather than irrational and that scientists do not just act on the basis of external causes but on the basis of internal reasons, including value judgements.<sup>42</sup>

### The distinction between the logic of discovery and the logic of justification

**5.36** If it is accepted that non-deductive reasoning is sufficient for the confirmation of theoretical judgements then one ground for accepting the distinction between the logic of discovery and the logic of justification can be rejected. The dichotomy between discovery and justification was originally formulated by Hans Reichenbach and later defended by Karl Popper<sup>43</sup> Problems of discovery were deemed irrelevant to philosophy of science, One of the most important reasons for accepting the dichotomy between discovery and justification is that justification is thought to be deductively reconstructable whilst discovery is not thought to have a logic at all, much less a deductive one.<sup>44</sup>

**5.37** Philosophical investigations into the logic of discovery however provide support for the view that non-deductive reasoning is sufficient to explicate discovery in science.<sup>45</sup> Furthermore, it seems that non-deductive reasoning is used as a matter of fact.<sup>46</sup> In particular analogical reasoning seems to play an important role, as do what Hanson, following Peirce, called plausibility considerations.<sup>47</sup> That the logic of discovery is non-deductive is also implied in some of the accounts of the role of metaphor and model-building in making scientific discoveries.<sup>48</sup> It has already been argued that non-deductive reasoning is necessary for confirmation of theories. If it is accepted that non-deductive reasoning is sufficient for justification; and if it is accepted that it is also sufficient for discovery, then any sharp distinction between discovery and justification on the grounds that they require radically different kinds of reasoning is unjustified.<sup>49</sup>

**5.38** So far the role of non-deductive reasoning in science has been discussed. It has been argued that it is necessary in conservative accounts of scientific reasoning and is regarded as sufficient in less conservative accounts to confirm theoretical judgements. It has also been argued that if non-deductive reasoning is accepted as sufficient to confirm theoretical judgements, then if it is also accepted as sufficient for discovery, the main ground for the distinction between discovery and justification disappears. It seems far less contentious, however, that non-deductive reasoning is both necessary and sufficient to establish truth claims outside of science.

### Legal Reasoning

**5.39** Arguably non-deductive reasoning characterises at least a significant part of legal reasoning. It is generally agreed by philosophers of law that non-deductive reasoning characterises much of legal reasoning though there is disagreement about whether this can be formally explicated or not by a system of probabilistic logic. Horowitz reviews discussions by Belgian, German and Anglo-Saxon jurists who argue basically that legal reasoning is non-formalizable by means of standard probabilistically-based inductive logic.<sup>50</sup> Horowitz himself supports a position he calls “qualified legal inductivism”: “... typical legal argument, *to the extent that it is rational*, [sic] is in principle formalizable within the framework of some appropriate, so far non-existent, [sic] theory of inductive support.”<sup>51</sup>

**5.40** Jonathan L. Cohen on the other hand argues that “...if forensic proof in Anglo-American courts is analysed in terms of the mathematical calculus of chance, the anomalies and paradoxes which are generated are too numerous and too serious for intellectual comfort.”<sup>52</sup>

### Moral philosophy

**5.41** Many moral philosophers have long accepted that moral arguments to moral conclusions cannot be deductively reconstructed in a satisfactory way or cannot all be so reconstructed. The role of non-deductive arguments in moral reasoning has been extensively discussed by Toulmin, Baier and Nowell-Smith, amongst others.<sup>53</sup>

**5.42** Toulmin, for instance, argues against the view that only “strict proof or factual verification” constitute good grounds for accepting a conclusion.<sup>54</sup> This amounts to the claim that non-deductive reasoning is a legitimate form of reasoning. He appeals to examples in scientific and moral contexts to demonstrate that reasoning in these contexts is essentially the same. In each case he is appealing to non-deductive arguments.<sup>55</sup> Kurt Baier argues explicitly in support of the view that moral reasoning has a non-deductive structure.<sup>56</sup> Nowell-Smith argues for a relationship between reasons for acting and a decision to act which he calls “contextual implication”. Contextual implication clearly licenses a non-deductive mode of inference.<sup>57</sup> He states:

...our task is not to discover propositions that entail a decision to act but propositions which are such that, once they are granted, it would be logically odd either to ask for further reasons for doing something or for a further explanation of why someone did it.”<sup>58</sup>

‘Logical oddness’ is for Nowell-Smith the non-deductive correlate of logical contradictoriness, just as contextual implication is the non-deductive correlate of logical implication.<sup>59</sup>

**5.43** Non-deductive arguments are accepted within philosophy, *e.g.* arguments to the best explanation: arguments by analogy, etc. Certainly in everyday life, most of the interesting arguments regarding matters of fact and of morality are non-deductive.

**5.44** As pointed out above non-deductive reasoning is, contrary to Popper, actually used.<sup>60</sup> The best explanation of this is not the Humean one that it is a habit and that people are really being irrational but rather that non-deductive reasoning is legitimate and effective.<sup>61</sup> An account of non-deductive reasoning that is fully satisfactory may not yet be available. However, the logic of deductive reasoning has only been formally developed in the last two hundred years and non-deductive processes promise to be even more complex for reasons to be spelled out later in the chapter.

**5.45** It will be assumed therefore on the basis of the above arguments that non-deductive argument is a legitimate form of argument. Non-deductive arguments represent our ability to manipulate the world conceptually since they consist of a set of premises about some fragment of what is, to a conclusion that goes beyond these, *i.e.* has increased rational content. This “going beyond” is certainly non-deductive in that the conclusion is not implied by the premises. Therefore, non-deductive arguments can be seen as paradigmatic instances of theorising *per se*. All non-deductive arguments have conclusions which are theoretical in relation to their premises.

## Psychological processes and non-deductive reasoning

**5.46** It is clear that the issue of what sort of reasoning is used in science or is adequate to reconstruct scientific reasoning is an empirical one.<sup>62</sup> It was argued in Chapter Four that there is no strict demarcation between philosophy and science. Therefore it is possible in principle that empirical research is relevant to advancing philosophical problems, just as philosophical investigation can lead to the resolving of empirical questions. The developments in philosophy of science have, as a matter of fact, demonstrated the relevance of empirical studies to resolving issues in the philosophy of science and those studies were, in part, actuated by philosophical developments.

**5.47** If empirical studies are, in principle, relevant to philosophy of science, and it is widely accepted that history and sociology are significant disciplines in regard to promoting understanding of science, then in principle other empirical disciplines, such as psychology could be similarly relevant to issues in philosophy of science as well as in philosophy generally. It has already been demonstrated that interchange between psychology and philosophy can be mutually beneficial. The development of cognitive psychology was greatly stimulated by developments in philosophy of science and by Chomsky’s philosophical attack on behaviourism.<sup>63</sup> There are other developments in

philosophy which have been relevant to psychology and vice versa. Strawson’s theory of presupposition and Searle’s theory of speech acts have been of acknowledge value to psychologists;<sup>64</sup> psychological theories of perception seem to favour a representational theory of perception;<sup>65</sup> and psychological theories of mind/brain favour a double-aspect, interactionist, materialist theory of mind.<sup>66</sup>

**5.48** It was concluded above that non-deductive reasoning is central to explanations of the nature of scientific reasoning. However, it is also the case that philosophical accounts of non-deductive reasoning are generally incomplete. It is possible therefore that psychological investigation of non-deductive processes could throw light on philosophical views about the nature of non-deductive arguments and how they are to be assessed.

**5.49** Suppose it were accepted that the study of non-deductive psychological processes is relevant, in principle, to furthering understanding of the nature of non-deductive argument. Then the following three claims would be plausible candidates for psychological and philosophical investigation:

- i. that non-deductive arguments represent and/or reconstruct psychological non deductive processes;
- ii. that non-deductive arguments constitute examples of such processes;
- iii. that there are tacit non-deductive processes, continuous with non-deductive arguments, which cannot be represented by such arguments, but which nevertheless belong to the same family of psychological processes.

**5.50** The relationship between the confirmation of theoretical judgements and non-deductive reasoning has already been discussed by way of supporting the claim that non-deductive reasoning is a legitimate form of reasoning. If the three claims above are accepted, then some interesting (though highly speculative) conclusions about the role of non-deductive reasoning in confirming observation judgements can be drawn. Firstly, the three claims above will be briefly discussed.

**5.51** *i. Inductive arguments represent and/or reconstruct psychological processes.* The term ‘non-deductive reasoning’ now becomes ambiguous between firstly, explicit *arguments* with premises and conclusions and secondly, psychological *processes* which these arguments may (a) represent and/or (b) reconstruct. To say that non-deductive arguments *represent* our reasoning processes is a strong empirical thesis. It is to claim that we actually do reason that way. Contrary to Popper, who offers no evidence for his claim that we do not as a matter of fact do so, it seems that we do, and indeed must, do so. Arguments in support of this view were proposed above.



**5.52** To claim that non-deductive arguments *reconstruct* our reasoning is a weaker philosophical thesis but still with empirical/psychological import. It is to claim that elements of our reasoning are such that they can properly be reorganised as non-deductive arguments in the same way as it has been claimed that elements of scientific reasoning can properly be reconstructed as, for instance, deductive arguments.

**5.53 ii.** *Non-deductive arguments constitute examples of non-deductive psychological processes.* It is obvious that in one clear sense non-deductive arguments themselves constitute an instance of one sort of non-deductive reasoning, viz, that which can be linguistically represented and/or reconstructed. The question then is: are there other associated or similar reasoning processes which these arguments represent and/or reconstruct?

**5.54 iii.** *There are tacit non-deductive processes continuous with inductive arguments which cannot be represented/reconstructed by non-deductive arguments but which nevertheless belong to the same family of psychological processes.* It may be that some non-deductive processes can only be partially represented and/or reconstructed by non-deductive arguments. Other non-deductive reasoning processes may be tacit in principle. Both these views fit with the claim that science is a craft with tacit aspects, *i.e.* that scientific reasoning cannot be fully represented or reconstructed, even by non-deductive arguments. Another view, which is even stronger, is that all reasoning that can be articulated contains some elements which cannot be articulated, which are tacit in principle.<sup>67</sup>

**5.55** It has already been argued that non-deductive reasoning is necessary and perhaps sufficient to confirm theoretical judgements. If the above three claims are accepted, then it can be argued that non-deductive reasoning is also necessary (though it cannot be sufficient) to confirm observational judgements.

**5.56** It can be argued that confirming observational claims constitutes the best instance of the use of non-deductive reasoning which is in principle tacit, *viz.* which cannot be reconstructed/represented by non-deductive arguments. It can be argued that observational judgements involve reasoning whereby conclusions are drawn from sensory information that in principle go beyond the sensory information, however, this reasoning cannot be articulated.<sup>68</sup>

**5.57** The non-deductive reasoning that is involved in observational judgements is not, it is suggested, reasoning that can be reconstructed or represented as non-deductive argument. The sensory information on the basis of which the observational judgement is induced is not, given current empirical knowledge, able to be specified in the form of a set of claims. It is likely that the sensory information on the basis of which we induce observational judgements, is tacit in principle and hence not able to be articulated.<sup>69</sup> However, again this is an empirical thesis: it may be true, partly true or false. At the present time empirical knowledge about the

relationship between perceptual, cognitive and linguistic processes is not sufficiently advanced to resolve such an issue.

**5.58** The main reason for claiming that observational judgements involve non-deductive *reasoning*, even though this reasoning cannot be represented/reconstructed as non-deductive arguments, is that observational judgements involve elements of what will be called *the rational component of the process of acquiring knowledge*.

**5.59** According to rational empiricism, the senses are necessary in order to acquire knowledge. However, so is what could be called the *rational component* of knowledge. This is constituted by the non-observational components necessary in order to acquire knowledge. The components include: firstly, the interpretation involved in perception (*i.e.* due to the interrelation between the perceptual, cognitive and linguistic systems); secondly, the abstracting involved in naming and the non-observational principles according to which it was suggested in Chapter One that names were formed; thirdly, the making of theoretical judgements which are, it has been argued, a necessary part of scientific knowledge and which constitute some of the non-observational assumptions required to confirm observational judgements.

**5.60** There have been two main claims proposed in regard to observational judgements that would support the view that they are theory-laden, *i.e.* that there is no theory independent observational language. *The latter view is here understood to be the view that non-observational factors are necessarily involved in observational judgements.* The first claim, proposed in Chapter Two, was that observational judgements presuppose non-observational judgements. The second claim, proposed in Chapter Three, was that perception itself is influenced by non-sensory factors. The third, to be discussed at length in the chapter to follow, is that observational judgements involve abstracting in virtue of involving names. On the present view to say that there is no theory-independent observational language is to say that *elements of the rational component are necessary for both making and confirming observational judgements.*

Abstracting and interpretation are involved in *making* observational judgements and perception and non-observational assumptions are involved in *confirming* them.

**5.61** The same arguments, however, that support the view that there is no-theory-independent observation language, also support the view that observational judgements require non-deductive reasoning in order to be confirmed. Though the psychological processes involved in confirming observational judgements are in principle tacit, and hence cannot be represented/reconstructed as non-deductive arguments, they are sufficiently like the processes which can be reconstructed/represented by non deductive arguments, to warrant being called non-deductive reasoning. Confirming observational judgements requires non-deductive reasoning because confirming observational judgements requires elements of the rational component of acquiring knowledge,

*viz.* the interpretation involved in perception; and theoretical assumptions.

**5.62** All the elements of the rational component are theoretical in that they go beyond the information on which they are based. This is a characteristic feature of explicit non-deductive arguments. They do this, it is suggested, because they display the characteristic feature of reason: this is that it actively operates on that which constitutes its domain; whether this be sensory information; internal cognitions or linguistic objects. The results of this operation are ampliative; they are content-increasing and hence theoretical in the broadest sense of the term.

**5.63** The use of the term ‘confirmation’ in regard to observational judgements is significant in the present context. It is generally agreed that observational judgements can only be confirmed on the basis of observation. This claim has already been argued for. The term ‘confirmed’ seems to imply a process of justification. The same term is used in regard to theoretical judgements, though clearly the justificatory processes involved are different in some important respects.

**5.64** Given the arguments above, this usage is justified. Both theoretical judgements and observational judgements involve non-deductive psychological reasoning processes. However, the latter involves non-deductive reasoning which is tacit in principle, whilst the former involves non-deductive reasoning which can be represented/ reconstructed by non-deductive argument.

**5.65** If it is accepted that non-deductive arguments in general represent and/or reconstruct psychological processes, at least in part, then it can be argued that there is sufficient family resemblance between the processes which cannot be reconstructed/represented as non-deductive arguments and the ones that can to call them both non-deductive reasoning. It can then be argued that theoretical judgements are confirmed by means involving (or at least reconstructable by) non-deductive arguments. Observational judgements are confirmed by means of tacit non-deductive reasoning processes which cannot however be reconstructed as arguments. Thus it can be argued that confirming both theoretical and observational judgements requires non-deductive reasoning — some tacit and some not. Hence it can be concluded that arriving at knowledge of the world via the senses requires non-deductive reasoning, at both the observational and theoretical level. Non-deductive reasoning, viewed as an ampliative mode of operating on information, would itself, on this view, constitute another element of the rational component of acquiring knowledge.

**5.66** The success of this combination of the rational and sensory components of acquiring knowledge is manifest in science. The achievements of the scientific disciplines can be regarded as a demonstration of the power of reason (combined with the senses) to operate on the world. Scientists utilise observation to be sure, but they also utilise at every step of the

way reason, or what has been termed elements of the rational component: the abstracting involved in naming which utilises rational principles; perception which involves interpretation; theoretical judgements about what is not directly observable; and the non-deductive reasoning required in order to confirm both theoretical and observational judgements. The evident role of reason has been the bane of the empiricist programme to reconstruct the acquisition of knowledge. However, it could instead be a ground to start taking more seriously the power of reason together with observation, *i.e.* to take more seriously the rational empiricist approach to epistemology.

## Assessing non-deductive arguments

**5.67** To complete this chapter the problem of assessing non-deductive arguments will be briefly discussed. Most of the discussion will be concerned to point out why non-deductive arguments may be difficult to assess. Reasons are suggested for why it is unlikely that non-deductive rules of inference, like those for deductive arguments, will be found. The positive suggestion made is that judgements of support, *i.e.* judgements about whether a non-deductive argument is good or bad, may be value judgements.

**5.68** Non-deductive arguments represent (a) the ability to describe the world and (b) the ability to manipulate those descriptions both

- i. as linguistically expressed premises with a logic which pertains to the medium of expression, *viz.* the language; and
- ii. as descriptions of the world. The content of these descriptions has its own structure, *viz.* the conceptual structure of our view of the world which the language is used to express.

Non-deductive arguments can thus be seen to have a dual nature. This is the major reason why they are difficult to assess and why it is unlikely that rules of inference, similar to logical rules of inference, will be found for non-deductive arguments.

**5.69** In order to assess a non-deductive argument, the truth of the individual premises and of the conclusion must be ascertained. Truth of premises and of the conclusion, however, is a necessary, but not sufficient condition of being a well-supported, non-deductive argument. In addition the relationship between premises and conclusion, termed support, must also be assessed. The argument is said to be a good argument if the premises support the conclusion.

**5.70** However, it is an essential part of being a non-deductive argument that its conclusion goes beyond the premises and increases its rational content. Yet both premises and conclusion are about the world. Therefore, in addition to ascertaining the truth of the premises and the conclusion, what is required in order to ascertain support is to ascertain whether the state of affairs referred to jointly in the premises is such that it makes it reasonable to accept that the state of affairs

referred to in the conclusion obtains. This requires empirical knowledge.

**5.71** In addition the premises and the conclusion of the argument refer to reality via a medium, *viz.* language which has its own structure or logic. Thus the relationship of the premises and conclusion as linguistic entities also has to be assessed, for logical coherence, consistency, etc. Non-deductive arguments therefore have at least two dimensions: a linguistic and a non-linguistic one, both of which have to be assessed. This duality, it is suggested, is one of the main reasons why non-deductive arguments are difficult to assess and why it is difficult to specify rules for how they are to be assessed.

**5.72** Deductive arguments are one-dimensional, as it were. Deductive arguments concern only conceptual relations: the relations between the premises and conclusion of the argument. Although the claims involved may refer to reality, whether they do or not does not bear on the argument, nor is it important in assessing it. All that is required is that the claims be capable of being true and that the relation between the premises and the conclusion is valid. Knowledge of the language and of its logic then suffices to assess the argument.

**5.73** Assessing non-deductive argument on the other hand requires assessing both the relations between judgements as *judgements* and between judgements as judgements *about reality*; assessing non-deductive arguments requires knowledge of the conceptual structure of the language and knowledge of the way things are. Hence in that sense assessing non-deductive arguments is context-dependent. In a court of law, knowledge of the way things are or the way things will be or could be is essential in assessing an argument that someone is guilty of murder or not. Likewise it is essential in assessing the claim that relativity theory or quantum theory best explains certain phenomena or that determinism does or does not obtain at the micro-level, that one have contextual knowledge of the issue in question in order to be able to assess the non-deductive arguments that may be proposed to support one or other claim.

**5.74** If the above is accepted it follows that the “rules of inference” involved in assessing non-deductive arguments, deal not only with the relations of linguistic entities to each other but ultimately with the principles whereby we know how it is that things are a certain way. Given what has been said above, this is clearly in part a matter about which empirical psychology has a contribution to make in principle even if it cannot yet be made in practice. It is a question about how reason operates on the world so as to lead to the acquisition of knowledge.

**5.75** A second reason why non-deductive rules for assessing arguments may be hard to formulate has to do with the possibility that there are tacit elements involved in non-deductive arguments. There may be either tacit premises in non-deductive arguments, as Polanyi suggests, or tacit contextual information may be required to assess the argument in question.<sup>70</sup> Non-deductive arguments may best

represent scientific reasoning. However, they may be essentially incomplete and partial as representations of such reasoning. This is likely if as has been suggested by Ravetz, for example, science has tacit components and is partly a craft. It is even more likely if it is accepted that non-deductive arguments represent/reconstruct processes which are continuous with other non-deductive processes which are wholly tacit as suggested above. These tacit elements, which may be taken into account when assessing a non-deductive argument, would make it impossible to articulate fully the basis on which the argument was being assessed.

**5.76** Given the above considerations, it may not be too far-fetched to argue that judgements of support, like judgements of simplicity, are value judgements. The notion of support, like the notion of simplicity may be partially explicable formally and hence may become more precise and inter-subjective. However, it has already been suggested that formal accounts of the notion of support, utilising probability theory, fail to fully capture the notion of support.

**5.77** It would follow that if support were a value notion it would, like other value terms, be difficult to explicate. Judgements of support would, like judgements that something is morally right or beautiful, refer to value properties constructed anew with each non-deductive argument being evaluated in some given context. To say that a non-deductive argument is well supported, or is a good argument, would be to refer to an emergent property of objective features of that argument, according to some particular standard.

The standard may be generally shared if not explicitly communicated in the same way that standards p-implied by value judgements about sexual morality or role behaviour can be shared but are not explicit in a community. This would explain why there can often be agreement about whether a particular non-deductive argument is good or bad.

**5.78** It is not possible to pursue this suggestion any further within the scope of the present thesis. The main purpose of the present chapter has been to demonstrate that non-probabilistic non-deductive argument is legitimate; that it is required in order to confirm theoretical judgements in conservative accounts of confirmation; that it is regarded as sufficient to confirm theoretical judgements in less conservative accounts. It has also been argued that non-deductive reasoning is accepted as necessary and sufficient to confirm judgements outside of science in the spheres of law, morality, philosophy and general discourse. Finally it was suggested that, given certain plausible assumptions about the relationship between philosophy and psychology, non-deductive reasoning is necessary in order to confirm observation judgements.

**5.79** In the chapter to follow it will be argued that value judgements and factual judgements are sufficiently similar such that if factual judgements are rationally assessable by means of non-deductive argument, so are value judgements.

## CHAPTER FIVE NOTES

1. Braithwaite (1953), p.303. Carnap (1959), pp.169-170. Hempel, (2) in Hempel (1965), p.83. See Glymour (1980), pp.29-48, for a discussion of the hypothetico-deductive account of confirmation.
2. Russell (1924), pp.362-363. As Russell points out, deductive arguments in mathematics similarly rely on inductive reasoning:  
 "Our reasons for believing logic and pure mathematics are, in part, only inductive and probable, in spite of the fact that, in their logical order, the propositions of logic and pure mathematics follow from the premises of logic by pure deduction."(p.362)  
 See also Lakatos (1978), p.130, esp. n.2, where he comments that both mathematical proof and inductive generalisations are "content increasing" and hence involve induction. See also Salmon (1967), p.19, and Hempel, (3) in Hempel (1965), p.29.
3. Suppes (1962), pp.260-261. Suppes (1967), pp.56-58. Suppe (1974), p.225. Putnam (1974), pp.425-427.
4. Suppes (1962), pp.255-259.
5. Putnam (1974) (a), p. 245.
6. *Ibid.*, p.426.
7. Lakatos (1970), pp.101-102; pp.109-110.
8. Hempel, (1) in Hempel (1965), pp.335-337.
9. *Ibid.*, p.337.
10. Salmon (1967), p.56.
11. *Ibid.*, p.118. Hesse (1975), p.86; pp.91-105.
12. Salmon (1967), pp.1B-19. Hempel, (3) in Hempel (1965), p.29.
13. *Ibid.*, p.29.
14. Glymour (1980), pp.30-31.
15. Hempel, (3) in Hempel (1965), p.29. Salmon (1967), p.21. Achinstein (1970), esp. pp.93-94.
16. See Glymour (1980), pp.32-48, for criticisms of the HD account, primarily because it fails to account for the relevance of evidence. (p.32)
17. As Hempel states: "It is still a controversial question to what extent the inductive support conferred by an evidence statement *e* upon a hypothesis *h* can be represented by a precise quantitative *C* (*h,e*) with the formal characteristics of a probability." (p.60) See Popper (1972), Ch.10, esp. p.270, n.3, for an argument that degrees of evidential support do not satisfy the probability axioms. See Lakatos (1978), pp.154-156, for a discussion of Popper's criticisms. Lakatos also gives a potted but lively history of the justification of the attempt to explicate non-deductive reasoning in terms of the probability calculus (p.133). Lakatos makes an incisive comment that this search for exactness replaced the search for certainty (p.136). Cohen (1977) has a comprehensive discussion of the inapplicability of the mathematical probability calculus to an analysis of non-deductive reasoning as employed in forensic proof (see Part II).
18. Salmon (1967), pp.56-96.
19. Salmon (1967) argues that what he calls plausibility arguments are necessary for confirmation, not just for discovery. (The notion of plausibility arguments was introduced by Hanson (1961) in his account of the logic of discovery (p.39)). That is, nonquantitative, non-deductively-based considerations are necessary for a satisfactory probabilistic account of confirmation. Therefore the latter cannot fully explicate the notion of non-deductive reasoning (see p.118).
20. Hesse (1975), p.86; pp.104-105.
21. Glymour (1980), pp.68-69.
22. Toulmin (1953), pp.36-40. Hanson (1958), Ch. 1-4. Feyerabend (1962), esp. pp.34-40; pp.48-51. Hanson (1969), Part 2 and Part 3, esp. pp.213-214. See also Editor's epilogue. Kuhn (1970) (b), Ch.VI; Ch.X. Lakatos (1970), pp.116-122. Ravetz (1971), esp. pp.17-23. Feyerabend (1975), Ch. 5-7. Laudan (1977), esp. Prologue and Chapter One, esp. pp.22-26.
23. See Ch.3, Note 11. See also Hesse (1970).
24. See Suppe (1974), pp.119-191, for an exposition of the views of the post-positivist philosophers. See pp.191-232 for criticisms. Suppe's book constitutes an excellent treatise on the major developments within philosophy of science in this century and is an excellent source book on the subject, containing a comprehensive bibliography. The book also includes proceedings of a symposium on the structure of scientific theories held in 1969.
25. Kuhn (1970) (b), pp.163-170.
26. *Ibid.*, pp.121-123.
27. Feyerabend (1975), Ch.12, esp. pp.159-161.
28. Cf. Laudan (1977), p.4.
29. See also Hanson (1968), Ch. V and VI. Hanson (1969), Ch.12. Kuhn (1970) (b), pp.53-61. Lakatos (1970), pp.159-177. Toulmin and Feyerabend also draw heavily, though perhaps less rigorously, on scientific examples in their writings on philosophy of science. See Feyerabend (1970), Ch. 6-11; (1962), pp.52-60. See Toulmin (1961), pp.38-43; pp.46-59.
30. Kuhn (1970) (b), esp. Postscript. Lakatos (1970), esp. pp.91-116.
31. Kuhn (1970) (b), Ch.IX.
32. Kuhn (1970) (a), pp.20-21.
33. Kuhn (1970) (b), p.95. Brannigan's (1981) remarks concerning the impact of Kuhn's views on sociology of science are pertinent in this regard (see pp.20-21). Brannigan's own work is in that stream of sociology of science which takes the extreme view that science is determined wholly by sociological (assumed to be non-cognitive) factors. See Note 38 and Note 39 below for references concerning sociology of knowledge.
34. Hesse (1980), pp.31-32.
35. Ravetz (1971), Ch.3, esp. pp.101-108.
36. *Ibid.*, pp.75-76. See also Polonyi (1969), Ch.5, esp. p.88.
37. Laudan (1977):  
 "I shall try to show that we have a clearer model for scientific progress than we do for scientific rationality; that moreover we can define rational acceptance in terms of scientific progress...*rationality consists in making the most progressive theory choices.*" (p.6)
38. Hesse (1980) offers a review and a critique of some arguments central to the somewhat diverse group of views termed sociology of knowledge (see pp.29-60).
39. *Ibid.*, p.29:  
 "Social history of science is increasingly, and most interestingly taken to mean study of the social conditioning of the theoretical belief systems of science — in other words — sociology of science has become a branch of sociology of knowledge."
- See Bloor (1976), pp.4-19, esp. pp.4-5, for a statement of what Hesse (1980) terms the strong thesis of sociology of knowledge: "...that true belief and rationality are just as much explananda of the sociology of knowledge as error and nonrationality, and hence that science and logic are to be included in the total programme." (pp.31-32) See also Barnes (1977), p.viii; p.12. See also Lukes (1975) for a critique of Barnes' views. See Mulkey (1979), Ch.2, for a good general discussion of the relation between investigations by postpositivist philosophers of science and sociology of knowledge. See also Mulkey (1979), pp.60-62. Mulkey (1979) takes a more moderate view that sociology of knowledge can supplement understanding of what constitutes scientific knowledge, since the latter is undetermined by the physical world (p.61). The causal explanations of belief and knowledge are taken to bypass cognitive processes insofar as the latter involve 'free choice' which, to use Hesse's (1980) definition, is "...such that there are two or more possible and mutually exclusive outcomes of the event of choice in the physical or social world or both, all these outcomes being consistent with all physical and social theories, however complete and adequate these theories may be." (pp.49-50) See Note 42 below for references on the relation between sociology of knowledge and determinism.
40. See Barnes (1974), Ch.6. See Rose 8 Rose (1976), Ch.I, esp. pp.7-9; see Ch.7 for a study of the IQ debate in the light of viewing the content of science as politically determined.



41. Rose & Rose (1976) represent the most extreme view in that science is seen to serve the interests of the ruling class (pp.7-9). See also Feyerabend (1975, pp.25-28; p.155, and Kuhn (1970) (b), Ch.IX, esp. pp.92-93.
42. See also Ch.2, Note 25, on value judgements in science. Hesse (1980) points out that there is a separation in principle between causal explanation and determinism (p.48). Bloor (1976) (see pp.5-19, esp. pp.15-16) and Barnes (1974) (see Ch.4, esp. p.74) clearly regard them as identical. See Hesse (1980), p.49, for a discussion of non-deterministic causality, *i.e.* causality without the assumption of predictability. Hesse also points out the difficulties that ensue for the proponents of sociology of knowledge if it is deemed that determinism (*i.e.* full predictability of future events on the basis of past and present events (p.48)) is true. In particular, if determinism is true then the view of sociologists cannot be regarded as persuasive argument but as determined fact. This is a *reductio ad absurdum* of all argument (p.50). See also Note 39 above for references on Hesse's discussion of the relation between free choice and causal explanation.
43. Reichenbach (1958), p.231. Popper (1972), p.31. It was Popper who relegated problems of discovery to psychology, the move of which Brannigan is so critical (see Note 45 below). Brannigan argues that it is a sociological matter.
44. Popper (1972)(b), p.31.
45. Hanson (1958), esp. Introduction, p.3 and pp.85-92. Toulmin (1967)(b), Ch.2. Salmon (1967), pp.120-132. Blackwell (1969), Ch.1, esp. p.8. Brannigan (1981) argues that what constitutes a discovery is determined by social context. Brannigan criticises Hanson and Blackwell because "...the logic of discovery is neither unique in the laboratory nor in the logic of learning in general." (p.15) That is he criticises them for failing to distinguish discovery in particular from learning in general. However, he does not discuss Hanson's suggestion regarding plausibility considerations which clearly do constitute a contribution to the logic of discovery (see Note 47 below). Brannigan also has a firmly positivist account of what constitutes a logic of discovery. Brannigan's main criticism of existing accounts of discovery is that they are too psychologistic, *i.e.* that they do not account for the social factors which he believes are primary in determining what constitutes a discovery (see Ch.3). He, like some other sociologists of knowledge (see Notes 39-40 above) seems to regard the two sorts of facts as exclusive rather than as interactive.
46. De Broglie (1962), Ch.15, esp. pp.203-206. Achinstein (1970), pp.98-103. Holton (1974), esp. PP.47-53; pp.17-20.
47. For a discussion of plausibility considerations see: Hanson (1958), p.86; (1961) and (1967). See Salmon (1967), pp.111-114; p.118, for a discussion of Hanson. See also Shopere (1966)(b). See Note 45 above for references to Brannigan's discussion of Hanson's views. See also Achinstein (1970), p.92, for a critical discussion of Hanson and Peirce.
48. Hesse (1975) argues that given weak, non-deductive, non-quantitative constraints on the distribution of initial probabilities, Bayesian theory of confirmation has many important advantages including avoiding 'paradoxes of confirmation' and enabling a unified account to be given of certain kinds of inductive inference, *viz.* analogical and enumerative; and of simplicity (see esp. Section VI). On models, metaphors, and analogies in general, in science, see: Campbell (1957), p.129 (on analogy); Black (1962), Ch.XIII (on models). See Hesse (1963), esp. Chis 2 and 3, on models and analogies. See Leatherdale (1974), esp. Introduction, on metaphor and analogy. See Watson (1968) for the role of model-building (in a literal sense) in the discovery of the structure of DNA (see esp. Ch.27).
49. Hesse (1980), pp.7-8.
50. Horowitz (1972), esp. Introduction.
51. *Ibid.*, p.11.
52. Cohen (1977), p.2.
53. Feigl (1952), p.674: "...and in any practical issue of moral choice, inductive inference is indispensable for the determination of the most likely consequences of actions." Baier (1958), Ch.3, esp. pp.87-88. Stevenson (1967), pp.26-27; p.117; p.153. Urmson (1968), Ch.7. Sellars (1968), Ch.VII, esp. pp.180-181. Nowell-Smith (1969), Ch. 7 and 8. Toulmin (1967),(a) esp. Ch.11.
54. Toulmin (1970), p.54.
55. *Ibid.*, pp.68-69.
56. Baier (1958), p.87.
57. Nowell-Smith (1969), p.80.
58. *Ibid.*, p.105.
59. *Ibid.*, p.80.
60. Popper (1974), p.53.
61. See Notes 45 and 46 above for references. Achinstein (1970), pp.98-103.
62. Weimer (1975), p.454. Hesse (1980), p.125.
63. See Dulany (1974), esp. p.43. See also Weimer (1974), esp. p.419.
64. See Stampe (1975) for discussion of the work of Austin, Searle and Cohen. See also article by Searle in same volume. See Katz (1979), esp. p.93, for discussion of Strawson's work on presupposition.
65. See Ch. 4, Note 8, for references.
66. Sperry (1976), p.165, and Eccles (1980), pp.22-23, both discuss a materialist, interactionist view of the mind.
67. Polanyi (1962), pp.87-95, esp. p.95.
68. Gregory (1973), pp.54-55. Armstrong (1968) also defends the view that perception is the acquisition of "sub-verbal beliefs" (see p.209).
69. Phenomenalist accounts of perception assumed that there was such, *i.e.* there was a sense-datum language. This was an empirical thesis. It turned out (in the form in which it was held) to be a philosophically untenable thesis. Therefore, trivially, it was also empirically false. See Ch.3, Note 15, for references.
70. Polanyi (1962), pp.87-88.

## Ch.6 — THE RATIONAL ASSESSMENT OF VALUE JUDGEMENTS

**6.1** In this chapter it will be argued that value judgements are rationally assessable.<sup>1</sup> Firstly, it will be argued that in general there is no reason to believe that only factual judgements are rationally assessable. Secondly, it will be argued that value judgements are not to be regarded as true or false. Thirdly, factual judgements and value judgements will be compared in regard to their similarities and differences. It will be concluded that factual judgements and value judgements are sufficiently similar such that if factual judgements are rationally assessable then so are value judgements. Differences between factual and value judgements, it will be concluded, are not such as to warrant rejecting such a conclusion.

**6.2** The first point to be discussed concerns the question of why in general only factual claims should be regarded as rationally assessable. Not all judgements function as truth claims. Different kinds of claims function to do different things: to question; to command, etc. The logic and use of each sort of claim gives them a certain illocutionary potential, which may be quite broad, *e.g.* a question may be used as a statement to indicate scepticism: ‘You really think so?’.<sup>2</sup>

**6.3** It seems unreasonable to claim that only those judgements which are capable of being true or false are capable of being rationally assessed. If a judgement does not function so as to “fit with interpreted reality” but functions to do something else, *prima facie* there seems no reason why, whether or not it fulfils that function satisfactorily, it should not constitute a basis for rational assessment of that kind of judgement. It is suggested therefore that a judgement should be regarded as acceptable iff it satisfactorily fulfils the function of a judgement of its kind.

**6.4** Factual judgements purport to state what is the case. Normative judgements purport to express what it is rational or moral to do. Value judgements purport to express an evaluation according to a standard. It seems reasonable to assess each sort of judgement according to whether it succeeds in doing what it purports to do rather than to decide whether or not it can be rationally evaluated solely on the basis of whether it is capable of being true or false.

**6.5** If this is accepted in principle then it is clearly appropriate that there be different ways of indicating that a judgement succeeds in doing what it purports to do. Value judgements if acceptable will be termed appropriate; normative judgements, if acceptable, will be termed correct; factual judgements will be termed true or confirmed. Conversely, to say that a value judgement is appropriate; that a normative judgement is correct or that a factual judgement is true or confirmed is to imply that it satisfactorily fulfils its function — that the judgement constitutes an acceptable basis

for evaluation; an acceptable basis for action; or fits with interpreted reality, as the case may be.

**6.6** What type a judgement is, is partly determined by its logic and partly determined by its function. These two features are connected though conceptually separable. The ‘meaning is use’ analysis tries to collapse the two and the analytic/synthetic distinction tries to separate them. Neither seems to be right. As has been argued the logic is partly empirically determined. Conversely, the way in which a judgement functions is dependent on its logic. Thus the fact that a claim is not capable of being true does not seem in principle to count against its rational assessability if the claim does not purport to function as a truth claim.

**6.7** There are three reasons for claiming that value judgements are not properly regarded as truth claims. Firstly, the logic of value judgements, as spelled out in Chapter Two, is such that they cannot simply be said to “fit with interpreted reality”. Intuitively value judgements are a means of ordering reality by assessing it in terms of a standard.

**6.8** Secondly, value judgements do not, as a matter of fact, “fit with interpreted reality”. Whether a value judgement is true or not is irrelevant in regard to justifying the judgement (see Chapter Two, §§2.103–111).

**6.9** Finally, the function of value judgements is not basically to describe what is, but to qualitatively assess it. The functions of value judgements and factual judgements will be compared later in the chapter.

### Facts and values — similarities

**6.10** The similarities between facts and values will now be discussed in the light of what has already been argued: that the empiricist framework is based on faulty empirical assumptions; that it should be replaced by rational empiricism; that abstracting is a notion which is philosophically important in the present discussion and which also has potential empirical application in psychology; that the analysis of a value judgement offered in Chapter Two is basically correct; that ‘true’ means ‘fit with interpreted reality’; that the received view of facts should be revised as suggested. It will be concluded that the similarities between facts and values are such that if facts can be rationally assessed, then so can values.

**6.11** There are four main respects in which facts and values are similar:

1. Both involve abstracting in virtue of containing names.
2. Both refer to or are about the world.
3. Both involve sensory information and hence interpretation at the perceptual level.
4. Both involve non-observational components.

It will be concluded on the basis of the above similarities that both facts and values are rationally assessable.

**1.** Both facts and values involve abstracting in virtue of containing names.

**6.12** The first point of similarity between facts and values is that both sorts of judgements involve abstracting in virtue of involving names — names of both objects and properties. Factual judgements, theoretical and observational, involve abstracting in virtue of employing the names of objects such as ‘table’, ‘electron’, ‘quasar’, etc. There are “principles” or bases for choice involved in the selecting aspect of abstracting, which are employed both to form names and to apply them (Chapter One, §§1.52–56). The principles of abstracting whereby names are formed constitute part of the constructive human input into the process of acquiring knowledge. Therefore such principles constitute yet another element of the rational component of the process of knowledge acquisition (see Chapter Five, p.254 ).

**6.13** The principles of abstracting involved in naming are not conscious and are probably tacit in principle. Hence they are not able to be fully articulated. It is also unlikely these principles are directly introspectable. However, whatever articulation of these principles is possible, awaits detailed knowledge of the mechanisms of perception and the biological constraints thereon, and knowledge of the interaction of the perceptual, linguistic and conceptual systems in the brain. The question is essentially how and why humans interpret the world perceptually, conceptually and linguistically the way they do.

**6.14** It seems reasonable to regard the principles of abstracting as part of the rational component since it is the interaction of the cognitive and linguistic systems with the perceptual system that underlies the naming process. As Popper points out even ordinary observation terms such as ‘glass’ and ‘water’ are class terms and therefore involve something which may very loosely be termed theorising.<sup>3</sup> The view that observation is theory-laden, though often somewhat inadequately articulated, implies that there is an element of theorising involved in the use of names. The account of naming in terms of abstracting makes far more precise at least part of what is implied in the accounts of the theory-ladenness of observation. What is involved in the forming and applying of names has not, however, been termed theorising since ‘theorising’ seems to imply a more conscious, more sophisticated and articulable rational process, the end result of which is, in principle, directly available to the person theorising. As pointed out above, however, the principles involved in naming are not like this and are probably tacit not only in fact but in principle. Hence what they are must be inferred in the context of an empirical investigation of psycho-physical and linguistic processes.

**6.15** Both factual and value judgements involve not only the names of objects but also the names of properties. Like the term ‘table’, the term ‘brown’ involves abstracting since it can be applied to more than one object, as can ‘table’. In addition

it involves abstracting when applied to a particular object since it is applied irrespective of shade, hue, intensity, shape, or object.

**6.16** As in the case of names of objects, there are aspects of the object (perceptually recognised though not articulated) in virtue of which it is called brown, though in general these aspects are undifferentiated and are not articulated or named. This is what is marked by saying that the term ‘brown’ can only be defined ostensively. However, the referent of the term ‘brown’ can come to be differentiated and ‘brown’ defined other than ostensively. With the aid of technical devices and a supporting theory, for example, light can be distinguished ‘into various wave lengths which correspond to colours. Thus ‘brown’ can come to be defined as ‘light of wavelength X’. This constitutes a non-ostensive definition of ‘brown’. It may be called a theoretical definition and it is an extension of the theory involved in defining ‘table’ for example. In both cases there are rational principles of selection involved whereby something is designated as having certain properties. In the case of a theoretical definition the principles are relatively explicit and articulable. In the case of ‘table’ they are tacit and lost in the prehistory of language development.

**6.17** Proper names are not names in the same sense as class names but involve acts of christening. The names are bestowed independently of the properties of the objects and hence are completely abstracted from aspects of the object (except perhaps sex in the case of Christian names). In any case proper names do not imply properties. Therefore they are not so definable.<sup>4</sup>

**6.18** The term ‘beautiful’ is applied like the term ‘brown’ in virtue of certain perceived and perceptible aspects of the object such as line, colour, relation between parts, materials, etc. However, value predicates do not designate any fixed features of objects and the features referred to by value predicates vary from object to object. As argued earlier (see Chapter Two, §§2.74–75) whatever the designation of ‘beautiful’ may be, the term does not designate any fixed features of the value object. Thus the designation is no guide to the referent of the term. Rather the term ‘beautiful’ designates an emergent part of the value object — a part abstracted on the basis of objective features of the value object, which features are conceptually unified to constitute the value property. This explains why value predicates are so difficult to define. However, the difficulty of defining value terms does not of course imply that there are no perceptual criteria of identification involved. Nor does it imply that the value predicate is not about objective features of the value object, though these features are not designated by the value predicate.

**6.19** Thus to say something is ‘beautiful’ is not to appeal to a property of the value object which is linguistically or conceptually pre-determined. ‘Brown’ on the other hand refers to an already named and classified property where the

bounds as to what is to be termed 'brown' are more or less set by experience, the use of the term and our physiology. The differences between factual and value properties will be explored further in the next section.

## 2. Both facts and values refer to or are about the world.

**6.20** It is not in the least controversial that facts are about the world. That is what characterises them, though the account of how they are related to the world is incomplete. In part such an account requires elucidation of the concept of reference which seems as intractable and elusive as the notion of meaning. This is a linguistic and semantic consideration. In part such an account involves spelling out the relationship of fit. This has to do with giving an adequate account of truth. Further discussion of these issues cannot be attempted here. However, an important negative point has been made in regard to the relationship of fit. It was argued in Chapter Four that whatever else this relationship is, it cannot properly be regarded as correspondence, either in a Tarskian or in any more intuitive sense.

**6.21** However, it is controversial that values are about properties of real objects and refer to the real world. The analysis of value judgements in Chapter Two implies that value judgements are also judgements about what is being valued: whether it be an action, an object or a state of affairs. Hence value judgements objectively refer. This amounts to taking the logical form of value judgements to be similar to that of factual judgements in that both attribute properties to objects.

**6.22** Value predicates are predicated of objects and refer in virtue of properties of the object though the value predicate does not refer to these properties but refers to an emergent part of the object. The reasons given in Chapter Two for why it may be unclear that value judgements are about the world (apart from assuming an absolute fact/value distinction), had to do with the variability and inspecificity of value predicates. Value predicates are variable and inspecific because value predicates refer to emergent parts. An emergent part is a property of the entire object and cannot be identified independently of identifying the object. However, the emergent part is abstracted from real aspects of the value object its shape; its colour; its size, etc. The notion of abstracting is required in order to properly explicate the concept of an emergent part, and hence the semantics of value properties. To the extent that the account of abstracting succeeds in doing so, its success can be taken as validation of the usefulness of the concept.

## 3. Both facts and values involve sensory information and hence interpretation at the perceptual level.

**6.23** Insofar as it is accepted that both facts and values putatively refer to or are about the world, the justification of factual and value judgements requires that sensory

information about the world be obtained. Hence both sorts of judgement necessarily involve observation and the interpretation that is attendant to obtaining sensory information, as discussed in Chapter Four. Interpretation at the perceptual level also constitutes constructive human input into the process of acquiring knowledge. Hence it forms another element of the rational component of knowledge acquisition, as discussed in Chapter Five (see §§5.58–59).

**6.24** As argued in Chapter Four, any sensory information necessarily involves interpretation (*i.e.* involves the influence of linguistic and cognitive processes and systems on perception). Arguably interpretation is necessary both physiologically and psychologically in order to organise the information into meaningful and/or manageable units. Thus both factual and value judgements, insofar as they do refer to the world, and insofar as the mode of receiving information about the world is sensory, involve observation and hence interpretation at the perceptual level.

## 4. Both facts and values involve non-observational components.

**6.25** It was argued in Chapter Three that observational judgements — the paradigm of factual judgements — presuppose non-observational judgements. Theoretical judgements, on the conservative hypothetico-deductive account of confirmation discussed in Chapter Five, are confirmed by deducing observational consequences from them. However, it is not possible to deduce observational judgements from theoretical judgements without auxiliary hypotheses, *i.e.* without additional theoretical assumptions. Hence facts of both kinds require non-observational assumptions in order to be confirmed.

**6.26** In the more liberal, post-positivist accounts of theory change (of which confirmation of theories is a special case) criteria additional to or alternative to, observational consequences are required in order to assess theoretical judgements: consistency, fit with other theories, coherence, simplicity; explanatory power; heuristic value, etc. As discussed in Chapter Three, judgements of simplicity may plausibly be regarded as value judgements. Thus it may be the case that assessing theoretical judgements requires not only other theoretical presuppositions but also value judgements.

**6.27** Theoretical judgements themselves constitute a class of non-observational judgements. They are judgements about what is not observable. Theoretical judgements constitute in some ways the most characteristic element of the rational component of the process of acquiring knowledge about the world, since they must obviously express conclusions which go beyond sensory information.



**6.28** Value judgements also involve non-observational elements. The value predicate refers to a property which is not observable, though it is abstracted from features of the value object which are observable. The value judgement necessarily p-implies a standard, which was defined in Chapter Two as a conception of a state of affairs. It was argued that this conception can, however, come to be articulated. The standard is also non-observational in that it does not function as a judgement about what is the case (either observable or unobservable) but rather as a basis for an evaluation of what is the case. A value judgement is an operation on reality, as it were, rather than a description of it.

**6.29** Thus in the case of both factual and value judgements, additional non-observational elements are involved. Value judgements p-imply standards whilst factual judgements presuppose non-observational judgements. However, it was suggested that the difference between logical implication, p-implication and presupposition is a matter of degrees of entrenchment (§§3.25–27). Thus the connection between value judgements and their standards is relatively speaking more firmly entrenched than is the connection between factual judgements and their presuppositions. The rational assessability of facts and values

**6.30** It follows from what has been said so far that both factual and value judgements fulfil a necessary condition for being intersubjectively assessable. The basic requirement for intersubjective assessability is that intersubjective means of assessment are legitimately available to assess the judgement in question. There are three intersubjective means of assessment available: observation; deductive argument and non-deductive argument. It will be argued below that the similarities between factual and value judgements are such that at least two of these means are available to assess both.

**6.31** In order for a judgement to be rationally assessable it is necessary that the judgement be such that intersubjective means are legitimately available to assess it. The similarities between factual and value judgements, which were discussed above, are such that intersubjective means are legitimately available to assess both. The similarities discussed above can be summarised again as follows:

1. facts and values require abstracting in virtue of involving names;
2. facts and values refer to the world;
3. facts and values involve interpretation at the sensory level;
4. facts and values involve non-observational components.

**6.32** There are two things of particular significance in regard to the rational assessability of facts and values: one is that they both objectively refer; the other is that they both involve elements of the rational component of acquiring knowledge. Furthermore, it is the same elements that are involved. As a result of these two fundamental similarities between factual and value judgements it can be argued that

intersubjective means are legitimately available to assess both. In particular, observation and non-deductive argument are available to assess value judgements.

**6.33** Insofar as both factual and value judgements objectively refer, there is intersubjectively available sensory information about that to which the judgement refers (directly in the case of factual, indirectly in the case of value judgements). If the requirement for this sensory information being sensory knowledge are satisfied (see Chapter Four, §§4.62–63), *i.e.* the non sensory constraints on sensory information can be communicated, either explicitly or by non-verbal or tacit means, then the observational component of both factual and value judgements can be intersubjectively assessed by means of observation.

**6.34** The non-sensory factors that affect sensory information can be made intersubjectively available, either by articulating them or by other means. If the factors involved are tacit, so long as the intersubjective conditions which allow tacit factors to be communicated can be set up (*i.e.* getting medical students to listen to different heartbeats so as to recognise the different heart rhythms involved in different diseases; or to palpate kidneys; getting a potter to learn the right amount of pressure required to pull a pot, etc.) the factors involved can still be made intersubjectively available. Tacit knowledge of this sort is communicated in any craft or apprenticeship situation and arguably the latter includes science and medicine.<sup>5</sup>

**6.35** Thus it is possible to make the non-observational constraints that affect perception intersubjectively available either by articulating them or by means of education or training which involves the communication of tacit knowledge by a combination of supervised practical experience and example. Making the non-sensory factors that are involved in perception intersubjectively available, and thus turning sensory information into sensory knowledge, can result in similar ways of seeing if not always to agreement about what is seen. In fact genuine disagreement is not possible unless people do, or can be taught to, see the same thing in some fairly straightforward sense of ‘same’. However, as argued in Chapter Four, intersubjectively available sensory information is not by itself sufficient to ensure that people will see the same thing.

**6.36** In science the conditions required to enable people to see the same thing are systematically secured by the education and professionalization process.<sup>6</sup> On a wider scale acceptance of the world view of contemporary science within Western, technologically-advanced societies, is a sociological phenomenon which has its roots in, amongst other things, the development and spread of sophisticated means of communication such as radio, television and satellites; in near-universal education; in the decline of traditional religious teachings; and in the relative political and economic homogeneity of the Western world.

**6.37** Rational discussion of, and agreement on, values is achieved by similar means. On the whole, however, the means are less formalised and systematic. Nevertheless cultural values (*e.g.* the relative values of sex roles; social status; the value of material goods, work and achievement, etc.) are, like facts, imparted by means of the media; by the “hidden curricula” of the education process; and the familial and extra-familial socialization processes including role-modelling; coercion, overt or covert, and even by the learning of language.<sup>7</sup>

**6.38** Therefore insofar as both factual and value judgements involve sensory information that can become sensory knowledge, then both factual and value judgements can, in principle, be intersubjectively assessed by means of observation.

**6.39** Given the analysis of value judgements, it follows that observation is relevant to assessing them. In this respect they are like observational judgements. The value property applies in virtue of objective features of the value object. These features can be observed and hence are available for intersubjective assessment. However, observation is not sufficient in order to assess the value property, since it is a constructed property and is not fully observational in the sense of being able to be observed. Hence for that reason the value predicate is more like a theoretical than an observational predicate. However, the point remains that observation can be utilised in order to assess value judgements at least in part. Therefore, it can be concluded that one intersubjective means is available to assess value judgements at least in part. Hence they are to that extent intersubjectively assessable.

**6.40** Value judgements are on the whole more similar to theoretical judgements than to observational judgements. The value predicate, exactly like a theoretical term, is about what is not observable, though it is applied in virtue of observable features of the value object. Therefore the value predicate is theoretical in relation to the objective features on the basis of which it is applied.

**6.41** Nevertheless the justifiability of applying the value predicate to the value object is determinable, in part, by observation just as observation is indirectly relevant to determining the truth of a theoretical judgement. This indirect connection to observation is shared by both theoretical judgements and value judgements, in particular in regard to the applicability of the value predicate.

**6.42** The standard is also not assessable by direct observation, since it is not, in general, about what is observable. In that respect the standard is similar to a theoretical judgement. However, unlike a theoretical judgement, a standard does not function in the first instance as a judgement which describes the world, even a part of it which is not observable. Rather, as suggested in Chapter Two a standard functions as a basis for making a qualitative evaluation of some part of the world by comparing it with the standard.

**6.43** It was argued in Chapter Five that non-deductive argument was legitimate in that the confirmation of theoretical judgements at the very least required non-deductive argument and in some accounts was regarded as sufficient in order to confirm theoretical judgements. The similarities between value judgements and factual judgements, theoretical judgements in particular, were discussed above.

Since observation is not available to assess the standard *p*-implied by a value judgement nor to assess the justifiability of applying the value predicate, only argument can be used, since that is the only other intersubjective means of assessment available. Since value judgements are not capable of being true or false, deductive argument cannot be used. The only other means available is non-deductive argument.

**6.44** In order for non-deductive argument to be used to assess value judgements, it is necessary that the non-observational components of value judgements be able to be articulated. It was argued in Chapter Two that both the objective features in virtue of which the value predicate is applied, and the standard can be articulated. Hence they are both available to be assessed by means of argument.

**6.45** Even if non-deductive arguments are only accepted as necessary but not sufficient to establish theoretical claims (*i.e.* if an extremely conservative view of confirmation of theoretical judgements is accepted) then it can still be argued that non-deductive argument is nevertheless sufficient to establish the appropriateness of value judgements.

**6.46** Therefore given all of the above discussion it can be concluded that *if non-deductive argument is necessary and/or sufficient to establish that theoretical Judgements are confirmed, it can be argued that non-deductive argument can be used to establish that value judgements are appropriate.*

**6.47** To say that value judgements are non-deductively assessable is to say that non-deductive arguments can be constructed justifying the application of the value property, the premises of which list the objective features of the value object, in virtue of which the value predicate is, on the basis of the standard, applied. The standard is, as discussed in Chapter Two, a conception of a state of affairs which conception can be articulated. The standard can also be non-deductively justified, for example, by referring to the consequences of accepting the standard, or by appealing to the fit between the standard and other important principles, depending on the sphere in which the value judgement is being made. The reader is referred back to Chapter Two for details regarding how both the standard and the application of the value predicate are to be justified.

**6.48** Intersubjective assessability of judgements is required in order to rationally resolve disagreements about them. But in order to be able to set about rationally resolving disagreements about either facts or values, it is necessary to accept that intersubjective assessability of values, as well as facts, is possible.

**6.49** It has been argued that facts and values are sufficiently similar such that if facts can be rationally assessed so can value judgements. It has been argued that in virtue of value judgements objectively referring (though indirectly), they like observational judgements require observation in order to be assessed. The non-observational components of value judgements can, as in the case of theoretical judgements, be assessed by means of non-deductive argument.

**6.50** Therefore, since value judgements can be rationally assessed rational agreement about them can to that extent be reached just as it can for factual judgements. The intersubjective assessability of facts and values is one reason to claim that both facts and values can appear jointly in arguments. It will be argued in Chapter Seven that both facts and values are required in order to arrive at normative judgements.

**6.51** Thus to summarise the conclusions of this section it has been argued that factual and value judgements are similar in that:

1. Both involve abstracting in virtue of involving names.
2. Both are about the world.
3. Both involve interpretation at the perceptual level.
4. Both involve non-observational components.

Therefore it can be concluded that value judgements are sufficiently similar to factual judgements to be rationally assessable.

## Facts and values — differences

**6.52** The differences between facts and values will now be discussed in order to establish whether they are such that the above conclusion in regard to the rational assessability of value judgements can be defeated.

**6.53** There are five major differences between facts and values:

1. Factual properties involve analysis and value properties do not.
2. Value properties are newly emergent and factual properties are not.
3. The functions of facts and values are different.
4. Facts are expressed in an impersonal mode and values are expressed in the personal mode.
5. Facts are true whilst values are appropriate.

**1.** Factual properties involve analysis and value properties do not.

**6.54** Analysis involves selecting and separating at least one constituent of a whole, thereby converting it into an element (see §1.59). Thus the whole is turned into a set. The term ‘brown’ factual predicate — refers to a determinate element of

objects. ‘Brown’ is a class name which implies that it denotes a property that has been abstracted from particular aspects of particular objects such as shade, hue, location, etc. Insofar as it is the class name of a fixed aspect of objects (even though it is very hard to define ‘brown’ except ostensively), the term ‘brown’ like other factual predicates refers to a property which involves analysis. It involves selecting and separating a constituent of a whole so as to make it independently identifiable, *i.e.* so as to make it an element.

**6.55** Value properties on the other hand, since they are emergent parts do not involve analysis. Rather they involve unifying abstracting whereby what is unified is a differentiated whole which includes the value property as an emergent part. The value property is constituted by unifying parts of the value object. This does not require prior analysis of the value object. The value property is itself a part, albeit an emergent part, of the value object.

**6.56** Since value properties are emergent parts they cannot, by definition, be identified independently of identifying the whole. The whole can, however, be differentiated into parts. This is not, however, to be equated with being analyzed into parts. In the present scheme, analysing something into parts is a contradiction in terms. From this it follows that value predicates cannot operate as class names since they refer not to elements of a whole but to parts of it. Factual properties on the other hand typically involve analysis. Factual predicates name elements of objects. Hence, factual predicates typically involve class names — of both objects and properties. A precondition for being a class name is that the name denotes an element and not a part.

**2.** Value properties are newly emergent whilst factual predicates are not.

**6.57** The second difference between factual and value predicates is that the latter are newly emergent and the former are not. This difference derives from both the semantics of value predicates and from the different functions of facts and values.

**6.58** To say that value properties are newly emergent and factual properties are not, is just to say that each time a new value judgement is made, the value property is newly emergent. (The problem of distinguishing one value judgement from another is no greater than the general problem of identifying judgements.) Suppose two people are looking at the same Ch’ing dynasty vase and both say it is beautiful. Then assuming they are making different value judgements, the value property to which the value predicate refers, is newly emergent with each new value judgement because it refers to the same particular, differently differentiated in each case.

**6.59** The notion of a differentiated whole is simply intended to capture and articulate the idea that people can see something as a unity and furthermore can distinguish that unity into different parts without analysing these parts so as to turn them into elements. This sort of concept seems necessary in order to explain aesthetic experience as well as being central to the ability to identify something as an articulated but unified organism rather than as an amorphous mass.<sup>8</sup>

**6.60** The resistance of people to critical evaluation or to critical analyses of aesthetic objects can be explained by failure to distinguish between apprehending something as a differentiated whole and analysing it into a set of elements. On the present view there are two basic modes of apprehending an object — either as differentiated into parts or as differentiated into elements. The nature of the two modes cannot be properly spelled out without the concept of abstracting and the associated concepts of parts and elements.

**6.61** To read a poem can be to apprehend it as a differentiated whole — differentiated into words, stanzas, metaphors, etc., though it is not to analyze it, hard though it to linguistically describe the pre-analytic mode. The very description, using terms such as ‘words’; ‘stanzas’, etc. seems to imply analysis although, it is suggested, this is misleading. Descriptive or factual language is essentially analytic. This is what is implied in the claim already discussed that factual predicates involve analysis. Hence there is a certain tension in trying to talk of wholistic apprehension in a mode which tends by its very form toward the analytic.

**6.62** To analyse a poem on the other hand is to turn it into a set of elements. These elements may variously be the rhyme; the rhythm; the physical form of the poem; the metaphors; the similes; the allusions, etc.; or the significance of the various constituents of the poem, depending on the level of analysis involved.

**6.63** Factual properties are however typically not newly emergent. This is so both because of their semantics and their function. There are factual properties which are emergent, e.g. being conscious. This is not an emergent part since, although it is very difficult to define ‘consciousness’, it is something which can be identified independently of identifying some particular conscious organism. Therefore it is an emergent element of objects, albeit an ill-defined and elusive one. However, even those factual properties which are emergent are not newly emergent with each new factual judgement.

**6.64** Factual properties are not created anew each time the judgement is made, as it were, but are determinate, identifiable (either perceptually or linguistically) elements of objects. Why this difference between factual and value properties exists becomes clearer when the different functions of the two sorts of judgements are considered.

### 3. The different functions of facts and values.

**6.65** The notion of the function of judgements is related to the idea developed by Searle that the uttering of a sentence constitutes an act, which he called a speech act.<sup>9</sup> *The function of a judgement is constituted by the speech acts which judgements are typically used to perform.* The idea of the function of a judgement is also a psychological notion to the extent that the idea of the use of judgements to perform an act implies motives, intentions and an agent.

**6.66** Factual judgements perform three major functions. The first two are closely related. They are: (i) describing and (ii) promoting understanding. Factual judgements have the function of describing the world and hence of contributing to our understanding of it, where understanding is conceived of analytically and not wholistically. As already argued, factual predicates involve analysis in that they designate properties which are elements. Therefore in virtue of their function of describing the world analytically, factual judgements have the important function of promoting what could be called *analytical understanding*. There is in addition to this sort of understanding what might be called *wholistic understanding* as when someone says ‘Ah, now I see it’; or when someone is able to do certain things effectively without being able to say how they do it, for example being successful on the share market or good at conducting personal relationships; or the sort of understanding that is conveyed by aesthetic objects in either a linguistic or non-linguistic form.<sup>10</sup>

**6.67** Thirdly, factual judgements, have in virtue of the above functions of describing and promoting analytical understanding, the function of sustaining intersubjectively agreement. By providing a commonly-agreed upon description of the world, joint action and communication become possible. Intersubjective agreement about the world, is, like having a common language, essential for social functioning.

**6.68** Value judgements also have three major functions. Their primary function is to express assessments of worth in situations of choice where alternatives exist whether these be alternative courses of action; alternative ways of seeing; or alternative sets of theories about the way the world is. Value judgements operate on alternatives by qualitatively weighting them. Assessing the worth of something either quantitatively or qualitatively, requires a comparisor. The standard, which is p-implied by a value judgement, constitutes the comparisor.

**6.69** This function of value judgements explains the important role of value judgements in the three spheres where there are significant choices to be made: viz. the scientific sphere — where there are choices pertaining to knowledge claims; in the moral sphere where there are choices pertaining to action; in the aesthetic sphere where there are choices to be made in regard to apperception (see Chapter Two, §§2.40-65).



**6.70** The second important function that value judgements perform is to express an *individual* perspective. This is reflected semantically in the linguistically inspecific nature of value predicates and in virtue of the pro or con connotation p-implied by value judgements, both of which clearly relate value judgements to an individual perspective. This function of value judgements makes the often unique and novel discriminations of the individual, as an individual, intersubjectively available.

**6.71** The functions of value judgements are complementary to those of facts. Making factual judgements is essentially a conservative act since it sustains consensus about the nature of the world. Making value judgements is essentially innovative in that it constitutes a locus of potential change of the consensual view by presenting an individual perspective not bound linguistically by any consensus of how things are. This account of value judgements can be supported by pointing to the growing recognition of the creative and necessary role of value judgement even in science.

**6.72** An implication of what has been said above is that inter-subjective agreement is something that has to be engineered as it were — it does not inherently reside in our perceptual systems or in any other biological or social feature of human beings.

**6.73** As discussed above factual properties involve analysis whilst value properties do not. A value property is the result of unifying abstracting and is a part of a whole. Hence value judgements represent, in general, the unifying as opposed to the analytic function of thought. This constitutes their third function. Making a value judgement is thus essentially a rational/creative act. It is related to the process of creating properties and objects conceptually, since this is what abstracting at its most fundamental level amounts to. Thus the unifying abstracting involved in value properties can be related to the creativity involved in new ways of conceiving and/or seeing. This happens literally when people judge a painting differently because they see it differently and organise the aspects of the object so as to form distinct differentiated wholes. It also happens in science when someone such as Da Vinci, Maxwell, Newton or Einstein can be said, perhaps metaphorically (but perhaps not), to see a problem in a new way.<sup>11</sup>

**6.74** The concept of creativity, in science in particular but also more generally, has been seriously neglected in Anglo-Saxon philosophy and also within Western psychology.<sup>12</sup> The creative mode seems to include what was termed above *wholistic understanding* — the ‘Aha’ mode whereby Kekulé came to understand the structure of benzoid molecules or whereby Archimedes came to realise the relationship between volume and mass.<sup>13</sup> The account of abstracting can also be seen as a contribution towards the development of a theoretical basis for understanding a fundamental feature of thought, *i.e.* the potential for creatively and wholistically manipulating representations of the world at various removes

from reality. It is just these creative cum constructive aspects of thought that constitute the elements of what was termed above the *rational component* of the acquisition of knowledge.<sup>14</sup>

**6.75** If it is indeed the case that facts and values have different functions, then one would expect this to be reflected in the logic of the two sorts of judgements. This does seem to be the case.

**6.76** A very elementary analysis of the logic of factual judgements is that they typically attribute a property (which is an element) to an object. Simple factual claims such as ‘The table is brown’ attribute brownness to the table to use older terminology, or alternatively, is to be analysed as equivalent to: ‘There is something which is brown and tableizes’ to use a more sophisticated Quinean formulation.

**6.77** This account of factual judgements is implied by the first-order propositional logic used to represent factual judgements which contains in its basic vocabulary object names (a,b,c...etc.) and/or variables (x,y,z... etc.) which are place-holders for names; n-place predicate names (P,Q,R...etc.) and the symbols for the operations of negation, disjunction etc. depending on how minimal the language description is. A sufficient base for a first-order predicate calculus consists of the operators for negation and disjunction, predicate names, a quantifier (E or A) and variables x,y,z...etc. This is sufficient to describe basic number theory which is in turn adequate for a great deal of physical theory.

**6.78** The three functions of factual judgements: description, promoting analytical understanding and securing consensus are all related to the basic logic of factual judgements whereby they can be seen to attribute properties which are elements to objects.

**6.79** The three functions of value judgements: the assessment of worth; expression of the individual perspective and of the creative and unifying function of thought are also all semantically represented. Value judgements signal the individual contribution by the pro or con connotation with its implication of personal liking or disliking; the novelty and creativity is represented by the newly emergent aspect of value properties; the unifying function is involved in the unifying abstracting whereby a value property is created; and the standard, p-implied by a value judgement, is involved in, and is necessary for, the assessment of worth.

#### 4. The different modes of expressing facts and values.

**6.80** The fourth point of difference between facts and values related to the previous one. This is that facts and values are expressed in very different modes. Facts are expressed in an impersonal mode. They imply nothing about the person expressing the facts or even that there is a person expressing the fact. Facts can of course be manipulated in ways that amount to a value judgement by careful juxtaposition and by omission. Thus a personal viewpoint can be

presented in a disguised way as media commentators and journalists are well aware. However, factual judgements are nevertheless made *in the spirit of being impersonal*, as if the human element had been eliminated. What this may achieve is the elimination of those human elements which it is possible to eliminate.

**6.81** However, it has been the thrust of the arguments in the preceding chapters that even in regard to factual judgements there are factors which are of human origin and which it is not possible to eliminate, for example the interaction of the perceptual and cognitive systems in human beings. It was argued further that it is necessary that these factors operate in order for knowledge to be acquired via the senses. These factors are, in a Kantian sense, the constructive aspects of knowledge. Value judgements imply a pro or con attitude and therefore express or signify quite explicitly that there is a human input into the judgement. This human input is what has been termed the rational component.

**6.82** Factual judgements do not generally represent the viewpoint of just one individual. Rather factual judgements represent a consensual viewpoint. The examination of science as a social activity has shown how the process of arriving at a common viewpoint takes place. Factual judgements however do not and cannot express a viewpoint which is truly objective in the sense of representing knowledge not modified by any human input. Arriving at any notion of reality without the human contributions of discrimination and theorising is not possible — at least if the weak empiricist assumption regarding the role of the senses in acquiring knowledge is retained. It may be possible to arrive at an objective understanding or apprehension of the world by other means which do not involve the senses. However, at the present time little is known about acquiring knowledge by means other than the senses which is taken seriously outside a religious framework. There are interesting exceptions to this scepticism in the areas of parapsychology and suggested by some of the more esoteric developments in quantum physics.<sup>15</sup>

**6.83** Here then is the crux of the matter — the crux of the differential weighting given to facts and values in the empiricist framework. It hinges on the recognition of and due weighting of the constructive human contribution to knowledge via the rational component. In the attempt to be objective, to arrive at an ‘as-if-impersonal’ point of view, the value of the human contribution to scientific knowledge of the world has been downgraded. But if interpretation and the other elements of the rational component are necessary in order to acquire knowledge, the human contribution cannot be a hindrance to acquiring knowledge and hence it cannot be reasonable not to value such a contribution.

**6.84** The exact nature of the contribution that humans make to knowledge is an empirical question. This Hume recognised when he made knowledge of human nature or psychology a prerequisite for an adequate epistemology. Hume’s conclusions were, not surprisingly given when he was writing, wrong

in some fundamental respects. However, his essential thesis remains correct. Whether there can be a truly objective viewpoint is itself an empirical matter. This is clear from, amongst other things, the fact that some scientists have argued that one cannot arrive at an objective view of the world by the means regarded as the most satisfactory: *viz.* measurement.<sup>16</sup> To measure a state is to disturb that state and hence to change it.<sup>17</sup> A similar conclusion, that there cannot be a truly objective viewpoint, has also been proposed in the previous chapters on more philosophical grounds.

**6.85** Perhaps in an Aristotelian framework the value of the rational component was elevated beyond what was justifiable. However, that does not justify attempting to eliminate the rational component altogether. What appears to have happened historically are almost Hegelian swings from thesis to antithesis, from rationalism to empiricism, with the present work being one of many recent attempts at synthesis. It is just the rational component — the human contribution to knowledge — that empiricists fought to eliminate by deeming all theoretical, religious, moral and aesthetic judgements metaphysical and non-empirical.

**6.86** However, ironically the very science that has flowered under the aegis of empiricism (or perhaps in spite of it) arrived at the view that the rational component could not be eliminated — that interpretation and hence the rational component is involved even at the level of perception itself.

## 5. Facts are true whilst values are appropriate.

**6.87** If any difference between facts and values can overturn the conclusion reached above that value judgements are rationally assessable by non-deductive argument, then it is that facts are capable of being true or false while values are properly said to be appropriate or not appropriate. However, this difference is not, within the rational empiricist framework, as significant as it may seem.

**6.88** Firstly, although facts are true, establishing truth requires elements of the rational component as well as observation. As already argued confirming theoretical judgements requires: abstracting involved in naming; additional theoretical assumptions; and non-deductive reasoning. Confirming observational judgements requires: interpretation involved in perception; abstracting involved in naming; non-observational presuppositions and possibly even tacit non-deductive reasoning.

**6.89** Value judgements also involve elements of the rational component in order to be assessed: they involve abstracting in virtue of utilising names; interpretation involved in perception; non-observational components, *viz.* the standard and the value predicate; as well as non-deductive reasoning. Value judgements also require observation in order to be assessed.

**6.90** Therefore the difference between establishing that a value judgement is appropriate and establishing that a factual judgement is true is ultimately a *difference of degree*:

*the extent to which observation or elements of the rational component are required* — not whether both are required in each case or not. To establish this conclusion has been the major undertaking of the previous chapters.

**6.91** Secondly, in the rationalist empiricist context neither the correspondence account of truth nor the epistemological connections with pure observation that were supposed to characterise truth claims have been accepted. Hence in this framework the concept of truth does not have the same import as in classical empiricism. In particular the concept is not as strong. This has been underlined by revising the definition of 'true'. Of particular importance in the rational empiricist analysis of truth is the notion of fit which has been chosen to imply a less rigorous relation to reality than correspondence. The notion of an interpreted reality is meant to accommodate or allow for the role of theory or interpretation — the rational component — at every stage in the endeavour to establish truth. The definition of 'true' as 'fit with interpreted reality' is consistent with the view that the product of the process of establishing truth, *viz.* a true factual judgement, fits with reality *as interpreted via the senses and via reason*.

**6.92** Thirdly, it has been argued that the analysis and/or definition of an epistemological concept such as truth should be in accord with the most acceptable epistemological account of how that which is referred to by the concept, is established. Such an account should include, as the rational empiricist one does, recognition of the significant role of the rational component in arriving at true judgements. If the proper analysis of an epistemic concept such as being true is such that it is consistent with the account of how true judgements are established then since establishing that judgements are true, and establishing that judgements are appropriate are significantly similar, the concepts that capture the products of such similar processes will also be similar at least in regard to their epistemological implications.

**6.93** Therefore, in spite of conceptual differences between facts and values that are marked by calling facts true and values appropriate, the bearing of these differences on the rational assessment of values is not, on the present view, as great as it may appear. Certainly the differences are not sufficiently great to warrant rejecting the conclusion that values are rationally assessable by observation and non-deductive argument.

**6.94** What is marked, on the present view by calling facts true and values appropriate is that facts are produced in a systematic and intersubjective framework whereas values are arrived at in a relatively individual framework, for the most part. However, the purpose of the previous chapters has been to show that in spite of this important difference, conclusions such as: values do not objectively refer; being capable of truth or falsity is necessary for rational assessability; factual judgements do not involve the rational component, etc., cannot be supported.

**6.95** It is concluded therefore that value judgements are sufficiently similar to factual judgements to also be rationally assessable. It has also been argued that although values are appropriate or not appropriate and facts are true or false, this difference between them is not such as to prevent both being rationally assessable.

**6.96** If it is accepted that value judgements are non-deductively assessable, then it follows that non-deductive arguments do not require true premises and true conclusions. If factual judgements and value judgements are both rationally assessable by means involving non-deductive reasoning, then it follows that they can both appear jointly as premises of non-deductive arguments. This is important since it will be argued in the next chapter that arguments to a moral conclusion are non-deductive and require both factual and value judgements as premises.

**6.97** Ellis has made an elegant and substantial case for regarding truth as a value judgement. He has shown that a multi-valued acceptance logic of which truth and falsity are simply limiting cases and where probability measures represent the potentially infinite values in between, can be shown to be equivalent to standard two-valued truth-based logic.<sup>18</sup> He has also shown that this logic can be extended to give comprehensive accounts of both probability and modal logic based on the semantics of acceptability and ontologically founded on rational belief systems.

**6.98** Such a view is consistent with the one spelled out above in many respects and would simply serve to strengthen the case that both truth judgements and value judgements can be accepted jointly as premises of arguments. Factual judgements come out as a special case of value judgements. It would be logically true, therefore, that value judgements can appear in arguments with factual judgements.

**6.99** There is an important reason, however, for not collapsing altogether the distinction between facts and values. There do seem to be differences in the logic and function of value judgements and factual judgements which a distinction serves to accommodate. Thus a distinction between factual and value judgements still serves a purpose even though from an epistemological point of view (which for the present purposes is ultimately the most important) the difference between facts and values is largely a matter of the degree to which the rational component or observation is involved in establishing each sort of judgement.<sup>19</sup>

**6.100** In spelling out the relation between facts and values the crucial role of the rational component in regard to factual judgements as well as in regard to value judgements has been articulated. Emphasizing the role of the rational component seems important if only to counter the still-prevailing empiricist orthodoxy, which seems to be so resistant to acknowledging the role and significance of human reason.

**6.101** This completes the discussion of the rational assessability of value judgements. In the chapter to follow, the nature of normative judgements and their relation to factual and value judgements will be discussed.

## CHAPTER SIX NOTES

1. Nowell-Smith (1969), Ch.12, esp. p.161. Baier (1977). Kraft (1981), Section IV.
2. Alston (1964), pp.35-37.
3. Popper (1974), pp.387-388.
4. See Strawson (1956). See Russell (1973) for a statement of his view and Kripke (1972) for a contemporary defence of the view that proper names are abbreviated definite descriptions.
5. Polanyi (1962), Ch.4. Ravetz (1971), Part II, Section 3.
6. Hanson (1969), Part II. Kuhn (1970) (b), Ch.V. Ravetz (1971), Part II, esp. Sections 4 & 6; Part III. .
7. Maccoby & Jacklin (1974), esp. Part III. Lakoff (1975).
8. Weiss (1969), pp.13-20.
9. Searle (1969), p.23.
10. See Note 13 below for references on insight and the 'Aha' phenomenon.
11. Hanson (1958), Ch.I.
12. See Ch.2, Notes 47 & 48 for references.  
See also Holton (1973), pp.17-20.
13. Lonergan (1970), pp.3-6. See Also Koestler (1970), pp.105-120.
14. Abstracting, creativity in science, non-deductive reasons and discovery in science are all interlinked. Non-deductive reasoning seems clearly to be part of what is involved in discovery in science and hence to be part of the creative process insofar as discovery in science is so.  
There are undoubtedly many other aspects of creativity yet to be understood. Some of these may be closer to non-standard reasoning (e.g. non-deductive reasoning) and some may be more closely related to perception. Some aspects of creativity and insight may be articulable; some may be tacit in principle. Abstracting seems to be one of the psychological pre-conditions for creativity in its most general sense, since it consists of the ability to select and join aspects of the world. The ability to create representations of the world and to manipulate these are related psychological prerequisites of creativity.
15. See Ch.4, Note 38, for references on knowledge acquired by means other than the ordinary senses.
16. Zukav (1980), pp.100-105.
17. Heisenberg (1963), pp.48-49.
18. Ellis (1979).
19. cf. White (1956), p.256.



## Ch.7 — MORAL JUDGEMENTS

### Introduction

**7.1** In the last chapter it was argued that factual judgements and value judgements were sufficiently similar such that value judgements were rationally assessable if factual judgements were. Hence value judgements could figure jointly with factual judgements as premises of non-deductive arguments. It was concluded therefore that non-deductive arguments did not require only true premises or conclusions.

**7.2** These conclusions are central to the present chapter which deals with moral normative judgements of the form: ‘One ought to do X’ or ‘Everyone ought to do X’. It will be argued in the present chapter that moral normative judgements are non-deductively justifiable on the basis of both factual judgements and value judgements.

**7.3** In order to arrive at this conclusion, ‘ought’, ‘right’ and ‘moral’ will be discussed. It will be suggested that what characterises moral normative judgements is the intention to be moral; from this it follows that if one intends to be moral, one ought to do what is morally right. It is suggested that an appropriate standard for what is morally right to do is what is rational to do. An account of rationality is then offered in order to support this conclusion. It is argued that morality is, in a certain sense to be spelled out, a special case of rationality. Hence what is rational is justified as a standard of what is morally right. Finally it is concluded that if this standard is accepted, then both facts and values are required to justify moral normative judgements.

**7.4** There has been a great deal of controversy about whether or not moral judgements are capable of being true or false. In the present context this question turns out not to be as important as it may initially seem. It was argued in the last chapter that, in principle, whether or not a judgement succeeds in fulfilling its function should constitute the basis for deciding whether it was acceptable or not. Value judgements, it was argued, do not function as descriptions of reality but as qualitative assessments of it according to a standard. Hence value judgements are not properly regarded as true or false. Normative judgements also do not function as descriptions of reality. Rather they function as rational guides to conduct, by which is meant, for the present — reason-based guides to conduct. Hence in assessing normative judgements it seems reasonable to consider primarily whether they succeed in being rational guides to conduct rather than whether they are capable of being true or false.

**7.5** There are various arguments for and against claiming that normative judgements are capable of being true or false. Due to the influence of the logical positivists, emotive theories of ethics in which normative judgements were not regarded as capable of being true or false have been predominant.<sup>1</sup> This tradition goes back to Hume. However,

moral realism and moral objectivism have gained ground in the last few years,<sup>2</sup> Utilitarians have, since Bentham, attempted to reduce moral judgements to factual judgements in an endeavour to ensure that moral judgements were capable of being true or false. There is neither the room, nor is it to the point of this thesis, to investigate these debates. If normative judgements are true, so much the better, if not it still does not on the present view prevent them being rationally assessable by non-deductive argument.

**7.6** It will be taken, however, that since normative Judgements do not function as descriptions of reality they are not true or false. Normative judgements will be termed correct if they succeed in doing what they purport to do, *viz.* if they constitute rational guides to conduct, otherwise they will be termed incorrect.

**7.7** In this chapter a full analysis of normative judgements will not be attempted. Rather the aim will be to provide a criterion for deciding whether or not one ought to do X, where X is some action. There is some inevitable overlap between explicating this criterion and spelling out the logic of normative moral judgements. The latter enterprise is of general philosophical interest. For present purposes, however, a criterion for determining what ought to be done is more important, given that the ultimate goal of the thesis is to lay some theoretical groundwork for the resolution of moral conflicts.

### ‘Ought’, ‘moral’ and ‘right’

**7.8** ‘Ought’ is a term that functions as an imperative not, as Hare suggests, to commend.<sup>3</sup> Wertheimer argues (correctly on the present writer’s view) that ‘ought’ is univocal and does not have a special moral connotation.<sup>4</sup> Thus the meaning of ‘ought’ in ‘You ought to try using dry leaves if you want to get the fire going’ and the meaning of ‘ought’ in ‘You ought not to lie’ is exactly the same. Wertheimer also argues that ‘ought’ judgements assume the truth of other factual judgements, a view which fits well with what will be said below about moral normative judgements.<sup>5</sup>

**7.9** Sellars argues, as will be argued below, that normative judgements imply intentions. However, Sellars goes further and reconstructs hypothetical imperatives as equivalent to a statement about implication relations between intentions. Thus Sellars argues that the hypothetical imperative:

If S wants to bring about X, he ought to do Y  
“has the sense of”

‘Shall [S brings about X]’ implies

‘Shall [S does Y]’.<sup>6</sup>

According to Sellars reconstructive analysis, ‘shall’ is an operator which turns indicative statements into statements of intention.<sup>7</sup>

**7.10** Wertheimer on the other hand in his discussion of the modals (including ‘shall’) suggests that ‘ought’ is a genuine modal somewhere between ‘must’ and ‘may’, which

expresses a fairly high degree of probability that something will come about and 'shall' (which is taken to be equivalent to 'will') is seen to be a future tense form of the copula.<sup>8</sup>

**7.11** As will become apparent, the present analysis is similar in certain respects to both Wertheimer's and Sellars' accounts of normative judgements. Certainly both accounts provided inspiration in regard to the form and content of the analysis to be presented below. It will be accepted without further argument that Wertheimer's view that 'ought' is univocal is correct. It will also be accepted without argument that 'ought' is not reducible to reconstructed judgements of intention, even though it is closely related to judgements of intention.

**7.12** Since it is accepted that 'ought' is univocal, it is proposed that what makes an 'ought' judgement a moral judgement is not the special meaning of the term 'ought' but the p-implied intention: in particular the meta-ethical intention 'If you want to be moral...'.<sup>9</sup> Thus the problem of analysing normative moral judgements is shifted from that of providing an analysis of the special meaning of 'ought' to providing a satisfactory account of what it is to be moral. Providing such an account will be the main aim of the section to follow.

**7.13** There are at least three meanings of the term 'moral'. Firstly, there is a *descriptive* meaning of the term whereby it refers to a particular domain of decision-making in the same way that 'medical' refers to that which pertains to medicine. Secondly, there is another and narrower meaning of the term 'moral' where it functions as a *value term equivalent to a particular use of the term 'right'*. Finally, there is a third sense of 'moral' which functions as a *value term applicable only to persons*.

**7.14** The first use of 'moral', the descriptive use, is best exemplified in its use in the phrase 'the moral sphere'. The sphere of morality traditionally has been taken to be concerned with proper relationships between human beings — where it is assumed though not often defended, that human beings are the most valuable or indeed the only valuable beings of all the life forms on the planet (animal and vegetable).<sup>10</sup> Thus it seems reasonable to suggest that a value judgement regarding what is valuable is involved in deciding what constitutes the sphere of moral decision-making.<sup>11</sup> *The moral sphere will be taken to refer to a class of intentions, attitudes, behaviours, states of affairs etc. that concern valuable entities and which are such as to be appropriate for evaluation in regard to whether or not these attitudes, behaviours etc. are right or wrong.*

**7.15** There is reason to believe that the value judgements regarding what entities are valuable, and therefore what considerations fall within the domain of moral decision-making, are far too narrow to be appropriate. Thus it may be argued that relations to oneself can properly be construed as moral or immoral and not just relations to others in line with Kant's notion of duties in regard to oneself.<sup>12</sup>

**7.16** In addition it may be argued that the proper relations to animals; ecosystems; future generations etc. may all lie within the sphere of moral decisions. Sellars, for example, argues that the moral point of view is that which takes into account a community of rational beings.<sup>13</sup> This could be extended to take into account all sentient beings and even the entire biosphere. This extension of the moral sphere underlies environmental ethics.

**7.17** The moral sphere is therefore to be regarded as that sphere which pertains to relations between whatever entities are regarded as valuable. This notion of what constitutes the moral sphere seems sufficiently wide to include relations between people; the relation of people to themselves; the relation of people to the environment; to animals etc. Moral considerations are then those considerations which fall into the moral sphere. On this view the term 'moral' refers to a particular sphere of decision-making. This use will be termed 'moral'.

**7.18** There is another use of the term 'moral', however, in which it is equivalent to the term 'right' as in the statement 'That was the moral thing to do'. The terms 'right' and 'wrong' satisfy the three conditions for being value terms. To say 'X is right' constitutes a value judgement (and hence 'right' is a value predicate) because:

- (i) the judgement p-implies a pro connotation;
- (ii) because it p-implies that there are objective features of the value object in virtue of which the value predicate is being applied; and
- (iii) more clearly perhaps than any other sort of value judgement, it p-implies a standard according to which something is assessed as right or wrong.

**7.19** It was argued in Chapter Two that value judgements must have some designation since otherwise one value term would not be selected in preference to another (see §2.73). The reasons why it is difficult to spell out the designation of value terms were also discussed (§§2.74–76). It was concluded that since the designation of value terms does not, and cannot, play a role in determining the referent of the value predicate, establishing the designation is not of great importance for present purposes.

**7.20** If the term 'right' is a value term, then insofar as 'moral' is equivalent to 'right', 'moral' is also a value term. This second use of 'moral' is narrower than the first. The first use of 'moral' defines a particular sphere of decision-making. The second use defines what is proper or right in that sphere. Both 'moral' and 'right' are, like other value terms, definitionally elusive.

**7.21** It is clear that not all things which are said to be right or wrong are moral considerations. Hence not all uses of the term 'right' can be said to be moral uses. However 'right' will, like 'ought', be regarded as univocal. 'No, you just took a wrong turn' is, other things being equal, not a moral judgement. 'Your last algebra exercise was right'; 'Yes, that's right, turn the wheel a little more towards the skid';

'It's definitely not right to use the fish knife to cut the steak'; 'You were right not to mention that you knew he was leaving his job' also do not seem to be moral judgements.

**7.22** However, a certain class of uses of the terms 'right' and 'wrong' do seem to constitute moral uses of the term. Thus to say 'Stealing is wrong' or 'It is wrong to lie to yourself' or 'The only right thing to do now is to give back the jewellery that you stole' or 'It is right to share your wealth with those less fortunate' are all moral uses. This is not, it is suggested because 'right' has a special meaning, but because the class of behaviours etc. to which the term is applied fall into the category of morally relevant behaviours. Thus what makes the use of 'right' a moral<sub>1</sub> use is that it is applied to those actions etc. which belong to the moral<sub>1</sub> sphere.

**7.23** The second use of 'moral' therefore in the sense of synonymous with 'right' comes out as synonymous not just with 'right' in any of its uses but with 'right in the moral sphere'. This latter phrase will be abbreviated to 'morally right' for convenience. To say something is moral in the second sense of 'morally right' therefore is to say (a) whatever is being talked about falls into the moral<sub>1</sub> sphere, and (b) that it constitutes that part of the set of decisions about matters in that sphere which are right. This second use will be termed 'moral<sub>2</sub>'.

**7.24** There is a third use of 'moral' which is a narrower use again than that of 'moral<sub>2</sub>'. It is this third use which is presently of most interest, viz. that in the phrase: 'If you want to be moral...' which, it was argued above, is the intention that determines that particular use of 'ought' is a moral use.

**7.25** This special use of 'moral' is only applied to persons, as in: 'If you want to be moral...' or 'She was very moral in her outlook'. This use of 'moral' is not equivalent to 'morally right'. It does not make sense to substitute 'morally right' for 'moral' in the phrase 'If you want to be moral...'. To say 'If you want to be morally right...' sounds at best clumsy and at worst obscure. 'If you want to *do* what is morally right' sounds far better than 'If you want to *be* morally right'. The latter, insofar as it is clear, sounds like a clumsy way of expressing the former.

**7.26** On the grounds that linguistic subtleties reflect genuine conceptual differences, it will be taken that 'moral' in the phrase 'being moral' or 'be a moral person' is not equivalent to 'morally right'. Rather it is suggested that 'moral' in this third sense is a value term that refers to *an emergent part of a person's behaviour taken as a whole* (where 'behaviour' is interpreted in the broad sense as including dispositions to behave, and what people say). Thus 'moral' in this sense is a value term which is applicable to those things which are (a) in the moral<sub>1</sub> sphere, (b) are morally right, (c) are related to aspects of a person's behaviour, (d) are aspects which are unified to form a whole such that a person who behaves in these morally right ways 'is said to be a moral person. This third use of 'moral' will be termed 'moral<sub>3</sub>'.

**7.27** Since 'moral<sub>3</sub>' is a term which refers to an emergent part of aspects of a person's behaviour (unified as a whole) which are morally right; and since 'morally right' is itself a value term, two points are especially noteworthy. 'moral<sub>3</sub>' can be seen to refer to a value property which emerges from valuable aspects of a person (in particular acting, thinking, feeling and being disposed to do what is morally right). Hence 'moral<sub>3</sub>' is a *meta*-value term. Secondly, there is a relationship between 'moral<sub>3</sub>' and 'morally right' that is of particular importance for the present analysis of normative judgements.

**7.28** 'Morally right' is a value term which is applied to *elements* of the set of things in the moral<sub>1</sub> sphere. These include actions and the relata of actions such as feelings, motives, etc. In general 'morally right' is applied to behaviour as analysed into elements (see Chapter One for a discussion of analysis as a means of conceptually converting a whole into a set). Thus while 'moral<sub>3</sub>' is a value term which refers to an emergent part of behaviour taken as a *whole*, 'morally right' is a value term which refers to an emergent part of *elements* of behaviour where behaviour is regarded as a *set*. The set of things that are morally right includes actions, motives, beliefs, attitudes, dispositions, feelings, intentions, statements, etc. 'moral<sub>3</sub>' is a term which is applied to all these things *conceptually abstracted as a whole*. 'moral<sub>3</sub>' is therefore a special term of approbation for persons who exemplify what is morally right.

**7.29** Given the analysis of value judgements in Chapter Two, it follows that 'moral<sub>3</sub>' in the judgement 'A is moral<sub>3</sub>' where A is a person, is applied in virtue of objective features of the person in question. However, the present case is slightly more complex than that discussed in Chapter Two since 'moral<sub>3</sub>' is a meta-value term. In this case it is not just in virtue of what someone's objectively does that the value term is applied but in virtue of the things which someone does and which are valuable, viz. morally right.

**7.30** It was also argued in Chapter Two that justification for the application of a value predicate, given that the standard was accepted, could be represented as a non-deductive argument whereby the premises consisted of judgements about objective features of the value object (in this case a person's behaviour). Given the added complexity of the present case, a justificatory argument for the claim 'A (where A is a person) is moral<sub>3</sub>' would consist of a set of premises stating both the elements of behaviour that A exemplifies and that these things are valuable as follows:

- |             |                                       |
|-------------|---------------------------------------|
| P.1         | A performs Y (where Y is some action) |
| P.2         | Y is morally right                    |
| P.3         | A says Z (where Z is some utterance)  |
| P.4         | Z is morally right                    |
| P.5         | A has motive W                        |
| P.6         | W is morally right                    |
| <i>etc.</i> | <i>etc.</i>                           |
| ∴           | C. A is moral <sub>3</sub>            |

It is important to note for what follows that the premises in this argument consist of both factual and value judgements. Premises 1,3,5 are factual judgements and premises 2,4,6 are value judgements.

**7.31** Not all those things in the moral<sub>1</sub> sphere to which ‘morally right’ can be applied pertain directly to human behaviour. ‘moral<sub>3</sub>’ therefore applies in virtue of a subset of those things in the moral<sub>1</sub> sphere which are morally right. States of affairs can also be said to be morally right or wrong. Generally these states of affairs relate to human action indirectly in that they are the results of human beings’ actions or their failure to take action. For example, it can be said to be wrong that people in India are starving. Though this may be in part the result of wrong human action such as dumping food into the sea, it is nevertheless a judgement about a state of affairs which does not refer directly to human action. Similarly it may be .said to be . wrong that wilderness ceases to exist where again this state of affairs may be related to human action indirectly, in that it may be a result of human action that wilderness ceases to exist, but the judgement is not about human actions.

**7.32** However, insofar as human beings have capacities to choose what to do, and given their even-increasing ability to affect the natural world and themselves as a result of their choices, considerations in regard to the rightness or wrongness of actions and their relata, constitute the fundamental considerations in the moral<sub>1</sub> sphere. This may go partway towards explaining why there is a special use of ‘moral’ which is applicable only to persons.

**7.33** To summarise what has been said thus far: it has been argued that ‘ought’, following Wertheimer, is univocal. It was accepted that what makes ‘ought’ a moral use, is the p-implied hypothetical intention: ‘If you want to be moral....’. It was suggested that there are at least three important uses of the term ‘moral’: a descriptive use and two uses in which ‘moral’ is a value term. In the **first** use ‘moral’ refers to a particular sphere of decision-making which is such that it concerns relations between valuable entities, and whose elements are such as to be appropriate for evaluation in terms of . whether they are right or wrong. The **second** use of ‘moral’ is equivalent to ‘right and in the moral sphere’ (which was abbreviated to ‘morally right’). In its **third** use ‘moral’ is a special meta-value term which refers, to an emergent part of that behaviour which is morally right and which is conceptually unified to constitute a whole. This sense of ‘moral’ is applicable only to persons.

**7.34** Given the basic analysis of value judgements and their justification by means of non-deductive argument, together with the account of ‘moral<sub>3</sub>’, it follows that one can justify the claim that someone is moral<sub>3</sub> by appealing to the morally right (moral<sub>2</sub>) features of their behaviour. If all this is accepted, it follows therefore that if one intends to be moral<sub>3</sub>, and one’s intention, given particular circumstances, determines (in a

sense yet to be spelled out) what one ought to do, then a substantive meta-normative claim can be derived from the essentially formal claim that ‘ought’ judgements p-imply intentions, where this relation is expressed as a hypothetical one. It would follow that *if one intends to be moral<sub>3</sub>, then one ought to do what is morally right.*

**7.35** This claim is *substantive* because it specifies what makes an ‘ought’ claim a moral claim, *viz.* the p-implied hypothetical ‘If you want to be moral<sub>3</sub>...’. Given the analysis of ‘moral<sub>3</sub>’ it follows that if one intends to be moral<sub>3</sub> one ought to do what is morally right, since it is doing what is morally right that constitutes the grounds for judging that someone *is* moral<sub>3</sub>. ‘Doing what is morally right’ will be used as a paradigm for the set of elements of behaviour to which ‘morally right’ can be applied. Whatever is the case in relation to doing what is morally right will be taken to apply to other relevant elements of behaviour such as thinking, feeling, saying, etc. what is morally right. The claim is *meta-normative* because it does not dictate practically what one ought to do. It is topic-neutral: one ought to do what is morally right, whatever that turns out to be.<sup>14</sup> The question of how one moves from this substantive meta-normative claim to a purely normative claim will be considered below.

**7.36** The claim that if one intends to be moral<sub>3</sub>, then one ought to do what is morally right, can be further analysed in the light of what was said in previous chapters. Firstly, the claim that ‘ought’ judgements presuppose hypothetical intentions can be seen as equivalent to the claim that normative conclusions are non-deductively justified by the claim that one has a particular intention. Thus the claim that if one intends to be moral<sub>3</sub>, one ought to do what is morally right can be reconstructed as a non-deductive argument thus:

P.1 One intends to be moral<sub>3</sub>

---

∴ C. One ought to do what is morally right.

**7.37** Furthermore, if one now looks at the logical structure of the premise: ‘One intends to be moral<sub>3</sub>’ it seems reasonable to suggest that it consists of the conjunction of a factual judgement: ‘A has an intention’ and a value judgement: ‘A’s intention is to be moral<sub>3</sub>’ Therefore an even more complete reconstruction of the non-deductive argument to the conclusion that one ought to do what is morally right is as follows:

P.1 A has an intention.(Factual judgement)

P.2 A’s intention is to be moral<sub>3</sub>. (Value judgement)

---

∴ C. A ought to do what is morally right.

Thus the analysis of ‘ought’ claims can be seen to be equivalent to a non-deductive argument that given a particular factual judgement and given a particular value judgement, one ought to do what is morally right.



**7.38** Both Sellars and Wertheimer place central importance on the role of circumstances in relation to moral normative judgements. For both, a normative judgement is related to assumptions regarding the circumstances of the judgement. For Wertheimer the circumstances include, though they are not limited to, factual judgements.<sup>15</sup> Sellars on the other hand clearly intends ‘circumstances’ to refer to a set of factual considerations concerning the situation in which the relevant decision is made.<sup>16</sup> **7.39** It is important to emphasize that factual considerations have a bearing on normative conclusions.<sup>17</sup> The reasons for doing so will be discussed in the last section. Therefore to complete the reconstruction of the argument to the meta-normative conclusion that A ought to do what is morally right an additional premise will be included as follows:

- P.1 A has an intention.(Factual judgement)  
 P.2 A’s intention is to be moral<sub>3</sub>, (Value judgement)  
 P.3 A is in circumstances C.(Set of factual judgements)

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∴ C. A ought to do whatever is morally right in circumstances C.

**7.40** In the meta-normative argument above, reference to circumstances C has really no substantial role to play in arriving at the conclusion since given the moral<sub>3</sub> intention it “follows” that A ought to do what is morally right in any circumstances whatsoever. However the above analysis makes clear what the components of moral argument are and hence the sorts of things that must be specified in order to arrive at a decision on the substantive normative level.

**7.41** The virtues of the above analysis are threefold. Firstly, given that the legitimacy of non-deductive argument is accepted, it makes clear that moral reasoning is rational in the strict sense of being reason-based. Secondly, it makes clear the central role of non-deductive argument in moral reasoning. Thirdly, the above reconstruction is consistent with the claim, to be argued in the last section of this chapter, that both factual and value judgements are required in order to support normative claims. Finally, as will be argued in the last chapter, it is necessary for conflict resolution that the components of moral argument be identified. If facts and values are required in claims to a normative conclusion, then in cases of disagreement, it is necessary to make explicit not only the factual bases for one’s normative conclusion, but also the value judgements on which they are based.

**7.42** It is instructive in regard to further explicating ‘ought’, ‘right’ and ‘moral’ and their relation to each other, to examine three features of this meta-level argument more closely. The first important aspect of the argument to be considered concerns the nature of the relationship between ‘moral<sub>3</sub>’ and ‘morally right’; the second concerns the nature of the connection between having an intention and what one ought to

do; the third concerns the nature of the relationship between ‘ought’ and ‘morally right’.

**7.43** It is firstly important to make clear that it is not being claimed that ‘moral<sub>3</sub>’ logically implies ‘doing what is morally right’. The relationship between ‘moral<sub>3</sub>’ and ‘morally right’ as two value terms was, it was argued, more complex than a logical relationship. However, it is certainly true that one is said to be moral<sub>3</sub> in virtue of those things one does which are also morally right. Furthermore, it is those things which one does which are also morally right, which justify the claim that a person is moral<sub>3</sub>. Therefore it “follows” in a sense to be spelled out below, that if one intends to be moral<sub>3</sub> then in order to be moral<sub>3</sub> one ought to do those things which are morally right. **7.44** The nature of the connection between intending to be moral<sub>3</sub> and what one ought to do and the sense in which one follows from the other will now be discussed. Just as the connection between ‘moral<sub>3</sub>’ and ‘morally right’ is not purely logical, so the connection between having an intention and what one ought to do, either morally<sub>2</sub> or non-morally<sub>2</sub>, is also not logical. Rather it is a substantive relationship. To say that the connection between one’s intention and what one ought to do is substantive is to say that given a particular intention and given the way the world is, it follows *in terms of action* and not just conceptually or logically that one ought to do certain things. It is true that if there were a logical connection between intentions and what one ought to do, what one ought to do could be logically deduced from one’s intention. However, the import of the present analysis is that it is not necessary that there be a logical connection, in order to justifiably draw a conclusion about what one ought to do from one’s intention. This is so provided that there is a proper understanding of the requirements for rational action and given acceptance of non-deductive argument as the best mode of representing the non-logical connection between intention and what one ought to do.

**7.45** Normative judgements if correct are rational, *i.e.* reason-based guides to conduct. A fuller account of rationality will be provided in the next section. However it is part of even the standard account of rationality that one chooses appropriate means to achieve one’s ends. Intentions express a goal or an end of action. Normative judgements express the appropriate means for achieving that end, given a particular intention and given certain circumstances.

**7.46** Thus ‘ought’ can be seen to signal *the epistemological force of action-oriented considerations, rather than the epistemological force of knowledge-oriented or purely conceptual considerations*. Non-deductive arguments for knowledge claims present considerations relating to the truth or confirmation of the conclusion by the premises. The premises, if accepted, constitute the epistemological grounds for accepting the conclusion as true or confirmed. In the case of non-deductive arguments to a normative conclusion, the concern is not the truth but the correctness of the conclusion, given the premises, as a guide to action. Therefore the

premises constitute epistemological grounds for accepting the conclusion as a reason-based guide to conduct.

**7.47** The term ‘ought’ signals the action-related nature of this kind of judgement. That is why ‘ought’ judgements are termed imperatives. However normative judgements are not literally commands. ‘Ought’ is a special term that is used to express or represent that a particular course of action is to be taken if one has certain intentions and given certain circumstances, in order to carry out one’s intention. Thus just as one function of the term ‘true’ is to mark the fact that an appropriate relation between a judgement and the world obtains, so ‘ought’ marks that an appropriate relation obtains between a normative judgement about action and the reasons on which it is based.

**7.48** The importance of establishing that non-deductive argument is a legitimate mode of argument, particularly in relation to analysing normative judgements should be clear. Non-deductive arguments permit the practical connections such as those between intention and what one ought to do to be represented. A normative conclusion is justified because of empirical connections that it has with the facts and the intentions that constitute the premises.

**7.49** Non-deductive arguments are ideally suited to expressing and justifying such empirical connections. As discussed in Chapter Five non-deductive arguments characteristically have a dual feature of referring to relationships between judgements and to relations between states of affairs referred to by these judgements, which obtain as a matter of fact. Thus it can be seen that connections between judgements are justified either if they are logical or if they obtain because of the way the world is. ‘Support’ refers to a non-logical, conceptual relation that obtains between judgements partly in virtue of the way things are in the world.

**7.50** Thus there are rationally compelling reasons, signalled by the use of the terms ‘ought’ or ‘should’, to use dry wood, matches, etc. given one’s intention to light a fire, and given the circumstances in which one finds oneself. Where the conclusion of a non-deductive argument is a normative judgement, the premises do not constitute reasons for accepting a claim as true, but as reasons for accepting that a claim is a rational guide to action in that the action if carried out will enable one to realise one’s intention. In that sense a normative claim is, if well-supported, a correct guide to action.

**7.51** The final point that concerns the relation between ‘ought’ and ‘morally right’. Contrary to what is sometimes claimed, ‘ought’ does not imply ‘right’. This is supported by the view that ‘ought’ and ‘right’ are both univocal and do not have special moral uses. It is not usually suggested for instance that ‘ought’ implies ‘right’ in any non-moral contexts. If ‘ought’ and ‘right’ are univocal therefore ‘ought’ does not imply ‘right’ in any context. Furthermore, it is clear that the question: ‘Ought you do what is morally right’ is not a trivial question. It would be if ‘ought’ implied ‘right’.

Rather it is incomplete until one establishes the presupposed

intention. If what is presupposed is the intention to be moral<sub>3</sub> then the answer is: yes. If not, then the question is unclear.

**7.52** The present account of ‘moral’, ‘right’ and ‘ought’ has several advantages. Firstly, the present ‘view avoids the difficult problem of defining value terms. The reasons for the difficulty of defining value terms is explicable, on the present account, in terms of the semantics of value judgements (see Chapter Two, §§2.25–29).

**7.53** Secondly, the separation of the *standard*, p-implied by a value judgement, from the *definition* of the value predicate prevents the often strained grafting of a theoretical definition onto a term such as ‘right’. As an example R.B.Perry suggested as a definition of ‘right’, ‘being conducive to harmonious happiness’.<sup>18</sup> Thus a principle is construed as a definition of ‘right’ rather than, as seems more natural, a proposed standard of behaviour.<sup>19</sup> The meta-ethical vs. normative ethical distinction seems to legitimise this move. However it is arguable that what it really does is confound the issue of the normative role of definitions in a theory. In a sense the strongest normative move one can make is the logical one of securing one’s desired norm by making it identical with the very meaning of the term in question.

**7.54** As opposed to this, on the present view ‘right’ like other value terms is definitionally elusive. Furthermore, though norm (quite literally a standard) and definition have been theoretically separated, via p-implication, the notion of a standard is still closely linked to the term ‘right’ in virtue of ‘right’ being a value term. Therefore the close tie between value terms and standards is maintained without turning the standard into a definition and thus distorting somewhat the role of both in relation to value judgements.

**7.55** Thirdly, and most importantly, separating the question of the meaning of value predicates from the question of the standard p-implied by a value judgement has significant consequences in regard to arriving at criteria for deciding what one ought to do, as will be seen below. Therefore in relation to the present discussion of ‘moral’ and ‘right’, which it has been argued are value terms, what is of far more importance than the meaning of these terms, is the standard which is p-implied in the judgement that A is moral<sub>3</sub> or that X is right.

**7.56** The aim of the present chapter is to find a practical criterion for determining what is morally right. This reduces, on the present view, to trying to find an acceptable standard for the value judgement that something is morally right. The issue that is fundamental for present purposes therefore is this: *what is the standard which should be utilised in assessing whether or not something is morally right.*

**7.57** The following is suggested: in line with the claim that ‘moral<sub>3</sub>’ was a term applied to a person’s behaviour as a whole, *the standard for being moral<sub>3</sub> is a conception of a state of being (a special case of a state of affairs), viz. a conception of a rational being.*

**7.58** The standard for what is morally right, insofar as ‘morally right’ is a term applicable to *elements* of a person’s behaviour, is also a conception of a state of affairs. The standard for what it is morally right to think, feel, etc. is what a rational being would think, feel, etc. Since ‘morally right’ is also applicable to states of affairs not directly related to human action, the standard in this case is, in line with the above suggestions, a conception of a state of affairs such as a rational being would promote.

**7.59** The problem of finding a criterion for what one ought to do, given moral<sub>3</sub> intention, is reduced therefore to giving an account of rationality that would justify accepting what a rational being would do as a standard of what it is morally right to do. ‘Doing what a rational being would do’ will be abbreviated to ‘doing what is rational to do’. To give such an account of rationality is the concern of the next section.

## Rationality

**7.60** While it may be accepted without contention that a necessary condition for being moral<sub>2</sub> is being rational, a much stronger claim is implied in the view that the standard for determining what is morally right to do is what it is rational to do. This implies that being rational is not only a necessary but is a sufficient condition for being moral<sub>3</sub>.

**7.61** The notion of rationality is problematic.<sup>20</sup> If it were possible to show, however, that morality was a special case of rationality, this would at least narrow the problem to that of dealing with rationality. However, whilst it is not appropriate to attempt to give a complete account of rationality within the context of the present work, an attempt will be made to characterise rationality in a way that is sufficient for present purposes: *viz.* to support the claim that an acceptable standard for doing what is morally right is doing what it is rational to do.

**7.62** It is suggested that there are five requirements for being rational which may also be jointly sufficient. It will be taken, however, that these conditions are at least necessary. In any event appeal to these conditions suffices to support the conclusions to be drawn below about the relationship between morality and rationality. The first four conditions concern ways in which a rational being relates to information. The fifth condition concerns the way in which a rational being connects information to action. These five conditions are:

1. having reasons for what one does;
2. being open to all available information;
3. being able to select information relevant to the purposes at hand;
4. being able to meaningfully organise information;
5. being able to properly relate appropriate thought and action (where appropriate thought is thought that satisfies the first four requirements).

**7.63** The first requirement for being rational is that one have reasons for what one does. This is the most literal and the most intuitive interpretation of what it is to be rational. There is an ambiguity in the notion of having reasons for what one does which is highlighted by the consideration that we do not need to give reasons to ourselves for what we do, though it is being claimed that if we are acting rationally there are such reasons. The ambiguity can be located in the term ‘reason’. A reason can be a *psychological entity* about which we can truly say such things as ‘I must have had a reason though I’ll have to think about what it was’. This sort of statement implies that a person can have a reason but not immediately be able to say what it is. This cannot be truly said of a reason in another sense, in which it is *a proposition which is stated (and hence is known) as a premise in an argument*. Reasons of the first kind will be termed psychological reasons (to be abbreviated to ‘p-reasons’). Reasons of the second kind will be termed evidential reasons (to be abbreviated to ‘e-reasons’).

**7.64** P-reasons are psychological entities or processes of which we can be sufficiently internally aware to say that they function as reasons for what we do. They are not, however, such that we have represented them to ourselves internally as propositions. If however we do represent a p-reason to ourselves as a proposition, they become e-reasons which we may then also offer as explicit e-reasons to others, *i.e.* as premises in an argument for why we ought to take some action.

**7.65** Thus the claim that a rational being will have reasons for what they do, can be seen to be equivalent to the claim that if a being is rational they will have p-reasons for what they do. While it is not necessary to give oneself e-reasons for what one does, it may be instructive to do so in order to, for example, clarify one’s views on some moral question.

**7.66** However, and this is important for the chapter to follow, if we need to communicate with someone who disagrees with us and desire to do so in a rational way, then it is imperative that we have e-reasons. Only e-reasons are available for intersubjective consideration and evaluation. Thus p-reasons are necessary in order for an action to be rational and e-reasons are necessary in order for a normative claim to be justified.

**7.67** Thus the first requirement for being rational is that a rational being have p-reasons for what they do. P-reasons are of their nature such, it has been suggested, that they can be represented by propositions, which then become e-reasons and which can then constitute premises in arguments for what ought to be done.

**7.68** The second requirement for being a rational being is also intuitively appealing. It concerns the preparedness and openness that a rational being has to information. A rational being is open to and is prepared to consider all available information.

**7.69** The third requirement for being rational also relates to information and concerns relevance. A rational being is one who can select from the information that is available, that which is relevant to the circumstances at hand.

**7.70** The fourth requirement for being rational is that a rational being have the ability to organise information in meaningful ways. Being rational is often identified tacitly or explicitly with the ability to perform deductive manipulations of information. This view, which seems excessively narrow, is one which is explicit in positivist philosophy of science.<sup>21</sup> On the present view however a good non-deductive argument would also count as meaningful organisation of data. Thus both deductive and non-deductive reasoning can be seen to constitute instances of meaningful organisation of information.

**7.71** On the present view not only arguments, deductive or non-deductive, constitute instances of meaningful organisation of information. Literature, painting and music can also, by extension, be regarded as instances of meaningful organisation of information. Neither the form nor content of information-organisation need be solely, or even primarily, propositional.

**7.72** It was argued in previous chapters that acquiring knowledge involves elements of the rational component such as, for example, the principles involved in naming; the interpretation involved in perception; and theoretical judgements. Given the fourth requirement for being rational, it can be seen that all of the above elements of the rational component constitute different manifestations of the capacity to meaningfully organise sensory and non-sensory data. The rational component was said to represent the constructive human input into knowledge acquisition. This human input turns out to be a consequence of being rational, as here defined.

**7.73** The first four requirements for being rational include, as special cases the more standard notions of what it is to be rational.<sup>22</sup> However an even wider notion of rationality is required for present purposes. The essence of this requirement is that to be rational does not only involve being able to appropriately manipulate and organise conceptual data but being able to properly link appropriately organised conceptual data to action.

**7.74** The role of the rational component in arriving at knowledge has already been discussed. As stated above the rational component of knowledge acquisition stems directly from the ability to meaningfully organise information. However, arriving at truth also requires the ability to appropriately apply that information. Being able to act appropriately on information is clearly necessary for good science particularly, if science is seen as a complex social activity and not just as a mode of thought constituted by deductive manipulations of data. Thus an enriched account of rationality is needed not only to account for morality but, it can be argued, for successful science.

**7.75** Just as the view of science as an activity has only been developed relatively recently, so the reasoning processes associated with morality have been relatively neglected. These two developments are connected. They both stem from classical empiricist views about science and morality. An enriched account of rationality, particularly one which incorporates the requirement for a proper relation between thought and action, is needed to account for morality, with the emphasis on the connection between *thought* and action. However, such an account is also needed to explain successful science<sup>23</sup> with the emphasis in the latter case being on the connection between the thought and *action*. Though the role of rationality in science would be interesting to pursue further, it is not possible to do so within the scope of the present thesis. Therefore the notion of rationality will be examined primarily in relation to morality.

**7.76** Philosophically there is a tradition stretching from Plato to Kant which either closely links or identifies rationality with morality.<sup>24</sup> This connection is secured basically by postulating a connection between thought and action most clearly articulated in the Marxist concept of praxis.<sup>25</sup> Aristotle forged a close link between thought and action with his notion of practical wisdom, that Kant has, amongst modern moral philosophers, reaffirmed most strongly.<sup>26</sup>

**7.77** The essence of being rational, as articulated in the fifth requirement includes, though it is not exhausted by, being wise in the Aristotelian sense of being able to translate appropriate thought into appropriate action.<sup>27</sup> The metaphor of thought translated into action may not be entirely apt because of its analytic connotations. A more appropriate extension, for present purposes, of the Aristotelian notion might be that of being able to engender thought-based action or to literally being able to *realise* thoughts in action.

**7.78** The idea that there is a mode of acting which is essentially reason-based is a simple idea if not an entirely clear one. However it is a notion which is very hard to explicate within the existing conceptual scheme. This is so for two reasons: firstly, the philosophically (and hence empirically) dubious nature of thought. Secondly, because of the experiential fact of the separation of people's reasoned beliefs from their actions.

**7.79** Firstly, the nature of thought and hence of its causal role is difficult to philosophically articulate within an empiricist paradigm. The mind is only able to be experienced directly in a non-sensory way. That makes it epistemologically suspect in a framework where all knowledge is assumed to derive from the senses. Philosophical uncertainties about the status of mind when coupled with related empirical uncertainties about the nature of the brain combine to make it difficult to say what thought is. Consequently the causal connection between thought and action is correspondingly difficult to articulate. The nature of the connection between the two is thus a philosophical/empirical question within both psychology and philosophy.



**7.80** Within the framework of behaviouristic psychology, verbal behaviour (both articulated and non-articulated) is regarded as just another kind of behaviour.<sup>28</sup> Hence in this framework thought and action cease to be sharply separated. However there are other reductive implications in regard to the nature of thought that are implicit or explicit within behaviourist psychology. In particular it is assumed that cognitive activity does not have any proper role to play in scientific explanations.<sup>29</sup> Though this view has been modified in practice, and though cognitive psychology is a rapidly developing area both theoretically and empirically within psychology nevertheless behaviourist/empiricist assumptions continue to permeate both philosophy and psychology.<sup>30</sup>

**7.81** Secondly, the link between reason-based beliefs and action on the basis of such beliefs is often seen to be tenuous in practice. It is evident that people's reasoned beliefs are often not connected with their actions. Although this is not always the case it does correspond to a great deal of people's experience of themselves and others. This, combined with the philosophically troublesome issue of the nature of thought and its psychologically dubious causal status, makes it difficult to give plausibility to the idea that there can be a mode of thought which is essentially connected to action.

**7.82** Ideas like praxis and Aristotle's notion of practical wisdom, as well as Kant's attempt to weld morality and rationality together via the formal role of pure reason in determining moral claims, all incorporate either tacitly or explicitly the notion of a relation between thought and action which is, at the very least, a causal one.<sup>31</sup> It may even be that the relation between them even goes beyond a causal relation. It could be that what is involved is thought of a qualitatively different order which is such as to constitute an aspect of an action.<sup>32</sup> The fifth requirement for what it is to be rational may therefore be conceived of either as referring to the sort of reasoning that can cause action or a different kind of mental function altogether — something like practical intelligence. Aristotle's "man [or woman] of practical wisdom" simply have additional rational capability.<sup>33</sup>

**7.83** The fifth requirement for being rational in the enriched sense, and the one which is here seen as the most important, is thus the capacity to properly link appropriate thought to reality, via action. Arriving at truth is one sort of indication that this proper linking has taken place. Engaging in morally right action is another. The proper or rational use of the mind can result in either truth or right action. Thus to be rational is not only to be able to properly reason but to be able to utilise such reasoning in order to operate on reality in appropriate ways. To sum up therefore the necessary conditions for being rational are:

1. having p-reasons for what one does;
2. being prepared to examine available information;
3. having the capacity to select relevant information;
4. having the capacity to meaningfully organise information;
5. being able to properly integrate appropriate thought and action.

The above notion of what it is to be rational will be termed rationale. In general, this is the notion being referred to when the term 'rational' and its cognates are used (without subscript) in the discussion to follow, unless otherwise indicated by the context.

**7.84** There are two consequences of accepting the above requirements for present purposes. These are firstly, the role of introspection as a means of obtaining information; secondly, the relationship between rationality and feelings.

### Internally-derived data and introspection

**7.85** Being rational is often identified with being objective, which on the empiricist view amounts to taking as primary that data which derives from the senses. However, if being rational is being prepared to take into account all available data, then it can be argued that data which is internally derived and not only that which is derived via the senses should be taken into account if one is being rational.

**7.86** Phenomenalism will be taken to be essentially the view that all we see directly are representations of reality.<sup>34</sup> Hume, who like Berkeley was a phenomenalist as well as an empiricist, regarded internally derived and externally derived data as epistemologically on a par, though the latter was distinguished from the former by the internal criteria of degree of force and vivacity.<sup>35</sup> These representations of reality were termed sense impressions by Hume and sense data by later phenomenologists.<sup>36</sup> The positivists, following Mach, took it that these sense data were certain. Judgements about sense data were taken to be such that to understand their meaning was to know that they were true. Hence these judgements were regarded as the foundational judgements upon which scientific reasoning was based.<sup>37</sup>

**7.87** Phenomenalism generated many problems. The two most important were as follows. If all we can be certain of are internal representations of reality, then it follows that we cannot be certain of that which is represented, *viz.* reality, since, *ex hypothesi*, this reality can only be known by us via representations of it. Hence the certainty provided by sense impressions is obtained at the cost of the unknowability, in principle, of the real world. In addition, insofar as internal representations of reality are also private in principle, it does not seem that they can provide an intersubjective, and hence satisfactory, foundation for science.

**7.83** Phenomenalism and its associated development, the notion that there are statements of whose truth we can be certain, and the search for certainty in general were all gradually abandoned by the logical positivists as a result of the above and other problems<sup>38</sup> However, the view that there was a foundation for science, was retained. The basis of scientific discourse was taken to be talk about medium-sized physical objects such as tables, chairs, meter readings, etc.<sup>39</sup>

**7.89** Leaving questions of certainty aside, however, it does seem, empirically and philosophically, that the view that we see the world in virtue of seeing representations of it, and that what we therefore see directly in some sense, are such representations, is basically correct. This view is well-supported by empirical research into perception.<sup>40</sup> If it is accepted, then the Humean position that we not only see internal representations which are externally derived but internal representations which are internally derived also seems to be basically correct.

**7.93** Given that all this is accepted, there are at least two questions to be answered:

1. Can we satisfactorily distinguish internally-derived from externally-derived representations?
2. Given that we can, how can externally-derived representations constitute an intersubjective foundation for science?

**7.91** It will be accepted without argument that Brentano's view (shared by Hume in principle) that we can *phenomenologically* distinguish externally—derived from internally—derived representations is correct, even though the criterion for doing so may be difficult to articulate.<sup>41</sup>

This answers the first question. Secondly, if it is accepted that we can communicate with each other about what we see (*pace* Quine), then we can communicate about the externally-derived representations that we see.<sup>42</sup> This second assumption must be accepted even by empiricists, given their view that physical object statements constitute a foundation for science. If the representational view of perception is correct, then such statements are made *in virtue of* internal representations of physical objects, though they are no longer to be regarded as reports *about* such representations.<sup>43</sup>

**7.92** Thirdly, if the search for certainty is abandoned, then accepting that realism (the view that there is an external world) is a well-supported hypothesis, would, combined with the other two assumptions, *permit internally-discriminated, externally-derived representations of the real world, when communicated, to constitute an intersubjective basis for science.*<sup>44</sup> The nature of the real world is hypothesised or inferred from intersubjectively — communicated representations of it as arguments to the best explanation of the nature of these representations.

**7.93** According to rational empiricism, no kind of observational judgement can in principle constitute a satisfactory foundation for the acquisition of knowledge

(see Chapter Three). Since observational judgements are the best candidates for a foundation for knowledge, and as such even they are unsatisfactory, it is concluded that there is no such foundation.

**7.94** If therefore there are both internally- and externally-derived representations, then since a rationale being is one who is prepared to take account of all available information, such a being would also be prepared to take account of internally-derived data. Furthermore it can be argued that a rational being would take account of internally-derived data because it is necessary (and hence relevant) to do so for reasons to be spelled out below. The nature of internally-derived representations can be communicated in the same way that the nature of externally-derived representations can be. Not only can we communicate about what we see but about what we think.

**7.95** Externally-derived representations provide information about external objects and other people. Intellectual data in the form of beliefs, judgements, theories, etc. (whilst it is not clear whether such data is either solely externally or solely internally derived) is nevertheless also clearly important in the acquisition of knowledge.

**7.96** Internally-derived representations of one's feelings, desires, motives, intentions, etc. are of vital importance in regard to acquiring information about oneself. According to psychologists and psychiatrists we ignore such information about ourselves at our peril. Not only may these internally-derived representations provide data about ourselves, which may affect how we think, reason and behave, but it may also be a direct source of information about how others think, feel and behave, not just in virtue of what we perceive about other people, but in virtue of what we perceive *about their impact upon ourselves*. Thus if we perceive that we often become angry in the presence of another person, this may be in part because that person is behaving in a hostile way, though this may not be immediately visible in their overt behaviour.

**7.97** Finally, and most importantly for present purposes, the most significant aspect of this internally derived data is that it includes data about ourselves. While some of this information may be already framed as propositions, some of it may require much deeper investigation of our psyches to uncover. Since value judgements are, it will be argued, necessary to justify normative judgements, it follows that one must know what one's values are in order to justify normative claims.

If one is in a situation of moral conflict, then justifying one's normative judgements is necessary. Hence as will be argued in the next chapter, being able to establish what one's values are, is necessary in order to resolve moral conflicts.

**7.98** If one is being rational then one is prepared to examine all available data. Furthermore one selects that data which is relevant to the purposes at hand. Therefore if one is being rational it is necessary, for the above reasons, to examine both internally- and externally-derived data since it is both available and relevant.

**7.99** Introspection was after the turn of the century largely discredited as a means of acquiring information about the mind because it was claimed that it did not provide reliable information.<sup>45</sup> With the development of the behaviourist paradigm, within which the concept of the mind was seen to have no place in any scientific account of behaviour, introspection as a mode of acquiring knowledge of internal events became totally irrelevant in science. However, given the failure of behaviourism to provide satisfactory explanations of behaviour,<sup>46</sup> and given renewed interest in the workings of the mind, the importance of introspection as a mode of acquiring information about internal events has once again been tacitly, if not explicitly, acknowledged within psychology.

**7.100** In empirical psychology it is clear that introspection is necessary for psychological research into the nature of imagery and for certain forms of behaviour therapy.<sup>47</sup> In general introspection is necessary for psychotherapy and for cognitive psychology.<sup>48</sup> In addition to its role in psychology, it is clear that introspection is necessary in order to do philosophy. Therefore it seems that introspection is incontestably a useful, not to mention a necessary, mode of acquiring information. This is particularly so if it is accepted that all information is internally represented, though some is externally derived and some is internally-derived. It seems that internally-derived information at least is only available via introspection. We cannot, it seems, introspect externally-derived information as a representation of reality. It appears to us phenomenologically as reality. This may well constitute at least one phenomenological criteria for distinguishing internally-derived from externally-derived data.

**7.101** Insofar as what we think and feel is a part of any situation and is, it can be argued, an informative and important part, then the only way we can get access to this information either for ourselves or in order to communicate it to others, is by introspection.

**7.102** It has been argued in previous chapters that elements of the rational component are necessary to acquire knowledge. Some of these, such as theoretical judgements, fall into the category of information which is probably largely internally-derived but which in any case is clearly only available to us by introspection. Hence introspection is a necessary means for acquiring knowledge. Value judgements also fall into the category of data which is at least partly internally-derived. If value judgements are required in order to justify normative judgements and are only available to us by introspection then introspection is necessary as a means for us to be able to justify our normative judgements.

**7.103** Thus given that we accept that a rationale being examines all available information and selects that which is relevant, and given certain additional and plausible assumptions, it follows that a rational being not only examines internally-derived information in order to acquire knowledge and to justify normative judgements but of necessity uses introspection as a means of doing so.

## Rationality and acting out of impersonal regard for others

**7.104** A second important consequence of accepting an enriched account of rationality is that it allows the relationship between being rational and having respect for others to be articulated. Rationality is generally regarded as being unrelated to feelings. Respect for persons will be regarded as a moral emotion and it is one which is explicitly a part of every deontological moral theory.<sup>49</sup> Therefore it is an important moral consideration which has to be accounted for.

**7.105** It will be argued that having what will be termed *impersonal regard* for others best accounts for respect for persons.<sup>50</sup> It will be argued that both having and acting out of impersonal regard for others is a consequence of being rational.

**7.106** Having impersonal regard for others is a consequence of four of the requirements for being rational spelled out above:

- i. preparedness to examine all available data;
- ii. the ability to select relevant data;
- iii. the ability to meaningfully organise data;
- iv. the ability to appropriately connect thought and action.

**7.107** Impersonal regard for others is a direct consequence of the ability to rationally apprehend another person's experience. This ability comprises:

- (a) the ability to *recognise* that others are persons like oneself with their own experiences, beliefs, emotions, values, perspectives, etc. This implies in turn the recognition of oneself as a person.
- (b) the ability to *value* other persons similarly to the way that one values oneself as a person. This implies the valuing of oneself as a person.
- (c) the ability to *take another person's perspective* — not just in the sense of being able to intellectually comprehend it — but utilising all information and means available to ascertain what it is like for another to experience their own situation. This includes using imagination to creatively explore another's situation; extrapolating from one's own feelings; introspecting one's own feelings in relation to the other person as a direct source of information about them; and making inferences based on what others say and do. This ability will be termed empathy.
- (d) the ability to recognise that it *is* another's perspective that one is taking.



**7.108** Each of these components of impersonal regard will now be discussed in relation to the four conditions for being rational. The first component instantiates three features of being rational: the ability to meaningfully organise information; the preparedness to utilise all available information; and the ability to select relevant information. Insofar as the recognition that others are persons like oneself is based on analogical inference it involves the ability to meaningfully organise data — in particular to use non-deductive reasoning. Insofar as this recognition derives from the ability to introspect one's own experience in order to use it as a source of information in regard to the existence of other persons, then the ability to meaningfully organise information; the preparedness to utilise all available information and the ability to select relevant information are all involved.

**7.109** The second component of impersonal regard — valuing others as persons in the same way that one values oneself as a person — involves the ability to meaningfully organise information in two of its aspects — deductive and non-deductive reasoning. Firstly, it involves making appropriate value judgements about being a person. This involves non-deductive reasoning. Secondly, it involves being able to generalise that if one values oneself in 'virtue of being a person then this implies the principle that persons are valuable and hence logically one should value others who are persons. Hence it involves deductive reasoning.

**7.110** The ability to take another's perspective involves **i.** the preparedness to utilise all information, including introspected information, and **ii.** the ability to meaningfully organise information, *viz.* to generalise from one's own feelings; to use one's creative imagination; to infer from what others do and say; etc.

**7.111** The ability to recognise that it is another's perspective that one is taking involves the ability to distinguish properly between self and others, *viz.* to utilise relevant data.

**7.112** Acting out of impersonal regard, as opposed to merely having impersonal regard, involves the ability to relate proper thought and action appropriately — a further requirement for being rational. It can be defined as follows: acting out of impersonal regard for others is having impersonal regard as a *p*-reason for what one does. This point will be taken up again in the discussion below.

**7.113** Thus acting out of impersonal regard for others involves the preparedness to utilise all available information; the capacity to select relevant data; the capacity to meaningfully organise data and the capacity to properly relate appropriate thought and action. These are all necessary conditions for being rational. Thus it can be argued that being rational includes at least one kind of feeling as a necessary consequence.

**7.114** It is implicit in what has been said above that an account of what it is to be rational does not just consist of a series of formal requirements on thought but also dictates certain substantive considerations, such as having appropriate action-linked feelings in regard to others. It is desirable to make explicit some features of the relationship between the requirements for being rational and the substantive conclusion that has been reached about impersonal regard for others.

**7.115** There are *prima facie* two sorts of considerations in regard to an account of rationality such as has been presented above:

1. Is the account of what it is to be rational acceptable?
2. If it is, then what constitutes instances of rational views etc., *viz.* those which a rational being would endorse etc.

These two considerations are related as follows: It is suggested that the acceptability of the account of what it is to be rational is to be determined in part, by seeing how well it can explain the substantive actions, feelings, beliefs, etc. that would on the account turn out to be rational. Why such views are rational can then be explained in the manner above, in terms of the account of what it is to be rational. Any satisfactory account of what it is to be rational has to be applicable. That is to say it must be able to explain why and how something is rational as well as providing criteria for establishing whether or not something is rational. An account of rationality and its attendant criteria for being rational is to be assessed, therefore, in terms of plausibility, applicability, and explanatory power, as well as internal consistency and coherence.

**7.116** There is clearly a mutual interdependence of "theory" and "evidence" here (and these terms are used advisedly if metaphorically). However this interdependence is not, it can be argued, viciously circular. The relation between a theory of rationality and those things which are said to be rational on that account, models at a more abstract level, the dialectic by means of which reason (theory) and sensory information (evidence) interact to produce knowledge of the material world. Arguably such an interactive account, implicit in the discussion of theoretical and observational judgements, best explains how we acquire such knowledge. It seems therefore legitimate to use such a model in relation to the more abstract issue of the relationship between a particular account of being rational and the substantive claims, actions, etc. that are said to be rational on the account.

**7.117** A satisfactory account of what it is to be rational therefore must be sufficiently rich to be applicable, *i.e.* to be able to be used to satisfactorily discriminate and justify those things which are said to be rational. The present account of rationality satisfies the requirement of applicability in virtue of being framed in terms of (i) appropriate operations on information and (ii) the ability to act on such information.



**7.118** The substantive conclusions that are implied by the account of being rational are arrived at by supposing that the abilities said to be involved in being rational are applied to a given set of information. The result of hypothetically applying these abilities should be that one arrives at certain substantive conclusions regarding what things are rational. In the present case what is involved is information relating to self and others, given the way the world is. An attempt has been made to show that if the operations consequent upon being rational are performed on information about the relation between self and others, then at least one important substantive conclusion follows: if one is rational then one has impersonal regard for others.

**7.119** The present view is clearly Kantian in both spirit and detail. It is not possible to discuss Kant's moral theory in the depth it deserves within the scope of the present thesis. However, it is important to point out not only important similarities between the present view and Kant's moral theory but at least one significant difference.

**7.120** For Kant, rationality and morality were in the final analysis identical.<sup>51</sup> Kant explicitly rejected the view that it was only possible to act out of enlightened self-interest.<sup>52</sup> Being moral for Kant was acting so as to be solely determined in one's actions by the recognition of their law-like nature.<sup>53</sup> Moral actions were formally those which were universalizable.<sup>54</sup> It was as a result of the operations of pure reason that one was able to derive<sup>55</sup> universal principles on the basis of which to act.<sup>55</sup> Acting according to these principles which one derived oneself was mediated by the will: the faculty by means of which pure reason operated upon one's behaviour.<sup>56</sup> The essence of moral action was the law-likeness of the principle upon which it was based. It was by means of the faculty of the will that one "imposed" this law upon oneself in that one acted upon it irrespective of whether or not this conflicted with one's other desires and feelings.<sup>57</sup>

To act in such a way as to be determined only by pure reason in one's actions was what Kant termed doing one's duty.<sup>58</sup>

**7.121** Kant distinguished between acting for the sake of duty and acting *in accord with* duty.<sup>59</sup> He argued that one could act in accord with duty but still be acting out of enlightened self-interest.<sup>60</sup> However such action could not be moral since even enlightened self-interest is a form of desire and as such the action determined by it does not satisfy the requirement for moral action.<sup>61</sup> One is only acting morally if one acts for the sake of duty and for no other reason.<sup>62</sup> Only then is one acting on the basis of pure reason.<sup>63</sup>

**7.122** Kant allowed the existence of higher or moral feelings, *viz.* respect for the law.<sup>64</sup> However, he argued that this was purely subjective which he explained as an attitude to the moral law that stemmed from perceiving it as deriving from something other than one's own nature.<sup>65</sup> Rather it was something seen as imposed on one, even if only by oneself.

For Kant only God was such as to experience the moral law as in no sense imposed but stemming solely from one's own nature.<sup>66</sup> Trivially therefore it would follow that God would not experience respect for the moral law.

**7.123** There are some important similarities and differences between Kant's view and the one presented here. The present account of morality also closely links being moral to being rational. The notion that there are higher feelings is implicit in the argument that acting out of impersonal regard for others best accounts for a central aspect of moral behaviour, *viz.* respect for others.

**7.124** Kant was clearly right in arguing that it was possible to act out of other than enlightened self-interest. That one can not do so is clearly an empirical hypothesis. Sociobiologists such as Dawkins have put forward arguments that would account for qualities such as altruism (which he reduces to a form of selfishness) in terms of their evolutionary survival value.<sup>67</sup> Whether Dawkins is right or wrong it demonstrates that the issue of whether or not one can only act out of enlightened self-interest is in part an empirical one. It will be accepted without further argument that it is possible to act out of other than enlightened self-interest, though doing so might be infrequent as a matter of fact.

**7.125** On the present view enlightened self-interest is distinct from, and opposed to, impersonal regard. Impersonal regard is a result of the rational recognition of another person's perspective, where this includes what another feels. To recognise another person's perspective in a rational and therefore information-exhaustive way, is to share, in some sense, in that person's point of view. This is to be distinguished from doing something out of a heightened form of self-interest ('I had to do it, it would have made me feel bad not to'). Acting from impersonal regard is to be distinguished from acting out of enlightened self-interest in that one recognises that it is someone else's perspective that one is experiencing, and on the basis of which one is acting.

**7.126** Hence it follows that if acting out of impersonal regard in relation to others is a substantive consequence of being rational, then since acting out of impersonal regard is opposed to enlightened self-interest, acting out of enlightened self-interest in relation to others cannot be a part of being rational. If the claim, to be argued for in the next section, is accepted: *viz.* that morality is a special case of rationality, then it follows that acting out of enlightened self-interest cannot be a part of being moral.

**7.127** The main difference between the present view and Kant's revolves around the notion of what it is to be rational and consequently of the relation between being rational and acting out of impersonal regard. Acting out of impersonal regard is a substantive consequence of being rational. Thus the role of moral feeling on this view is not simply subjective as Kant suggests, *i.e.* a result of the separation between desire and reason that is ultimately a consequence of being human and less than perfect. Moral feeling on the present view is

rather an integral part of what it is to be rational. Given an enriched view of rationality, the role of moral feeling is much stronger than in Kant's scheme.

**7.128** Thus by providing a richer account of rationality, the central role of moral feelings in morality can be better explained, insofar as it emerges as a substantive consequence of being rational that one has, and acts out of, such feelings. This conclusion strengthens the claim to be argued below that morality is a special case of rationality. In particular it counters a possible objection to the view that being moral is a special case of being rational. This is that morality cannot be a special case of rationality since moral feelings play a central role in moral theory whilst being a rational person is opposed to being a feeling person.

**7.129** Failure to properly secure the relation between reason and moral feeling, may account in part for the opposition to Kant's view that acting from one's desire, even the desire to benefit another, could be totally irrelevant to doing one's duty. Kant argues that acting out of desires no matter how worthy these may be has absolutely no moral worth.<sup>68</sup> Conversely he argues that an action that is totally opposed to all of one's inclinations which is nevertheless performed solely for the sake of doing one's duty (acting for the sake of the moral law) does have moral worth and only such actions do have moral worth.<sup>69</sup>

**7.130** If however the notion of rationality is strengthened as suggested so that impersonal regard for others is a substantive consequence of being rational, then acting rationally need no longer be seen as distinct from all feeling for others but only as distinct from feelings which are connected with satisfaction of one's own desires no matter how high-minded or admirable these desires might be. Insofar as one is acting from desire and not from impersonal regard one is acting neither rationally nor morally, on the present view.

## Rationality and morality

**7.131** It was suggested at the end of the discussion of 'ought', 'right' and 'moral' that the appropriate standard for judging that someone was moral<sub>3</sub> or that some action was morally right, was a conception of a rational being and a conception of what a rational being would do respectively (see §§7.55–58). The conditions for being rational (termed being rationale) were spelled out above.

**7.132** In Chapter Two it was argued that a necessary condition for being a value judgement was that a standard be p-implied. It was further argued that the standard was the basis for selecting the objective features on the basis of which the emergent value property (an emergent part) was abstracted, as well as constituting the basis for justifying the application of the value predicate.

**7.133** Thus to claim that the appropriate standard for determining what is morally right is what is rational, is to claim

*that the objective features of elements of behaviour in virtue of which the value predicate 'morally right' is applied, are selected on the basis of a conception of what is rational.*

By the same token the objective features of a person's behaviour, as a whole, in virtue of which the value predicate 'moral<sub>3</sub>' is applied, are also selected on the basis of a conception of what is rational.

**7.134** Thus the judgement that an action is morally right, is a value judgement which is made in virtue of 'the concept of what is rational, being applied to an action in a particular sphere, viz. the moral sphere.'<sup>70</sup> This was defined as the sphere of relations between valuable entities whose elements are such as to be appropriate for evaluation as morally right or wrong. Morally right actions in the moral sphere are ones which are also rational in that sphere and vice versa. Therefore the moral sphere is simply a particular sphere to which rationality is applied. In that sense therefore morality is a special case of rationality.<sup>71</sup>

**7.135** That an action is morally right is a value judgement with pro connotations. It implies that the attitude of the valuer to the value object is positive and/or approving. The reason for having a separate term for rationality when it is applied to the moral sphere is, it is suggested, precisely because of the value placed on the beings concerned. Hence it is of particular importance that the relations between those beings be of the appropriate kind. This is marked by terming this subset of rational behaviour, morally right (or moral<sub>3</sub>) behaviour. Furthermore 'morally right' is a value term whilst 'rational' is not. Hence using a special term 'morally right' is informative about the behaviour in question in a way that 'rational' would not be. Making a value judgement that an action is morally right implies a pro connotation and also that there is a standard. It is being rational that constitutes that standard. Morality is not therefore a special case of rationality in the logical sense that 'rational' implies 'moral'.

**7.136** There are two distinct ways of interpreting the claim that it is what is rational that constitutes the appropriate standard for judging that an action is morally right. Firstly, that this is the standard that is used to determine what is morally right, as a matter of fact, and secondly, that it is the most defensible standard of what is morally right. Even if the former claim should turn out to be false — and it is an empirical claim which is taken on the present view to be true — it can be argued that the latter claim is nevertheless justified.

**7.137** It will be argued below that morality can be said to be a special case of rationality if the account of being rational **1.** satisfactorily accounts for what is intuitively regarded as moral and **2.** coheres with the analysis of moral normative judgements. If it is accepted that morality is a special case of rationality, in the sense that morality is rationality applied to the moral sphere, then it can be concluded that what is rational is justified as a standard for determining what is moral.

**7.138** That rationality is an appropriate standard for judging what is morally right insofar as morality is a special case of rationality, is supported by two sets of considerations. Firstly, it is demonstrated by the close links between central features of what is rational and what is intuitively regarded as moral; in particular, **i.** having reasons; **ii.** having morally appropriate reasons; and **iii.** an appropriate link between thought and action. Secondly, it is demonstrated by the close links between the present analysis of moral normative judgements and the account of being rational. These are **i.** that normative judgements have presuppositions which constitute the e-reasons that justify the judgement; **ii.** that normative judgements constitute an expression of the link between thought and action.

**7.139** In regard to the first set of considerations it can be argued that the notion of being rational is such as to be capable of plausibly accounting for three essential features of behaviour that are intuitively regarded as morally right: **i.** that one have reasons for what one does; **ii.** that the reasons for the behaviour be morally right; **iii.** that there be a proper connection between morally right reasons and behaviour.

**7.140** The requirement that one have reasons for what one does if one is doing what is morally right, coincides with the first requirement for being rational, *viz.* that one have p-reasons for what one does. In regard to the second requirement, *viz.* that the reasons for the behaviour be morally right, it was demonstrated how having impersonal regard for others was a substantive consequence of the account of being rational. It was suggested that having impersonal regard for others best explains the (intuitively) morally right feeling of respect for persons which is central to all deontological moral theories. Thus having impersonal regard for others constitutes one substantive morally right reason for what one does, which can be accounted for in terms of being rational. The third requirement that there be a proper connection between morally right thought -and action also coincides with a requirement for being rational, *viz.* that to be rational is to have the ability to realise proper thought (in this case morally right thought) in action (*i.e.* in morally right action). Moral theory both, substantively and meta-ethically, deals ultimately with action and its relata: with what ought to be done; with what is morally right to do; with what 'right' means; with what 'ought' means; with what 'duty' means, etc. This characteristic feature of morality, *viz.* the practical role of reason is secured in the account of being rational, insofar as this feature of morality is seen as a general feature of rationality.

**7.141** The second set of considerations that support the view that an appropriate standard for what is morally right is what is rational has to do with the analysis of moral normative claims. It was suggested in the discussion of 'ought' that it was univocal (see §§7.8–9). What made a normative judgement a moral normative judgement was the presupposed moral<sub>3</sub> intention. It was suggested that moral<sub>3</sub> intention was analysable as a factual judgement and a value judgement.

**7.142** It was further suggested that what justifies (as opposed to characterises) a moral normative judgement is not only the moral<sub>3</sub> intention, but additional factual judgements about the circumstances in which a person finds themselves and on the basis of which, together with their intention, they decide what to do. It can be argued that the presuppositions of a moral normative judgement are the e-reasons which justify the moral normative judgement that one ought to do X.<sup>72</sup> E-reasons represent the p-reasons that a rational being would have for doing X. Insofar as appeal to e-reasons is also necessary in order to justify moral normative judgements, this supports the view that moral normative claims are a sub-class of rational claims. It is a necessary condition of being rational that one have p-reasons for what they do.

**7.143** There is another feature of moral normative judgements that further strengthens the conclusion that they are a sub-class of rational judgements. The structure of moral normative arguments (arguments to a moral normative conclusion) is such that it *expresses* a relation between thought and action. This is also true of non-moral normative arguments. In particular, in the case of moral normative arguments, what is expressed is a relation between moral<sub>3</sub> intention and what one ought to do. 'Ought', it was suggested, is termed an imperative in that it marks the (non-logical) but epistemically-compelling connection between reasons and action. The connection involved was, it was suggested, non-deductive. Non-deductive reasoning constitutes on the present view an instance of meaningful organisation of information — the ability to meaningfully organise information being a necessary condition for being rational. The use of 'ought' thus linguistically marks a compelling connection between reasons and action — a connection that was, it was argued, another necessary requirement for being rational. *Moral normative judgement arguments thus exemplify the connection between thought and action that is a necessary feature of being rational.*

**7.144** Thus it can be concluded that insofar as the account of being rational satisfactorily explains what is intuitively regarded as moral; and coheres with the analysis of moral normative judgements, morality *is* a special case of rationality. Hence what is rational is justified as a standard of what is moral. If it is accepted that what is rational is justified as a standard for what is morally right, this has important consequences in determining what is required in order to justify moral normative judgements.

## The role of value judgements in moral normative arguments

**7.145** It was argued in the first section that moral<sub>3</sub> intention (consisting of a factual judgement and a value judgement) and a set of factual judgements, regarding the circumstances in which the relevant normative decision was to be made, were both required in order to justify a moral normative conclusion. It can be argued however that these requirements are not jointly sufficient and that there is one more condition to be satisfied in order to justify a moral normative judgement.

**7.146** It will be argued that in order to justify a moral normative claim not only must it include a *particular* value judgement, *viz.* the intention to be moral<sub>3</sub>, and not only must factual judgements be included which describe the circumstances on the basis of which the normative judgement is made, but it must also include other value judgements.<sup>73</sup> *Factual judgements alone will not, even nondeductively, justify a moral normative claim.* The composite judgement regarding moral<sub>3</sub> intention simply determines that the normative judgement is a *moral* normative claim, but is not sufficient, even together with factual judgements to justify the claim. In order to justify a moral normative judgement, additional value judgements are necessary as a category of judgements. This is so because a rational being would utilise both factual and value judgements (apart from those involved in moral<sub>3</sub> intention) in order to determine what ought to be done.

**7.147** It is uncontroversial that factual judgements are required in order to determine what ought to be done, given moral<sub>3</sub> intention. For example, if a person intends to be moral<sub>3</sub> and wishes to justify terminating the life of a particular foetus, then it is clearly necessary to know certain facts such as, for example, that it is suffering from Tay-Sachs disease; the prognosis for this disease; methods of termination which are relatively painless; the parents' wishes, etc.

**7.148** However, there is a reason in principle why value judgements are also required in order to determine what one ought to do given moral<sub>3</sub> intention. This is because *value judgements are required in order to rationally and hence non-arbitrarily select from possible alternatives* whether these be actions, goals, intentions, motives or even sets of facts.<sup>74</sup>

**7.149** Being rational requires meaningful organisation of information. That implies that one does not make arbitrary choices where it is possible to do otherwise. Being rational therefore requires making value judgements in a situation where rational choice is possible.

**7.150** That there generally are always alternatives, and hence the need for rational choices and value judgements for a rational being, is in part a consequence of having a mind. It derives from the capacity of the mind/brain to generate alternatives by operating relatively independently of information coming via the senses. This brings about the capacity to operate relatively independently of situations in

which one finds oneself by being able to imagine other possibilities. Thus the need for choice derives in part from the ability of a rational being to be aware of different possibilities. The nature of the mind/brain is such that other things being equal, alternative possibilities can and will be apprehended at the level of thought. Having a functional mind/brain is a necessary physiological pre-condition for being rational. Therefore, if one is a rational being, the best of these possibilities will be realised eventually at the level of action. The mind/brain confers the ability to perceive alternatives. Rationality confers the ability to choose rationally between the alternatives *by making, value judgements*, as well as the ability to act on the basis of these judgements.

**7.151** That value judgements can be utilised so as to express rational choice, follows in the first instance from the analysis of value judgements and secondly, from a consequence of the analysis (which is that given the legitimacy of non-deductive argument) value judgements are rationally assessable. Hence they can figure as the premises and/or conclusions of non-deductive arguments.

**7.152** There is in any situation a basic alternative in regard to a possible action, *viz.* whether to perform it or not. It is necessary if one is being rational to rationally choose one alternative. This in turn requires a value judgement about which alternative is preferable.<sup>75</sup> The same is true of anything about which rational choices must be made: intentions, beliefs, etc. Rational choice requires evaluating alternatives in relation to a standard, which is either itself taken as given for the purposes of the evaluation, or which is itself open to further evaluation and/or justification by means of non-deductive reasoning.

**7.153** Therefore since value judgements are necessary in order to rationally select from alternatives, and since there are always perceived alternatives in any given situation for a rational being (at least two in regard to a possible action but the number bounded partly by one's awareness and/or imagination and partly by the situation in which one finds oneself) then in order to rationally decide what ought to be done it is necessary to make value judgements. Hence to justify what ought to be done it is necessary to include amongst the presuppositions, *i.e.* the e-reasons that justify a moral normative claim, value judgements as a necessary category of judgements.

**7.154** Hence moral normative judgements require as presuppositions not only moral<sub>3</sub> intention and factual judgements but also value judgements. Jointly these presuppositions constitute the e-reasons which would rationally justify a moral normative claim and which a rational being would have as p-reasons for performing the action in question.



**7.155** Thus the complete analysis of moral normative claims is as follows. A normative claim is a moral normative claim in virtue of presupposing moral<sub>3</sub> intention. This intention is constituted by a value judgement and a factual judgement. In addition moral normative claims presuppose factual judgements relating to the circumstances in which the normative judgement is made. Finally, it has been suggested, a moral normative judgement presupposes value judgements which express rational choice.

**7.156** The presuppositions of moral normative judgements can be represented as e-reasons which would non-deductively justify a moral normative claim as follows:

- P.1 A (where A is a person) has an intention.  
(Factual judgement)
- P.2 That intention is to be moral<sub>3</sub>. (Value judgement)
- P.3 Judgements relating to the circumstances.  
(Factual judgements)
- P.4 Judgements expressing rationally selected alternatives. (Value judgements)

- 
- C. One ought to do Y  
(where Y is a morally right action).

**7.157** The above is a meta-normative argument which specifies the necessary structure of any justified moral normative conclusion, where the standard for determining that the action in question is morally right is what a rational being would do.

**7.158** Basically there are two sorts of value judgements involved in justifying moral normative claims. There are explicit ones of the form 'X is Y' where Y is a value predicate such as 'good', 'worthwhile', 'desirable', 'important', etc. In addition there may be tacit ones involved in deciding for example which facts are significant in a given situation. Some of the latter sort of value judgements may be tacit in fact and perhaps even in principle.<sup>76</sup>

**7.159** Therefore both factual and value judgements are required in order to justify a moral normative claim if the standard for determining what is morally right is what a rational being would do.

**7.160** This completes the discussion of moral normative judgements. In the chapter to follow some general considerations about the requirements for moral conflict resolution will be proposed.

## CHAPTER SEVEN NOTES

1. Stevenson (1944), esp. pp.20-25. Ayer (1970), Ch.VI, esp. pp.102-103; p.108. See Urmson (1968) for a critical discussion of emotive theories of ethics.
2. Perry (1976), esp. Part II. Wiggins (1976), esp. pp.364-365. Platts (1979), Ch.X. See also Guinlock (1972) for an account of Dewey's moral philosophy; also Baier (1958), pp.173-180. Both the latter also held that moral judgements could be true or false.
3. Hare (1970), pp.83-86; p.94.
4. Wertheimer (1972), p.88.
5. *Ibid.*, p.92; p.113.
6. Sellars (1968), p.192.
7. *Ibid.*, p.180; p.184.
8. Wertheimer (1972). p.84.
9. Nowell-Smith (1969), pp.267-268.
10. See Singer (1976) for an extended argument, which though basically a utilitarian position, also implies that animal life is valuable.
11. Sellars (1968), p.220.
12. All references relating to Kant will be to Kant's Groundwork of the Metaphysic of Morals in Paton (1966) and will be referred to as Kant in Paton (1966) Kant in Paton (1966), p.84.
13. Sellars (1968), pp.224-226. Kant in Paton (1966), p.100.
14. Smart (1969), p.41.
15. Wertheimer (1972). For Wertheimer the circumstances include but are not limited to factual judgements. (See pp.114-115.)
16. Sellars (1968), p.182; pp.194-195.
17. Hempel, (2) in Hempel (1965), pp.88-89. Baier (1958), p.93.
18. Frankens (1973), p.98. Frankens quotes R.B. Perry's definition of 'right'.
19. Mill on the other hand explicitly introduced the principle of utility as a standard. See Mill (1962), pp. 257 and 262.
20. Lukes (1970), pp.207-208. Bennett (1971), pp.1-4.
21. The positivists attempted initially to deductively relate observational judgements to theoretical judgements (see Hempel, (1a) in Hempel (1965), pp.102-107). Later they attempted to analyze confirmation in terms of the deductive theory of probability (see Hempel, (3) in Hempel (1965)).
22. Lukes (1970), pp.208-213.
23. Laudan (1977), Prologue.
24. See Plato's Meno (88-89), in Sesonke & Fleming (1965). Kant in Paton (1966), p.76. See also Sellars (1968), p.175.
25. Marx's Theses on Feuerbach in Easton & Guddat (1967), pp.400-402.
26. Kant in Paton (1966), pp.76-77. 'Practical wisdom, then, must be a reasoned Emy italics and true capacity to act with regard to human goods.' (The Nicomachean Ethics, Book VI, (5), 1143<sup>b</sup>6-1140<sup>b</sup>). See Ross (1972), p.143.

27. *Ibid.*, p.182. 'Further, a man has practical wisdom not only by knowing but by being able to act...' (Nic. Ethics, op. cit., 1152<sup>a</sup>5-1152<sup>a</sup> 23).
28. See Skinner (1957) for a classic statement of this view.
29. *Ibid.*, pp.5-12.
30. See Ch.2, Note 42, for references on cognitive psychology. See also Weimer (1974).
31. Kohlberg (1971)(esp. p.391) presents the view, derived from Piaget, that cognitive development is a necessary but not a sufficient condition for moral development. On this view there are causal links postulated between rationality and morality. The view presented in this thesis implies a stronger connection, and a fortiori a stronger developmental connection, viz. that rationality is causally necessary and sufficient for morality, hence that rational development is causally necessary and sufficient for moral development.
32. Kant in Paton (1966), p.84, n.1.
33. Ross (1972), pp.150-151. (The Nic. Ethics, Book VI (9), 1142<sup>b</sup>11-1142<sup>b</sup>30).
34. Mundle (1971), p.68.
35. Hume (1962), pp.45-46.
36. *Ibid.*, pp.78-79; pp.239-240. Mundle (1971), p.68.
37. Toulmin (1969), pp.33-36. See also Von Mises (1951), Ch.'s 7 & 8.
38. Lakatos (1978).
39. Neurath (1959), pp.199-201. Hempel (1959), pp.109-110.
40. See Ch.4, Notes 5-8, for references on perception. See Mace (1974) for a good general discussion, especially of J.J. Gibson's "realist" views of perception.
41. Eaton (1930), pp.34-39, quotes Brentano on this distinction.
42. See Quine (1960), p.27; p.72, for a statement of the indeterminacy thesis. Quine's view is that since there are no meanings, from a behavioural point of view, translation is indeterminate. His argument that there are no meanings itself relies in part on the view that meanings (intentions) cannot be satisfactorily explicated in terms of behaviour.
43. Phenomenalism holds that we see sense data. Representative views of perception hold that we see objects in virtue of seeing representations of them but we do not see the representations as such.
44. Putnam (1978), p.123.
45. Neisser (1976), pp.1-2.
46. See Weimer (1974). Erwin (1978), Ch.3. See also Brewer (1974) and Mackenzie (1977).
47. See Erwin (1978), pp.xv-xvi; pp.22-27. See also Kosslyn & Pomerantz (1977). See also Ch.1, Note 8, for references on mental representations.
48. See Ellis (1977).
49. Solomon (1971), Ch.8, esp. Parts 3 & 4. See also Kant in Paton (1966), p.66, n.2, on moral feelings — in particular on the feeling of reverence for the law. See Downie (1969), esp. p.23. See Solomon (1978), esp. pp.325-326, for a discussion of impensor passion which fits well with what is here termed a moral emotion.
50. cf. Sellars (1968), p.212. See also Downie (1969), PP.23-37, esp. p.24.
51. Kant in Paton (1966): " a critique of practical reason, if it is to be complete, requires, on my view, that we should be able at the same to show the unity of practice and theoretical reason in a common principle, since in the end there can be only one and the same reason, which must be differentiated solely in its application." (p.57)
52. *Ibid.*, p.72. Kant agreed, however, that it may be that there have been no instances of it (see Kant in Paton (1966), p.72).
53. *Ibid.*, p.66.
54. *Ibid.*, pp.67-68.
55. *Ibid.*, pp.66-67; P.76.
56. Loc.cit.
57. *Ibid.*, p.67; p.77.
58. *Ibid.*, pp.65-66.
59. *Ibid.*, p.71.
60. *Ibid.*, pp.71-72.
61. *Ibid.*, p.63; p.65.
62. *Ibid.*, p.65.
63. *Ibid.*, p.66.
64. *Ibid.*, pp.66-67.
65. *Ibid.*, p.77.
66. *Ibid.*, p.78.
67. Dawkins (1976), Ch.I.
68. Kant in Paton (1966), pp.63-64.
69. *Ibid.*, pp.64-65.
70. For clarity and convenience, in the discussion to follow the subscript on 'moral,' will be omitted (*i.e.* 'moral<sub>1</sub>'='moral'). Instead of 'moral<sub>2</sub>,' 'morally right' will be used. The subscript on 'moral<sub>3</sub>' will be retained to distinguish it from 'moral.'
71. Morality is not strictly a special case of rationality since 'moral<sub>2</sub>' and 'moral<sub>3</sub>' (the relevant terms in this context) are value terms while 'rational' is not. That is to say 'rational' does not logically imply 'moral<sub>2</sub>' or 'moral<sub>3</sub>'.
72. This is consistent with the notion of a presupposition spelled out in Chapter 3 (see pp.123-126 ).
73. Nowell-Smith (1969), p.116.
74. Eiaier (1958), p.93. Hempel, (2) in Hempel (1965), p.86; p.89. Sellars (1968), p.175; also pp.200-205.
75. Nowell-Smith (1969). p.161. Hempel, (2) in Hempel (1965), pp.88-90.
76. Hempel, (2) in Hempel (1965), pp.88-90, esp. p.89.
77. Polanyi (1962), pp.134-142.

## Ch.8 — SOME SUGGESTIONS TOWARDS A THEORY OF MORAL CONFLICT RESOLUTION

**8.1** In the previous chapter it was argued that both facts and values are required in order to justify moral normative conclusions. Factual judgements state what is the case. Value judgements express rational choice between alternatives.

**8.2** If it is true that arguments to a moral normative conclusion require both facts and values, then it follows that in presenting such an argument in a moral conflict situation, it is necessary to articulate both the factual and value judgements on which the conclusion is based. This is necessary for adequate intersubjective assessment of an argument to a moral normative conclusion. What appears to be a disagreement about facts in moral controversies may be a disagreement about values.

**8.3** Insofar as value judgements are not regarded as amenable to rational evaluation, it is not regarded as either necessary or even relevant to make them explicit in considering an argument. The rational assessability of value judgements was argued for in Chapter Five. Value judgements are not thought to be rationally assessable for at least three additional reasons, apart from accepting a sharp fact/value distinction (which implies that they are not rationally assessable in virtue of being significantly dissimilar to facts). These three reasons which seem important to consider are as follows:

- I. the possibility of endless discussion in principle of value judgements;
- II. the emotional terminus point of discussion of value judgements;
- III. the existence of fundamental values.<sup>1</sup>

**8.4** The first objection to the view that value judgements are rationally assessable is that there is no rational stopping point to discussion of value judgements. Therefore it is possible to continue to discuss value judgements indefinitely in principle. Hence it may be claimed that since there is no way of deciding which value judgement one ought to accept by means of argument, there is no rational way of deciding which value judgements are appropriate. This view is often related to the notion that value judgements are purely subjective (in any or all of the ways spelled out in §§2.66–67).

**8.5** The second objection to the claim that value judgements are rationally assessable is that there is an emotional terminus point to discussion of values, where discussion ceases because one or other participant refuses to continue on emotional grounds. This can be regarded as either **i.** an occurrence as a matter of fact; **ii.** as an occurrence which follows from the subjective nature of value judgements as a matter of principle;

where reaching an emotional terminus point in discussion is regarded as being incompatible with being rational.

**8.6** The third objection to the rational assessability of value judgements derives from appeal to the existence of fundamental values. This is a view of values that parallels the foundational view of facts. There are fundamental values, on which other values are based and which are not independently questionable. In the case of factual judgements the rationality of the basic (observational) judgements is seen to be transferrable to the non-basic (theoretical) judgements.

In the case of value judgements the irrationality of the basic (fundamental) value judgements is transferred to the non-basic (non-fundamental) value judgements.

**8.7** However, it can be argued that none of these considerations are sufficient to count against the rational assessability of value judgements insofar as they are all objections which can be made to factual judgements. If they are not sufficient to show that the latter are not rationally assessable, as it can be argued they are not, then they are insufficient to show that the former are not rationally assessable.

**8.8** In regard to the possibility in principle of the endless discussion of factual judgements, factual and value judgements are in the same position. There is a traditional argument for scepticism that is as follows. In order to derive a true conclusion it is necessary to show that the premises are true. So either there is an infinite regress of deductive argument, and hence nothing is ever proved, or some premise must be accepted without proof. Either of these alternatives lead to the conclusion that no claim can ever be justified.<sup>2</sup>

**8.9** Even if it is accepted that non-deductive argument is a legitimate form of argument, the same objection can be made. In order to accept the conclusion of a non-deductive argument, it is necessary to accept the premises. Therefore there is either an infinite regress of non-deductive arguments for the premises or a premise is accepted without argument. Hence no claim can ever be non-deductively justified.

**8.10** Therefore it can be seen that the problem of an infinite regress of arguments holds not only for value judgements but for factual judgements *in virtue of the nature of argument*. The conclusion of an argument can only be accepted on the basis of accepting premises, which themselves have either to be accepted without argument or have to be argued for in turn. Either way it is concluded that since no terminus point for argument can be arrived at by means of argument and since accepting a conclusion without argument is unjustified, no conclusion is ever justified.

**8.11** Therefore insofar as this argument for scepticism is accepted it demonstrates that in principle no judgement can ever be justified by deductive or non-deductive argument whether it be a value judgement or a factual judgement. Since this is not taken to be sufficient to show that a factual judgement cannot be justified, then neither is it sufficient to show that value judgements cannot be justified.

**8.12** It will be argued below however, that while the argument for scepticism does show that in principle there is no stopping point for argument by means of argument this does not mean that there is no rational stopping point at all at least in regard to moral judgements.

**8.13** The **second** objection is that there is an emotional terminus point to discussion of value judgements. In reply to the first part of this objection, that this emotional terminus point occurs as a matter of fact, it can be argued that people cling to their world views as tenaciously as they cling to their views regarding what is valuable or worthwhile. Hence the terminus point to discussion about facts also seems in part to be an emotional one. The history of science bears ample witness to the tenacity with which people maintained that the earth was or was not flat; that the earth did or did not move around the sun; that there was or was not a God or devils; that anaesthesia or antiseptics did or did not work. Although the development of science is often presented as an orderly accumulation of truths, its history is littered with putative facts over which people fought and for which they sometimes died. Therefore it is not just discussion of values that has as a matter of fact an emotional terminus point.

**8.14** The parallel between facts and values holds not just in the case where there is an emotional terminus point to discussion as a matter of fact. It can be argued that it holds also in the case where having an emotional terminus point is regarded as resulting from the nature of factual judgements in principle. Kuhn, for example, having rejected the claim that observational judgements can provide a secure epistemological foundation for science, defended the role of dogma in science.<sup>3</sup> It can be argued that defending the role of dogma in science is equivalent to rationally defending an emotional terminus point to discussion of factual judgements.

**8.15** Dogma in science may be rationally defended on the grounds that it is essential in order to ensure proper development of a new theory which is as yet unsupported by experimental evidence; in order to protect a theory in the face of apparently contrary or anomalous evidence, or as Kuhn argues, in order to be able to practise normal science.<sup>4</sup> Being dogmatic can be regarded as due in part to an intellectual emotion; or to an emotional and personal commitment to one's own beliefs or, less charitably, to stubbornness, unreasonableness or pride, depending on one's point of view.

**8.16** In any event to hold a view dogmatically can be equated with holding it on justified emotional grounds. To argue that dogma is necessary in science can thus be to argue for a role for the 'intellectual passions' as a necessary feature of advancing knowledge.<sup>5</sup> If the empiricist view that purely observational judgements can constitute a basis for either confirming or rejecting theoretical judgements is itself rejected, then a problem remains in regard to what does constitute a rational basis for theory choice. Kuhn's arguments about the necessary role of dogma in science

constitutes part of a non-empiricist account of how theories are chosen.

**8.17** It can be argued that there are similar reasons for being dogmatic (and in that sense emotional) about values. It may be necessary to adopt some value system to live by in order to guide one's behaviour in the world. The role of value judgements in a person's belief system, can be likened to the role of a paradigm which is necessary for generating scientific research. It may be as necessary to have some value system to live by as it is necessary to adopt some set of factual beliefs in order to do normal science.

**8.18** Value judgements may be so deeply integrated with a person's world view that to question that value may not, beyond a certain point, be desirable or easily achieved since it would require radical change of their world view. Sometimes one's deepest and most basic value judgements would require enormous skill, persistence, and energy to uncover. There has to be, *prima facie*, good reason for such effort. Questioning of one's values by another, or being confronted by an alternative value system, or even perceiving that one's values do not seem to be adequate to a particular situation to guide one's behaviour may not constitute sufficient grounds to go through the difficult process of revising them or the even more difficult process of finding satisfactory new values.

Thus it may be as rational to dogmatically defend value judgements as it is, it can be argued, rational to dogmatically defend factual judgements. Therefore it may not only not be incompatible with being rational to hold to values emotionally (i.e. dogmatically), it may even be *part* of being rational to do so.

**8.19** In regard to the final objection, that there are absolutely fundamental values which cannot be questioned, once again there is a parallel in regard to factual judgements. As mentioned above, factual judgements (including theoretical judgements) can be fundamental in the sense that they are integrally related to an associated set of beliefs. These assumptions constitute part of what Kuhn termed a paradigm, *e.g.* the assumption that the speed of light is constant is part of the Einsteinian paradigm.<sup>6</sup> These fundamental views are not independently defensible but are only defensible in terms of their relation to the rest of the system and in the light of evaluation of the system as a whole.<sup>7</sup>

**8.20** Recognising fundamental factual assumptions can sometimes be difficult, *e.g.* Einstein's re-examination of the assumptions involved in the notion of simultaneity were regarded as a work of genius.<sup>8</sup> Changing these fundamental assumptions may not be possible without radical change of world view of the sort involved in the transition from a Newtonian to an Einsteinian paradigm. Examination of these fundamental views may not be desirable without good reason: *viz.* wholesale failure of a paradigm to generate further puzzles or accumulation of numerous and/or significant anomalies. Changing one's fundamental factual judgements



may certainly be as complex as changing fundamental value judgements. The above views of the nature of fundamental factual judgements are not necessarily being endorsed here. All that it is intended to show is that an acceptable view of facts can be, and has been, proposed in which factual judgements are not dissimilar from value judgements in the relevant respects.

**8.21** It can be argued that value judgements are fundamental in the sense suggested above, *viz.* value judgements are integrally related to other value judgements and cannot be evaluated independently of evaluating the whole system to which they belong. However, this does not imply that they cannot therefore be rationally assessed, since it does not in the case of factual judgements. Therefore the existence of fundamental values is not sufficient to show that these values cannot be rationally defended and a fortiori that the non-fundamental values connected to these cannot be rationally defended.

**8.22** Therefore it can be concluded that none of the additional objections to the view that value judgements are rationally assessable can be maintained, since the same objections are inadequate to show that factual judgements are not rationally assessable.

**8.23** It was argued above that it is in principle possible to continue to consider arguments indefinitely for either factual or value judgements, whether these be deductive or non-deductive. For any argument the premises of the argument can be questioned. Either these are accepted without argument or a further argument is proposed for that premise. So either there is an infinite regress of argument or a premise is accepted without argument. In either case no conclusion can ever be justified.

**8.24** There is however an ambiguity in the notion of being justified. In one sense 'justified' implies 'accepted on the basis of good reasons', *i.e.* on the basis of a good argument. This will be termed 'justified<sub>1</sub>'. In another sense 'justified' implies 'warranting acceptance'. This will be termed 'justified<sub>2</sub>'. In the sceptical argument the two senses are collapsed. A conclusion is assumed to be justified only if it is able to be supported by argument. However, as was argued in Chapter Five, a conclusion can be accepted on grounds which are tacit in principle and which cannot be articulated. Hence such a conclusion cannot be justified in the first sense — not justified. Observational judgements in particular are regarded as confirmed by sensory knowledge. In that sense one is warranted in accepting them on the basis of sensory knowledge. Hence they are justified<sub>2</sub> — by sensory knowledge — though that knowledge cannot be articulated as premises of an argument. Thus one way of avoiding the sceptical conclusion is to argue that at least some premises can be justified<sub>2</sub> without being justified<sub>1</sub>.

**8.25** It was argued above that being dogmatic could be rationally defended. Hence an emotional terminus point for argument can be justified<sub>1</sub>. However, there is another

terminus point for argument which is a consequence of one of the requirements for being rational. Insofar as being rational requires the ability to realise thought in action, it follows that there is a kind of thought that has its terminus point in action or for which action is an appropriate stopping point. Hence there can be a terminus point for argument which is justified<sub>2</sub>, but may not be justified<sub>1</sub>.

**8.26** It will be argued below that discussion regarding what ought to be done can have a rational terminus point in a decision which is realised in action. This sort of decision will be termed an action-determining decision. If such a view is accepted, it follows that there is a rational terminus point for discussion of moral judgements. Furthermore, it can be argued that in certain circumstances not discussing a situation further can be the most rational thing to do.

**8.27** It can be irrational in a situation of moral conflict to continue to consider arguments. A decision to continue discussion is itself a decision to take a certain course of action at the meta-level, as it were. In a situation of moral conflict where there is disagreement over what ought to be done, there is an important meta-question regarding whether or not one ought to continue discussion. When considerations such as people's lives are involved or their health or well-being (and such considerations predominate in biomedical contexts) it follows that moral conflicts must be resolved by choosing a course of action.

**8.28** The resolution of moral conflict occurs therefore when an action-determining decision is made (at the normative level).<sup>9</sup> It is a sufficient condition for moral conflict resolution that agreement is reached about the reasons for holding a normative view and hence for accepting the conclusion as a correct, and therefore rational, guide to action. However, it is not necessary. It may be rational to choose a course of action even though in principle, agreement has not been reached about what ought to be done.

**8.29** Discussion of opposing viewpoints is however necessary, other things being equal. In the case of opposing viewpoints, both sides if rational, will have *p*-reasons for their conclusion in regard to what ought to be done. Both sides by way of being open to all available information will be prepared to consider opposed viewpoints and will be prepared to critically evaluate their own views. Hence undertaking intersubjective discussion of opposing viewpoints is a consequence of being rational.

**8.30** In the case where however a meta-decision must be made in regard to whether or not to continue discussion, and where other pressing rational/moral considerations dictate that an action-determining decision has to be made, it may be necessary to resolve the conflict by a value judgement about what in the circumstances is the best thing to do.

This judgement must be made by those who are ultimately responsible for the decision. Therefore moral conflict resolution, if rational, may rely ultimately on a value judgement. Value judgements themselves, it has been argued,

can be rationally supported on the grounds of factual, value or moral considerations, *e.g.* failure to reach agreement and the necessity of action due to other moral considerations, can be an important ground for not continuing discussion, but rather making a value judgement about the best course of action, is if no agreement has been reached about what ought to be done but the source of disagreement has been identified as being over either fundamental facts or fundamental values.

Fundamental views can be so integrally involved in one's entire corpus of beliefs that changing them may not simply involve discussion but may involve different life experience. Therefore, other things being equal, if fundamental views differ this may prevent agreement being reached or may even prevent discussion from being a very likely way of resolving the conflict. Such a situation can occur for example where the participants in a discussion about abortion have differing religious views. Such fundamental sources of disagreement make it improbable that without massive personal changes by the participants agreement will be reached. This would justify not continuing discussion, at least for the purposes of arriving at agreement about what ought to be done in a particular situation. Rather one would make a value judgement about the best action-determining decision in the circumstances.

**8.31** Therefore resolution of moral conflict occurs either if agreement is reached about what ought to be done in virtue of agreement about the facts and values on which the normative conclusion is based; or an action-determining decision is made in regard to what ought to be done by the person or persons ultimately responsible, in virtue of a value judgement being made about which course of action is best.

**8.32** It has been argued that proposing and considering arguments is necessary, if not sufficient, in order to rationally resolve moral conflict. There are certain requirements which it is necessary to fulfil in order to rationally propose and consider arguments in situations of moral conflict. Since moral conflict occurs between human beings, some of these are psychological considerations. They are arguably part of what is rational in the realm of interpersonal behaviour. Other requirements involve skills regarded as philosophical which comprise what is rational in regard to dealing with concepts and argument.

**8.33** It is assumed for the discussion to follow that what is under consideration is a model of rational conflict resolution where the persons involved in the conflict are rational beings. It will be assumed for the sake of simplicity that the conflict is occurring between two individuals.

**8.34** Firstly, in order to evaluate the argument of someone with whom one disagrees, it is necessary to understand the other's position. Conversely it is necessary that one be understood by one's opponent. In order to fully understand someone else's viewpoint empathy may be necessary (see §7.107) so as to gain the maximum amount of information about someone else's position. In addition introspection may also be required in order to establish further information about

the other on the basis of one's own internal responses (see §7.96). Both of these psychological abilities need to be exercised in order to satisfy the requirements for being rational, *viz.* utilising all available information and being able to select relevant information.

**8.35** Secondly, in order that one be understood by someone else it is necessary to clearly articulate one's position. Articulation is required in order to enable one's opponent to properly understand one's position and hence be able to evaluate one's point of view. It has been argued that both facts and values are necessary in order to arrive at and rationally justify a moral normative conclusion. Therefore it follows that in proposing a moral normative conclusion it is necessary to articulate both the factual and value judgements on which it is based.

**8.36** The requirement that one articulate one's value judgements leads to a third requirement for rational resolution of moral conflict. As argued above just as it is necessary to have knowledge of the external world in order to present the facts in relation to a situation, so it is necessary to be aware of and to have knowledge of one's internal world so as to recognise one's values and hence be able to articulate them. Particularly in the case of mental values, this may be difficult. Therefore one must be prepared and able to introspectively examine oneself in order to establish one's values so as to be able to state them honestly and clearly to someone else. It is rational to introspectively examine one's own values insofar as it is a consequence of two requirements for being rational: being open to all available information and being able to select relevant information. It is necessary to do so in order to be able to articulate one's values, which may be required in turn to rationally resolve moral conflicts.

**8.37** The above considerations for rational moral conflict resolution stem directly from two requirements for being rational, *viz.* being open to all information; and selecting relevant information. It was also argued in Chapter Seven that a substantive consequence of the account of rationality is that it is rational to have impersonal regard for others. A result of having impersonal regard for others is that one approaches situations of moral conflict with basic good will towards those with whom one disagrees insofar as having regard for others includes having regard for their views and opinions. Therefore good will is the fourth requirement for rationally proposing and considering arguments in a situation of moral conflict.

**8.38** Having good will towards one's opponent in a situation of conflict requires a certain degree of ego stability, which constitutes therefore the fifth requirement for rational moral conflict resolution. Whilst it is not possible to argue in detail that this is so, it will be assumed that ego-stability is a rational attitude to have towards oneself in the same way that impersonal regard is the rational attitude or emotion to have in relation to others. That is, when the requirement for being rational is applied to the substantive sphere of information

in regard to oneself, it is rational to regard oneself in such a way that one has a stable ego. That this is so is a fundamental, if tacit, assumption of all psychotherapies. Ego-stability confers amongst other things the ability to tolerate disagreement with one's views without hostility.

**8.39** The sixth requirement for rational moral conflict resolution is also a consequence of impersonal regard: *viz.* respecting the other person and therefore wishing to know why they hold the views they do. Therefore it is rational to have an interest in communication with one's opponents.

**8.40** The seventh requirement is preference for rational means of conflict resolution. This is also a consequence of impersonal regard since using force is, other things being equal, contrary to respect for persons.

**8.41** Thus empathy; the capacity for introspection; the ability to articulate, are all required for rational moral conflict resolution. These are subtle skills, which as such can be developed and/or learned. They are essentially the skills required for good philosophy combined with the skills of good interpersonal relations. All are necessary for rational moral conflict resolution. The conclusion that this is so is a consequence of applying the requirements for being rational to the sphere of moral conflict resolution in order to determine what is rational in that sphere.

**8.42** Philosophical skills are required in order to articulate and understand one's own ideas in an appropriate way as well as permitting them to be structured into clear explicit arguments. Such skills are also required in order to comprehend what others are saying. Good interpersonal relations, essentially involving impersonal regard for others, are required in order to be able to rationally propose and consider arguments in a conflict situation, without undue interference from irrelevant emotional and other internal factors of which the person is unaware or which they cannot control.

**8.43** The above discussion of rational moral conflict resolution is based on a model of moral conflict occurring between two rational beings. There are two fundamental assumptions that can prevent this model being realised. The first is the belief that moral judgements cannot be rationally resolved. This is at the very least a confusing belief since moral issues are widely discussed as a matter of fact. To discuss moral questions is to tacitly commit oneself to the view that moral issues can be rationally discussed. The overtly held belief that they cannot be, conflicts with the belief implicit in people's practice. The view that moral judgements cannot be rationally discussed derives fundamentally from empiricism.

**8.44** The second assumption concerns what it is to resolve moral conflict rationally and derives from an excessively narrow view of rationality.<sup>10</sup> The conservative view of rationality is also closely tied to empiricism. Both these assumptions have been considered at length in the course of

the thesis. Their specific relevance in the present context will be discussed briefly below.

**8.45** Kant's *Critique of Pure Reason* constituted the first sustained attack on empiricism. The subsequent full critique of empiricism, and a fortiori of a thoroughgoing empiricist account of science, has undoubtedly constituted the most significant philosophical development since Berkeley, Locke and Hume enunciated the empiricist philosophy. The rejection of empiricism has important philosophical consequences, not only in regard to philosophy of science but also in regard to views about moral judgements, value judgements and rationality.<sup>11</sup>

**8.46** Empiricism leads to a particular view about science which has become widely entrenched. Empiricists of whatever persuasion generally believe that facts express truths; that science deals only with facts; that science consists of a steady approach to the truth and of an accumulation of truths, discarding falsehoods and errors along the way.

**8.47** Value judgements and moral judgements are not facts. Hence they are not capable of being true or false and hence they cannot be assessed or rationally discussed. In order to reject this view that moral conflict cannot be rational it is necessary therefore to reject the empiricist assumptions on which such a view is based. Arguments against these assumptions have constituted a major part of this thesis.

**8.48** This second barrier to belief in the possibility of rational moral conflict resolution derives from an excessively narrow notion of rationality. The whole of philosophy of science can be seen to be concerned with the question of the circumstances under which it is rational to accept a hypothesis as true. The positivist tradition can be seen to have assumed that it was possible to represent this process of acceptance as a deductive argument. The post-positivist tradition has generated increasingly more complex accounts of what leads to acceptance or rejection of theories, including historical, and sociological explanations of what scientists do.<sup>12</sup> These views suggest that proposing and considering arguments, both deductive and non-deductive, constitutes only part of the process of accepting or rejecting a theory. It seems as though the process by means of which scientists arrive at knowledge can only partly, if at all, be satisfactorily reconstructed as arguments, either deductive or non-deductive.

**8.49** The issue that emerges in regard to rationality is therefore this: is a narrow notion of rationality to be maintained and is the behaviour of scientists to be deemed irrational or even arational; or is the notion of rationality to be extended so as to give license to describe what scientists do as rational?<sup>13</sup> What is involved is a confrontation of a received notion of rationality with novel philosophical/empirical considerations in relation to the activity of science.

**8.50** A similar problem in relation to morality has emerged in the course of the discussion. Given certain philosophical and empirical considerations in regard to moral discourse, the received notion of rationality seemed too narrow to be able to satisfactorily account for the rationality of moral discourse (given the non-empiricist assumption that it is rational). Consequently the notion of rationality has been modified, not just so as to make moral reasoning rational but, even more strongly, to make morality a special case of rationality.

**8.51** It is not possible in the context of the present thesis to investigate further the proper relation between notions of rationality and contemporary philosophy of science.

Nevertheless the conclusion that it is important to modify the concept of rationality is further strengthened if developments in the philosophy of science are taken into account. It can even be argued that the reasons for modifying the concept of rationality that derive from contemporary philosophy of science are more powerful than the reasons deriving from considerations about moral discourse, compelling as the latter may be.<sup>14</sup> If the analytic/synthetic distinction is rejected, then modification of the notion of rationality may be warranted insofar as definitions are revisable in virtue of empirical/philosophical considerations (see §§3.38–51).

**8.52** The difficulty of resolving moral conflicts in a rational way does not seem less than the difficulty of doing good science. Time, effort, will and skill are required to resolve both moral problems and questions about the natural world. Resolving moral conflict does however seem to require some skills and attributes different from those required for doing good science including, amongst others, psychological integrity; philosophical skills of analysis and articulation; good will; ego-stability; empathy and a capacity for introspection. Thus the skills of good interpersonal communication and good philosophy are both essential for moral conflict resolution. In the final analysis it may even turn out to be necessary for good science.

**8.53** A rational person is on the present view a person of integrity and a reasonable degree of mental health. Thus the concept of being rational brings unity to three apparently diverse aspects of rationality: having appropriate intellectual skills; being moral (*i.e.* having rational skill in action as well as impersonal regard for persons) and being sane (*i.e.* having ego-stability and mental integrity). Whilst the first feature of being rational is associated with doing good science; it has been argued that all three aspects of rationality are required for rational moral conflict resolution.

**8.54** Lest it be thought that the case has been made out too well and resolving moral conflict is not only difficult but well-nigh impossible for human beings, the following remarks are pertinent.

**8.55** Humanistic psychology has focused a great deal of attention on the psychological barriers to having integrity, good will and a stable ego: *i.e.* of being a rational person. The barriers include tension, anxiety, stress, accumulated anger,

lock of sense of self, lack of self-confidence; lock of self-love, fear etc. It has been stressed that one may learn good habits and may acquire the skills of good interpersonal relations. These skills, like learning to play the piano, require effort and attention to acquire. Being rational is an ideal which people do as a matter of fact hold out for themselves even if they cannot always attain it. That this ideal can, with appropriate action, be attained is a fundamental assumption of humanistic psychology.<sup>15</sup>

**8.56** These developments in psychology can be incorporated into a larger recognition of what constitutes mental health, what constitutes its absence and what steps may be taken in order to become mentally healthy.<sup>16</sup>

The consequent recognition that so many people are to varying degrees not mentally healthy and that this can determine and warp the nature of human interaction on a wide scale must also be taken seriously before the situation can begin to be dealt with. The goal of understanding ourselves as human beings and learning to control our own natures seems at least as important a goal as understanding the structure of matter and gaining control over the rest of the natural world.

**8.57** The intended implication of the above remarks is that rationality and hence morality, can be developed and/or learned. From humanistic psychology emerges a picture of what it is to be mentally healthy; some means of attaining it; and a recognition of the skill aspect of human relations. The findings of humanistic psychology can be incorporated into an account of what is required for rational moral conflict resolution and indeed it seems that they must be. Rationality, mental health and the capacity to rationally resolve moral conflict are intimately connected in theory as well as in practice.

**8.58** The above account of moral conflict resolution has been presented as a model of decision-making between rational beings. As such it is both something to be striven for and something, which it is hoped, illuminates actual features of successful conflict resolution. The model of moral conflict resolution spelled out above is congruent with the ideals, if not always the practice, of the scientific community: that there be a disinterested group of men and women dedicated to the pursuit of knowledge: with good will towards each other as members of the same community; prepared to examine each other's views objectively and prepared to critically evaluate their own views in a civilized manner and with integrity.<sup>17</sup>

**8.59** That this model is not always applicable to scientists any more than it is to most people having an argument about a moral issue is not to the point. The model exists as an ideal. The interesting question is: is the ideal attainable? Too swift an answer to this question seems unwarranted. It is as Hobbes spelled out so clearly a question of human nature and of its limits and possibilities. Hobbes understandably pre-empted the answer.<sup>18</sup> Such a question is not, however, to be decided a priori. Too definitive an answer to what human beings can achieve relies ultimately on a view about what is the case.



Too certain a view about any matter of fact is not rational. This is so particularly in the light of what has been said about the nature of scientifically acquired knowledge. Striving for a goal can lead to attaining it if it is possible to attain. In the absence of knowledge about just what is possible, it seems most reasonable to continue to strive for desirable goals. The goal of rational moral conflict resolution certainly seems desirable.<sup>19</sup>

**8.60** In the biomedical context it has become clear that resolving moral problems is an increasingly urgent matter. A new paradigm for resolving moral conflicts rationally is necessary, and it is duly emerging.<sup>20</sup> This paradigm incorporates, if only tacitly, the suggestions made above in regard to moral conflict resolutions.

**8.61** Moral problems can be seen to be integral to the practice of medicine. Firstly, because medicine involves relationships between a medical professional and another person — both being valuable beings, and where the health and well-being of the latter is to some extent dependent on the former. This makes many, perhaps most, medical decisions inherently moral as earlier defined or at least gives them a moral dimension.

**8.62** There are however additional problems that have arisen as a result of new medical technology which expands the range of the medical practitioner in regard to what he or she can or cannot do. Life can be prolonged; genetic diseases can be diagnosed *in utero*; abortions can be safely performed; fertilisation can be carried out *in vitro*; organs can be transplanted; cancers can be treated with powerful drugs with even more powerful side effects. Power brings choice — ability to do X brings with it the issue of whether or not one ought to do X. If doing X affects other valuable beings then a moral dilemma is involved. Thus the increasing number of moral dilemmas in medicine are the direct result of advancing medical technology.

**8.63** For these reasons, and others having to do with pressing moral issues in non-medical contexts, it has become urgent to re-examine both the assumptions underlying discussion of moral issues and to seek rational means for resolving moral conflicts. The present thesis constitutes an attempt to establish the rationality in principle of moral discourse. In addition some preliminary suggestions towards a theory of rational moral conflict resolution have been made.

**8.64** The notion that pooled knowledge is exponentially better than that of an individual working alone is an assumption that underlies scientific activity. It seems just as true in regard to moral decision-making. Developments in medical ethics have demonstrated the need for, and value of, an interdisciplinary and communal base for examining moral problems.<sup>21</sup> In so doing it is possible not only to get a fuller view of the facts but it is possible to appropriately evaluate them on the basis of a multi-perspectival approach.

**8.65** Resolving moral conflict, though possible in principle on the present view, requires time, money and effort. These requirements must be met. It is essential that the goal of rational resolution of moral conflicts be sought, since attaining it is essential for living harmoniously in a diverse society and ultimately in what is rapidly becoming a “global village”.<sup>22</sup>

**8.66** Resolving moral problems may be orders of magnitude more difficult than unlocking the secrets of nature since it requires that one obtain the knowledge that will enable human beings to resolve their differences rationally and peaceably. It is to be hoped that this is not an aim which is outside the scope of human abilities to attain.

#### CHAPTER EIGHT NOTES

1. These are objections that have often been put to me in discussions with medical students and medical Professionals.
2. Quinton (1966), p.58.
3. Kuhn (1963).
4. *Ibid.*, pp.348-363. See Feyerabend (1975), pp.70-108 for a discussion of Galileo’s defence of the heliocentric view of celestial motion.
5. See Solomon (1976), esp. Ch.8, Part 3.
6. Kuhn (1970) (b), pp.10-11; Ch.V.
7. Kuhn (1970) (b), Ch.IX, esp. p.94. See also Ch.3, Note 67, for references on the Quine-Duhem thesis.
8. Einstein (1960), Ch.VIII.
9. This applies whether the moral conflict occurs within an individual or within a group.
10. Putnam (1981), Ch.8.
11. Maxwell (1975), pp.107-109.
12. See Laudan (1977), pp.1-4.
13. *Ibid.*, pp.3-4.
14. *Ibid.*, pp.1-4.
15. Maslow (1970), Ch.16.
16. *Ibid.*, Ch.11.
17. Barter (1962), Ch.4.
18. Hobbes (1952), Part I, Ch.11.
19. Engelhardt & Spicker (1975), Introduction..
20. Pinkus (1981); Toulmin (1982).
21. See Toulmin (1982). See also Engelhardt & Callahan (1978), esp. Preface; and Engelhardt (1978).
22. McLuhan (1964), p.149.

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