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CHAPTER ONE

REALISM AND THE STATE OF THEORY IN PSYCHOLOGY

Nigel Mackay and Agnes Petocz

1. The Curious State Of Psychology: Empirical Expansion but Theoretical Disarray

Psychology is flourishing. It is a hugely popular subject for study. In application it finds its way into all corners of modern life. In empirical research there seems hardly a topic that the many thousands of research psychologists in departments around the world do not investigate. And the development of varied and sophisticated techniques, from statistical modelling and multivariate analyses, to computer-aided content analysis, to nuclear magnetic resonance imaging, is extending its reach into areas inaccessible just a few decades ago. The sheer volume of research output is enormous, with some 200,000 references added annually to the American Psychological Association's data base.

Yet, paradoxically, psychology is also struggling. Despite the volume of empirical research, psychology is no grand monolith rising on a foundation of common psychological knowledge and theory. The median readership of those 200,000 references is a mere 1. And alongside the rapid expansion of the discipline there is a morass of conflicting theories together with, for the most part, an insouciance about the matter. Indeed, psychology is not so much one discipline as many, a large, disparate and sprawling enterprise, whose subdomains, ranging from cultural studies to brain science, depend on concepts of mind, action and person so various that they are almost

unrecognisable as part of the same venture. In Kuhnian terms, psychology is still as described half a century ago, “pre-paradigmatic” (Kuhn, 1962). And as every student of psychology soon realises, there is little cohesion across the theories that are encountered in psychology's different subdomains. Psychology is a veritable boom town with scores of rambling unconnected buildings, some once fashionable but abandoned, others planned but never built, some large, many small, in different regions isolated from one another. Perhaps a more apposite analogy would be that of a thriving circus. As P. T. Barnum reportedly said of his “greatest show on earth”: “a good circus should have a little bit of something for everyone”. Psychology certainly qualifies.

1.1 *Three Major Theoretical/Metatheoretical Groups in Psychology*

To illustrate this theoretical disarray in psychology, we can, to begin with, identify roughly three major groupings of theoretical commitment.

1.1.1 *Cognitive/Neuroscientific Experimentalism: The Establishment Position*

This first group is the self-consciously rigorous, cognitive/neuroscientific experimental group. These psychologists, with a sense that they are part of the cognitive sciences which include philosophy of mind as well as artificial intelligence and linguistics, are committed to the computational, representational view of mind. This is what Fodor and Pylyshyn christened *the establishment position*, and Fodor called the “only game in town” (Fodor, 1975) which, in spite of claims that connectionism supersedes it and other heralds of paradigm shifts (see below), it remains. It holds that an objective, scientific account of mind is available because the processes of cognition are information processes like those of computers, where input information is represented in internal symbols and subject to manipulation by rule, in turn embodied in and constrained by the neurology of the central nervous system, to produce behavioural output. Crudely, the hardware is the brain, the software is the mind

or programmes for information-processing, and the symbols (whose exact form is still to be discovered) on which the software operates are neural, rather than simply electrical. Because the hardware is the brain, cognitive experimentalism is married to neuroscience, and increasingly looks to that discipline for its grounding and its development. But, in general, the basic notions are appropriated from computer science and applied to the person: Minds have symbols, architecture, circuitry, input-output devices, encode, store, access and retrieve information and so on. Importantly, while the realisation of these processes is syntactic in character it is assumed that, like computers, the information is indeed information, and refers to, is about, events in the external world. The person differs from the computer in that the person's capacity to represent the world comes about naturally, developmentally, rather than through the system designer's artifice.

1.1.2 *The Majority View: The Metatheoretically Unreflective*

The first group shades off into a second, more or less default, majority view, held by most psychologists and across traditional areas devoted to learning, motivation, emotion, cognition, development, personality, social, clinical and various kinds of applied psychology. In its terminology and self-conception it adopts the *de rigueur* cognitivism of the first group, and similarly sees itself as part of the cognitive revolution, focusing on either behavioural data or operationally defined cognitive (mental) concepts. This majority view likewise defers to neuroscience, and the promise of its increasingly detailed discoveries. But it is metatheoretically unreflective—something which permits an uncritical eclecticism and allows metatheoretical confusion to flourish alongside the naïve belief that psychology is a progressing science like any other. Where these psychologists do state their metatheory, for example in the introductory chapters of textbooks, or in methods courses, it is that psychology is an empirical science whose subject matter since the fall of behaviourism includes mind and behaviour, but whose methods and scientific credentials stretch back into behaviourism: “Psychol-

ogy is the science that studies behavior and the physiological and cognitive processes that underlie it” (Weiten, 2007, p. 18). Most psychologists see this as unproblematic. It situates them in the post-behaviourist world, seems to deliver the scientific licence to measure various hypothesised internal factors (attitudes, abilities, beliefs, appraisals, expectations, emotions, values, perceptions, goals, and so on—generally treated as internal representations), to model their interactions (articulated in information-processing terminology), and then use statistical analyses to partial out the effects of the multiple variables, and so to weigh their contributions and interactions. There are in contemporary psychology indefinite and exponentially increasing numbers of such internal concepts posited, then “operationally defined” in terms of some test as quantitative variables.

1.1.3 *Heterogeneous Group: Opposed to the Establishment Position*

The first two groups constitute the mainstream, an orthodoxy characterised by adherence to the information-processing position underpinned by neuroscience—albeit adherence with varying degrees of consistency and commitment. There is a third, heterogeneous group whose members are the most explicit about their metatheoretical positions, perhaps because they are often defined in terms of their opposition to the mainstream view of mind¹. One part of the group is constructivist, consisting of both social constructionists (Danziger, 1997) and other constructivists (Raskin, 2006), in spite of real differences between these. They have in common a rejection of orthodox psychology, especially its social and personality theories, and of the experimental-computational view. In particular they emphasise the idea that knowledge and perhaps reality are constructed by personal or social discursive activity. Thus they focus on lan-

¹ Several of the positions represented in this group are influenced by philosophers and philosophies as much as by other psychological metatheories as such. Thus constructionists may acknowledge a debt to Wittgenstein, or Rorty, and John Searle’s criticisms have alerted psychologists to some problems of cognitive science.

guage, conversation, narrative, and text of all kinds, drawing in the hermeneutic tradition from broader social, cultural and literary disciplines. Both constructivism and social constructionism reject the objectivism of traditional empirical psychology, and generally distinguish between the methods appropriate to the human and the natural sciences, and between the “knowledges” that they generate. Their sympathy tends towards postmodern accounts of science and knowledge. One of the significant aspects of this approach is that it is the one most favoured by the few journals dedicated to theory and metatheory in psychology, and by the majority of theoretically articulate and aware psychologists working in the theory and history domain.

1.2 *Variations and Exceptions: It all Depends on Where and Who*

But even these three groupings do not comprise the full picture. We could include as another part of the third, heterogeneous group various post-computational approaches to the mind that claim to transform cognitive science and supersede the orthodox, computational metatheory of psychology. However, these approaches see themselves as extensions of, rather than alternatives to, the mainstream. This is illustrated in the new embodied cognition movement (Deary, 2006; Gallagher, 2005; Menary, 2007) or what has been described as the “new kid on the intellectual block *embodied-embedded cognitive science*” (Wheeler, 2005, p. 11), or “‘second generation’ cognitive science” (Lakoff & Johnson, 1999, p. 78). Its protagonists hold that a complete cognitive science must incorporate the brain’s bodily, environmental and evolutionary context (Kövecses, 2005). It is also characterized by interdisciplinary or cross-disciplinary collaborations, some of which (such as neuro-psychoanalysis) would have been unthinkable not so long ago, others (such as second generation cognitive science) retaining the empirical integration of cognitive and developmental psychology, neuroscience, linguistics, anthropology, and computer science, but replacing the mind-as-computer metaphor with the concept of mind as embodied via sen-

sorimotor experiences. These movements announce new theoretical foundations and claim emancipation from Cartesian philosophical foundations, and their replacement by some form of Heideggerian-cum-ecological framework, citing as its sources aspects of pragmatism and the works of thinkers well outside of the standard pantheon of empirical psychology, such as Heidegger (1889–1976) and Merleau-Ponty (1908–1961). Important for themes that will be discussed further in this book is the claim that we are already “in the midst of an anti-Cartesian turn” (Wheeler, 2005 p. 16), which finds us “propelled away from the traditional site of reason and representation that is the Cartesian mind, and toward the environmentally embedded locus of embodied action” (p. 134).

Also worth mentioning in this context is critical realism, a general position on science with implications for psychological and social inquiry, and indeed social action. In contrast to social constructionism, critical realism stresses that psychology can be scientific, yet argues against the orthodox empirical tradition, claiming that psychology is not to be grounded in the positivist search for universal/general regularities, but must focus on identifying structures that have causal powers to influence events, as well as function as an agency of human emancipation (Bhaskar, 1998; Hartwig, 2007).

In this discussion of the philosophical affiliations of psychologists, we are taking as our reference point the typically empirical psychology departments common in the English-speaking world. But it is important to note, particularly in dealing with the third, heterogeneous group, that a large amount of psychology is done outside of the standard psychology department, and also internationally. Psychological theory is used and applied in various forms in disciplines from psychiatry and medicine, through to education, sociology, business, social policy, cultural studies, gender studies, anthropology and others. These disciplines come with their own traditions, different from those of the standard empirical psychology department, and are sustained by different philosophies and

methodologies, which inevitably affect how psychology is thought about. There is yet further variety in the non English-speaking world where the disciplinary boundaries of psychology may be drawn differently, opening their psychological theories and practices to influence from disciplines that might otherwise not be seen as related to psychology. Thus, in many settings where psychology is pursued, what is a minority position in a typical Anglophone empirical psychology department (e.g., constructivism) may be a majority position. For instance, in most Anglophone empirical psychology departments, psychoanalysis is treated as an historical oddity, and without scientific respectability, yet the psychology taught in related disciplines, even in the English speaking world, may be strongly psychoanalytic. Similarly, in a university with a religious educational philosophy, approaches marginalised by the mainstream (e.g., phenomenology) may be considered central because of their presumed compatibility with the religious outlook of the institution. And indeed much of the work on psychological theory that we place in the heterogeneous group comes not from mainstream empirical departments of the English-speaking world but from outside of these.

Furthermore, in making our classification into the three groups *cognitive/neuroscientific experimental*, *the majority view*, and *opposed to the establishment*, we use a broad brush: There are many distinctions and variations within any of the groups, and similarities across them, and key notions are interpreted in various ways. For other purposes the field might be sectioned differently. For example, social constructionists reject representational accounts of mind, while constructivists hold that representations are just what are being constructed in psychological activity. Both the unreflective majority and the cognitive/neuroscientific experimental groups use information-processing terminology, and since most psychologists accept the idea that mental representations are built up from limited sensory input, they are in that sense also constructivist. To complicate matters, one of the main distinctions that the embodiment theorists

argue distinguishes the computational view and theirs is that in the former, cognition involves a passive retrieval of information, while the embodiment view is that cognition involves the motivated construction of percepts on the basis of bodily derived metaphors (Kövecses & Palmer, 1999); this in spite of the common claim that it is cognitivism, as opposed to behaviourism, that treats the subject as active.

1.3 *From Theoretical Disarray to Conceptual Confusion*

What should be evident from even this brief survey is the extent of psychology's theoretical and metatheoretical disarray. Although a certain amount and kind of variety is healthy and would not be a problem, the theoretical disarray in psychology is accompanied by inconsistencies and conceptual confusions which undermine psychology's efforts to advance. These have not gone unnoticed and, in addition to the long standing debates over the disunity of psychology (e.g., Sternberg, 2005), each group has been criticised for its theoretical limitations and for its inability to provide a coherent metatheoretical framework for psychology². Wittgenstein (1953) claimed that psychology's "confusion and barrenness" were to be attributed not to its status as a "young" science, but to its odd mixture of "experimental methods and *conceptual confusion*" (p. 232, emphasis in original). The mainstream groups, including cognitive science, have been attacked for their misconceptions of science, their pseudoscientific methodological practices, their misunderstanding and misuse of the various data-analytic techniques at their disposal, and their implicit adherence to aspects of the Cartesian dualism which they explicitly reject (Bennett & Hacker, 2003; Bickhard, 1992; Haack, 2003). The nonmainstream alternatives, in turn, have been accused of sharing the mainstream's misconceptions of

² See Petocz (Chapter 16, this volume) for further discussion of the recent new movements in psychology and their search for a metatheoretical framework

science, and of offering inconsistent foundational alternatives (Greenwood, 1992; Hibberd, 2005a; Michell, 2004).

1.4 *Psychology's Self-confidence*

The majority of psychologists seem unaware or untroubled by psychology's inconsistencies and confusions. Of course, psychologists tend to work in subdomains that are comparatively coherent, and, as we mentioned earlier, the flourishing state of psychology provides good apparent reasons for optimism: the scale of the research output; the wealth of systematically gathered data in so many areas; the ingenuity of modern instruments, methods and procedures; the techniques that have enabled the ever more precise recording and identification of brain function, and even the manualisation of therapies—all of which have accompanied the rise of psychology. Psychology's self-confidence seems to be driven by the idea that, in this booming discipline, we have basically got it right, and that any problems and intra-disciplinary rivalries will be overcome sooner or later by more empirical research. More than 30 years after famously saying that the computational theory of mind is the “only game in town” (Fodor, 1975), Fodor, one of the most influential voices of the cognitive revolution, says “What's the alternative? RTM [the representational theory of mind] *really is* the only game in town” (2008, p. 113 italics in original). This is not just a comment on the fact that the representational, computational view of mind continues to be central to psychology—with which we must agree—but a claim that it is so because it is “by far the best theory of cognition ... the only one worthy of serious discussion” (Fodor, 2000, p. 1)—with which we do not agree, for reasons that will become clear.

From another part of psychology, veteran social/personality researcher and theorist Walter Mischel (2005) quotes a favourite Amos Tversky remark that “for every 10 years of hard empirical work in psychology you earn 10 minutes for talking about theory.” Yet, unconstrained by this injunction about theory, he gives his own theoretical prescriptions: In order to “build a stronger, more integrative

and cumulative science” we should put our efforts into “demonstrating robust and replicable effects about important phenomena and processes” and into bridging subdisciplines because “such analyses can encompass, for example, what the individual experiences, thinks, and does at the psychological level; what the brain is doing; and, ultimately, how the relevant biological processes play out at all levels” (Mischel, 2005). He does not discuss the conceptual incompatibilities between the concepts of these subdisciplines, nor the conditions under which, say, intentionless neurobiological data could be integrated into theories of human agency and meaning, nor any of the other profound problems in the way of carrying out this easy advice.

2. Realism

2.1 *The General Force of Realist Critiques*

The essays in this collection address themselves to this mix of confusion and confidence, to the complacency of the orthodox majority, to the received views on the computational model of mind and the role of neuroscience, to the establishment assumptions about how to do science, and to the various challenges to the establishment position. But, they do not do so by promising a “new paradigm”—though many of their implications are radical, and are likely to be resisted because they subvert accepted views. Rather, we are, in the first place, concerned with a different project: *articulating the realist principles that we hold must underlie any coherent science, and demonstrating this thesis through analyses of psychological theories, concepts, methods and practices*. This demonstration has positive and constructive aspects. In exposing the realism immanent in discourse about the world, including of course the psychological world, the realist critiques attempt to show what psychology would look like if it were to adhere *consistently* to those realist principles. The critiques’ primary aim is to show not that some psychological position is simply at odds with realism, but that the criticised theory fails to meet the very standards of science, logic, and knowledge that their

proponents hold, albeit implicitly, by virtue of entering into rational discourse, and endeavouring to conduct scientific research into human behaviour.

It will be argued that realist critiques have lessons for the casual, anti-metatheoretical complacency of mainstream empirical psychology, which covers so much of its conceptual confusion with sheer empirical effort. It will also be argued that the information-processing and the cognitive neuroscience establishment operates with a number of deficient concepts and consequently proceeds with hamstrung theories and a misdirected research program. The deficiencies arise because the treatment of a number of key concepts in psychology (e.g., cognition, motivation) fails the standards of science—despite the *appearance* of scientific soundness, because they in turn rest on incoherent epistemological and ontological theses. If the underlying conceptual theses are flawed and inconsistent—and it will be argued that a number are—then the theories and research that depend on them will be similarly flawed. The essays also contain discussion of the ideas involved in several alternative nonmainstream programs (constructivism, constructionism, situated cognition and so on) that in perhaps worthy attempts to rewrite psychology in noncomputational terms, to recognise the embodied nature of cognition, or to incorporate meaning, do so hampered by strains of a similar antirealism. And behind this (and in spite of recent explicit attempts to free psychology from Cartesianism) is the constant and powerful pull of the Cartesian concept of mind, a pull that for centuries, from Descartes himself, Locke and the empiricists, through Reid and Kant to modern cognitivism seems to have defeated all attempts to escape its grip.

2.2 *Realism: The Background*

Realism has multiple sources, in pre-Socratic philosophy, in Aristotle, in empiricism and reactions to it, and elsewhere. But the coming together of these sources and their expression as a coherent metatheory of science, specifically the science of mind, and its dis-

course is necessarily a modern development, accompanying as it does relatively recent attempts to apply scientific methods to mental phenomena³. Some of the essays in this volume do refer to historically early realist sources in treating their topics. Most, however, take the work of Scottish-Australian philosopher John Anderson (1893-1962) as their starting point because the work of Anderson, arguably the most thoroughgoing and uncompromisingly realist of all philosophers, represents the major confluence of the various realist tributaries in the history of philosophy. Like his contemporaries Russell, Moore and others, Anderson rejected 19th century idealism, but he also produced a distinctive and systematic philosophy maintaining, against contemporary trends, a realist account of logic, a rejection of the universal-particular distinction and other matters which he took to be residues of idealism or of an empiricism tainted with Cartesian rationalism. And, against what he considered to be his contemporaries' overreaction to metaphysics, he held that an understanding of the nature of existence must be central to philosophy and science.

Some things need to be said about Anderson and his place in the history of ideas⁴. The realism we present here will be generally discussed simply as *realism* or *situational realism* for reasons that will become clear. However, it is sometimes given an eponymous or regional qualification and called *Andersonian*, *Australian* or *Sydney realism*, and consequently has been depicted as "probably the least known" of realisms (Greenwood, 1997, p. 605). Yet this latter nomenclature obscures its significant impact on philosophy, especially philosophy of mind and philosophy of science—albeit an impact of-

³ One might date this from Hume's attempt at a "moral science", the Kantian and commonsense reaction to Hume and the continuation of empiricism, although Hume's science is not recognisably scientific in the modern empirical sense. It is more common to date the science of mind from the establishment of empirical psychology in the late 19th century.

⁴ See Hibberd (Chapter 3, this volume) for a more thorough discussion of Anderson and his development of situational realism.

ten overlooked, unrecognised or indirect, through Anderson's colleagues, students and even detractors. As we mentioned in the introduction to this book, it has shaped the influential treatments of causality (Mackie, 1974) and of philosophical reasoning (Passmore, 1970), and influenced the exposé of idealism and scientific irrationalism in the philosophy of science (Stove, 1981, 1991). Moreover, its hand may be seen in realisms better known than Anderson's such as the mind-brain identity theory of so called Australian materialism (e.g., Armstrong, 1968; Place, 1956; Smart, 1959)⁵, about which it has been said "all subsequent philosophy of mind is a response to or development of this view" (Wright, 1997). The reasons for the simultaneous relative obscurity and significant if unacknowledged influence of Anderson's realism, are complex. Until the development of rapid communication and travel, universities geographically distant from the main centres in USA, UK and Europe were also academically isolated. Even in the context of the large English-speaking world, such universities were relatively cut off, without easy access to conferences, important committees and meetings. Many of Anderson's papers were published only in local journals and as part of a philosophical conversation with antipodean intellectuals—in spite of the very broad concerns he shared with his contemporaries internationally. Another reason seems to have been a combination of, ironically, the very power of Anderson's intellect, and the perceived, perhaps real, intolerance of opposition that this power engendered in him. As a result, in an almost Oedipal ambivalence, many of those whose work is clearly shaped by Anderson, and who may be much better known, are relatively quiet or even disparaging about the man whose realism they incorporated. One might note, too, that Anderson was not a follower of fashion: He was, for example, willing to see the value in Kant, and he set out a systematic metaphysics in what, at least amongst scientifically-minded and

⁵ Armstrong (2000) himself acknowledges his and others' debts to Anderson.

anti-idealist thinkers (for example Russell, Moore, the logical positivists), was an antimetaphysical age.

The Australian connection also requires comment. The main proponents of the identity thesis in the 'fifties, 'sixties and after were U. T. Place, J. J. C. Smart and D. M. Armstrong, and their work is sometimes known as *Australian materialism* because of their location at the time. Of course, this sort of scientific realism applied to the problems of mind is not uniquely Australian; others such as the Austrian-American philosopher H. Feigl are associated with it. The Australian link is neither unknown nor surprising to the majority of English-speaking philosophers⁶, although its debt to Anderson is much less well known internationally.

Nor is it widely known that there is also a vigorous tradition of *psychological* realism with the same Australian, indeed Andersonian, connection. Like Australian materialism it is not parochial, and the threads of that tradition interweave with those from British, particularly Scottish, and American thought—threads that go back through Anderson variously to Samuel Alexander (1859-1938), to Thomas Reid (1710-1796) and common sense realism, and also to the American New Realists like E. B. Holt (1873-1946), and to William James (1842-1910). Because Australian materialism and the realism presented here share common antecedents in Anderson and his intellectual progenitors in British and American realist traditions, and of course their common claim to realism⁷, they may from a broad perspective be seen as part of the same realism; certainly they are similarly concerned with the problems of mind. But there are sig-

⁶ Perhaps especially in the UK where there has long been an interchange with Australian thought, to the extent that it is seen as part of, rather than foreign to, the traditions of British philosophy.

⁷ There is other influential philosophical work (Mackie, 1974; Mackie, Mackie, & Mackie, 1985; Passmore, 1970; Stove, 1981, 1991) that is in a similarly realist tradition influenced by Anderson, and an even closer counterpart to the psychological realism presented here than the identity theory of mind. Baker (1986) provides a fine overview of Anderson's philosophy.

nificant differences: Some, albeit important, are subtle and need the kind of extended exposition that only specialist scholarship can provide⁸; others are more straightforward and worth mentioning in connection with this book. The mind-brain identity theory is part of the philosophy of mind, a subdiscipline of philosophy. It is professional philosophers who debate its issues, in philosophy journals not much read by psychologists, and often in a highly technical language. And, even if psychologists would benefit from participating in this discussion and from working through the implications for their theory and practice, they generally do not. Many of the examples used by the identity theorists are removed from the idiom of psychologists, discussing such things as whether the firing of “c-fibres” might be identical to sensations. By contrast, the essays here are in psychology, written by psychologists using psychological examples. Their method is to take actual psychological models and to cut to expose the metatheoretical tissue beneath.

2.3 *Realism: The Principles and their Relevance to Psychology*

Most psychologists who consider themselves scientific would probably be interested neither in philosophical disputes about realism, nor in ontological matters. They might wonder why they need convincing about realism, or why psychology needs this examination. They would assume that they are realists, that their realism comes as part of the scientific approach to their subject matter, and that it is the scientist’s business to investigate and discover the workings of an unproblematically real world through the application of the scientific method and its instruments.

Yet a couple of things might suggest to the thoughtful psychologist that the issue of realism is rather more complex and important in the study of mind than in other sciences. One is that the major changes in psychology in the past hundred years have been shifts in

⁸ See Hibberd’s chapter on Anderson and situational realism in this volume, and other works (e.g., Hibberd, 2002, 2005b)

what we take to be real and investigable—consciousness, mind, behaviour, cognitive states, brain states, and so on. And allied to this is the refractoriness of psychology's subject matter. For all the sophistication of modern methods, the exact status of what it is that is under examination, the *mental somethings* that the theories point to and the methods supposedly reveal, is never far from debate and challenge. Unlike the successful natural sciences in whose steps we wish to follow, consensus seems impossible to establish, except in the weak terms typical of introductory texts: "Psychology is the study of mind and behaviour".

Realism may be expressed as a number of interlinked principles about ontology, epistemology, causation, science and so on. But although these principles are not hard to state in brief form—we do this below, and it is done in other essays of this collection—like most general philosophical positions, and because the principles are so closely interlinked, mere enumeration of them is insufficient. It is only in their elaboration and application that they may be grasped properly. Indeed, a peculiarity of realism is that, while it sits well enough with common sense, the directness and force of its claims often appear startlingly, incredibly, simplistic to psychologists and philosophers. For example, the claim that we may know facts directly is just not taken seriously by psychologists who generally accept as an obvious fact that knowledge is indirect, and that psychological theory must account for how we achieve the miracle of veridical perception via mental representations.

2.3.1 *The Conditions of Discourse and the Idea of Speakability.*

Two closely related ideas need to be introduced as a preface to the principles proper. Although the nature of debate requires any protagonist to present ideas as if they constitute a *theory* to be evaluated and considered, and we must perforce do the same with realism, we hope the basic realist arguments presented here get assent from readers not on the grounds of subscription to the "right metatheory" but because they compel agreement through princi-

ples *already in place* and shared by the reader, that is, through reason, on grounds that reasoning beings hold, indeed must hold, because discourse requires them: They are inescapable, and the alternative is ultimately solipsism. *We understand realism to be these grounds.* The aims of the essays in this collection are first to expose what these grounds are and then to work through the implications for various aspects of psychology. To enter discourse, to argue about issues, to say one thing is evidence for another, to propose an account of human behaviour is, in the sense of *realism* we use here, necessarily to be realist—even if in these acts one denies that necessity and ends up in contradiction. This is the idea of *speakability*, the thesis (not peculiar to realism) that all argument rests on the possibility of discourse. Positions which by implication are self-contradictory remove themselves from (intelligible) discourse, and are not *speakable*, as John Anderson has it. Of course, while the essays attempt to set out the grounds for discourse (realism as we understand it) and sketch a psychology that is compatible with these, that is not to suggest in any way that these attempts themselves are incorrigible or beyond argument.

Discourse and argument depend on the existence both of the events to which reference is made and other rational persons who refer to the same events—events independent of the observers; reasoning depends on the fact (also independent of observers) that one situation follows from another and excludes yet others; to disagree is to assume and exemplify the fact that something cannot be both itself and not itself, and the very act of disagreement embodies and expresses the fact that things may be known. Thus, for example, claiming that there is a real world but that one cannot know it, or that all knowledge is via representation, contradicts the speaker's claim to knowledge implied in making that statement: They are performative self-contradictions. The requirement of the possibility of discourse then becomes a powerful tool in reducing *ad absurdum* doctrines which at first seem appealing.

It is in consequence of this that, as mentioned above, the realism of these essays is not offered as a new paradigm or the best metaphor for understanding the mind. The essays scrutinize psychological theories and concepts in an attempt to identify and spell out the principles that must constrain and direct a scientific psychology. The aim is to demonstrate the constraints that psychological theories are under (or they fall into incoherence), and so to sketch their possible, conceptually viable and empirically investigable forms.

2.3.2 *Ontological Egalitarianism, Antidualism and the Situational/Propositional Nature of Reality.*

The starting point for most realisms is a realist ontology, the thesis that the world and all its facts exist independently of any mind's apprehension of them. Realists are united by the claim that the world exists independently of mind: Mind does not constitute the world. Of course, mental processes are part of the world, and it is analytically true that if there were no cognising organisms there would be no mind or mental processes. But neither the non-mental parts of the world, nor the mental processes within the world, exist *by virtue of* being thought about. Still, the depiction of this mind independent world is different across different kinds of realism. While many different philosophical positions are supposedly compatible with this basic, almost unexceptionable, ontological assertion, it is common for theorists to start with this assumption and then to go on to develop other principles in contradiction to it, thus implicitly denying it.

The distinctive and organising principle of situational realism is its *ontological egalitarianism*, the claim that there is only "a single way of being" (Anderson, 1962, p. 42). And the one way of being is that indicated when something is true. This implies an antidualism that is *general*, not merely the one common to psychology about mind and brain, but one that extends to all attempts to say what is real. It is a rejection of the claim that there can be more than one kind of reality. This is important in rejecting not only grand idealist sys-

tems which talk of higher and lower order realities and truths, but any attempt to stratify reality. A full argument for this requires discussion of the categories of being⁹, but the force of it may be conveyed by pointing out that the claim that there are two (or more) kinds of reality, say, mind *and* matter, my reality *and* yours, must be about some overarching, third (or greater) subsuming kind of reality, and this implied third must include the relations between these original two (or more), making the distinction empty or the position incoherent. Indeed to pursue the dualist argument is to end in an infinite regress of realities. And when critical realism holds, as it seems to do, that reality is stratified, or when constructivism argues for multiple realities, these are claims about different *kinds* of reality. But these claims differentiate and relate the kinds of reality on some grounds, so they assume some reality that is superordinate to or outside the specific kinds. Yet were the claims true the reality they refer to would simultaneously have to belong within one of the strata or kinds of reality, and yet superordinate to them. These claims are incoherent.

There is in this realism not just the rejection of dualism, but the positive claim that this single way of being is that of the *situation*, or fact, *something being the case* in time and space. The same may be conveyed by saying that reality is propositional. Anything that can be true, beliefs, statements and so on, is propositional in that they state that something is the case. Note that this connects ontological with epistemological matters (discussed further below) in that the proposition is the minimum that may be known; that is, that may be true or real, as one cannot know what is not true. Use of the term *proposition* can be confusing because of its widespread use to mean some sort of linguistic or representational entity separate from the reality that it describes—a position rejected by situational realism. What is meant here is that the form of reality is that of the proposi-

⁹ For a more detailed discussion of this see Michell (in press)

tion (situation): something being predicated of another. Indeed, this is the foundation of realism's ontological egalitarianism. Whatever exists, no matter how grand or trivial, psychological, chemical or physical, is a situation that exists in space and time, and belongs to the one order of being. Whether one predicates something of the whole universe (the universe is ever expanding) or something specific (the cat is on the mat) the way of being is identical, indicated by the copula, *is*. Further, precisely because it involves something predicated of another thing, the situation is necessarily *complex*, for there is nothing less than the situation. A supposed particular or "simple" cannot be spoken or known. To continue with the cat on the mat: One cannot intelligibly speak just "cat" for the least that can intelligibly be conveyed is something about the cat. There is a cat there, perhaps. Nor can one know "cat" *simpliciter*; "cat" on its own (whatever that might mean). One can at a minimum know something predicated of a cat. It exists perhaps, or is on the mat. Such a simple then cannot be true (only a proposition can be true or false); it cannot be real (the least that can *be* is compound); it cannot be known; it cannot be asserted. Facts are complex situations in time and space. Hence the orthodox empiricist distinction between particulars and universals is rejected and, as will be explored later, cognitive psychology must deal with the way the person apprehends complex situations, rather than just with "object recognition".

Situational realism, holding that reality consists of states of affairs,¹⁰ necessarily complex, and propositional in form, opposes the "thingist" view of the real (that reality is "things out there" floating about in space and time). This highlights the fact that *all* assertions (if they are part of discourse) are putative descriptions of situations,

¹⁰ This has some similarity to Armstrong's "states of affairs" (1997) something which he acknowledges (2000), and to Wittgenstein's "the world is the totality of facts, not of things" (Wittgenstein & Russell, 1922, Proposition 1.1). However, situational realism is not atomistic but carries through the implication that situations are necessarily complex.

reality. And this must include all the claims typical of philosophical arguments about such things as what is real, and what may be known. One supposes that any sort of metatheory would wish to be reflexive in this manner. Yet it is common for discussions about philosophical matters to be conducted as though the protagonists' comments, being about such abstract matters as logic, possibility, and implication, do not need to be taken as statements about reality, perhaps because logic, possibility, and implication do not seem to be directly about material objects (things) in time and space. So such discussions are treated as though they are somehow parenthetical to actual claims about the real. But in Anderson's realism "all assertions" means just that: No claim is ontologically parenthetical or in any other way fails to be a claim about reality. A claim about logic or implication is in situational realism about the very forms of reality, and the same order of being as any other. This goes against the trend in cognitive psychology, computational theory, logic and mathematics, often followed by supposed realists, that formal concepts such as those in logic and mathematics¹¹ do not belong in, do not describe, the world, but are features just of thought, existing in the heads of persons—so reasoning is "following rules", and classes, categories and kinds are constructed by the person and imposed on the world. In a different context, the critic of realism who wishes to get the last word in a debate by asserting that realism is merely the realist's assumption, that there are different orders of reality, is still making, as one always must, a claim about reality—a claim articulated at the same and only level of reality available, that where something is the case. The copula, *is*, is the great leveller.

A couple of matters are worth noting here. Realism is concerned with logical and ontological matters in priority, as it were, over epistemological matters: Only by first grasping what are the "conditions of existence" (how things are) can we sensibly treat epistemological issues (how we know them): Psychology, as its identification

¹¹ See McMullen, Chapter 8, and Sutcliffe, Chapter 11, in this volume.

as *cognitive psychology* indicates, naturally concentrates on epistemological matters, so the importance of this may not be easy to see at first, but later essays will argue that those questions may often be clarified via analysis of ontological matters. Of course, the cognitive situation is *itself* an ontological matter, and further ontological issues are central to psychology. The fact that there are also ontological matters at issue in psychology is shown clearly in the mind-brain problem, and in various reifications, for example, the ideas of consciousness, and of cognitions that exist as things *in* the mind.

A further implication of the position is that as psychological situations are no less or more real than physical ones, in this sense realism is antireductionist. That is to say, realism understands cognitions to be real situations in time and space, *sui generis*, and not decomposable into either their parts or eliminable in favour of “more fundamental” substances like brain events. Psychological explanation requires us to show how cognition, which is a type of relation between person and situation (see below on this crucial matter) features as a cause in the production of behaviour. And psychological explanation, drawing as it does on situations just as real as any others, is not merely a prelude to a “proper” neurochemical formulation.

2.3.3 *Determinism and a Field/Network Approach to Causality.*

Determinism is a corollary to the principles of realist ontology sketched above; if things exist, they must have a nature and thus be both constrained by that nature and, in turn, constrain other things. All situations are caused and in turn cause other situations. We can in fact see this, and do think and behave as though this principle is true—indeed it is difficult to conceive of a world in which we did not. That is, we can have direct knowledge of the determinacy of events. Our lives (and of course psychological theories in as much as they assume expectable relations to hold between events) depend

entirely on this. Further, causal relations¹² are complex: They occur *within a causal field*. By this is meant that the conditions under which an event produces another includes a range of events or situations, a field, and the causal relation may not obtain in a different field. Causality is not a linear sequence of A's causing B, but of A's causing B *within context C*. What for purposes of explanation is picked out as *the cause* is neither linearly nor simply related to its effect but one which operates in a specific and causally relevant context. This stands in contrast both to the simple, correlational conception of cause that operates in much psychological experimentation and to the attempts to improve on the latter in formulations such as so called "reciprocal causation" (Bandura, 1986).

2.3.4 *Relations as Nonconstitutive*

Much of psychology is interested in relational situations such as those involving mental processes and behaviours, or mind and environment. Discourse requires that in consideration of situations that involve relations we distinguish between entities and the relations into which they may enter. No entity is constituted by the relations into which it enters. Nothing may have its relations intrinsic to it: Anything must have properties of its own, independent of any other thing to which it may be related, in order to be something that can enter into relations at all. We could not sensibly talk of a relation (say, distance or causation) between events (say, the distance of the horse from the wall, or the batter causing the ball to fly off) without distinguishing, ontologically and logically, the entities (the terms of the relation) from one another and from the relations into which they enter. The distance is not any part of horse or wall; and we must specify the event that causes (the batter) and the event that is caused (the ball flying off) independently from each other, in terms of their intrinsic properties, to grasp what happened between them. Furthermore, situations are, so to speak, nested: The situation *the*

¹² This is on the understanding that causation is a relation between independent situations or events.

horse is a metre behind the wall is itself a state of affairs that can enter into relations with others as, for example, when it affects someone's perception. Nonetheless the two complex situations, the *horse being a metre behind the wall*, and the *horse's being a metre behind the wall obscuring the jockey's vision*, are equally real, both complex situations in time and space.

At this point our focus shifts to epistemological matters, for the principle of the nonconstitutive nature of relations joins with a realist epistemology to yield a relational view of mind.

2.3.5 *Epistemology: Knowing as a Relation*

Realism holds that we can and do have objective knowledge of the world, specifically of situations or facts. This is the epistemological corollary of a realist ontology. Of course the claim that there is a real world is, in its assertion, a claim that one has knowledge of just that fact. But more generally, realist ontology and epistemology interlock in that what is known is true, so must be the case, a fact. For situational realism those facts are among the infinitely complex and numberless situations that obtain in space and time.

In one sense psychology is concerned with epistemology even more intimately than are other sciences, because its subject matter includes beings that know, persons, and it investigates the nature of persons and minds and the processes that bring about knowledge. In this way the modern identification of psychology with cognitive psychology is correct. But more is needed to clarify this important matter. To speak of knowledge is to imply a knower, some event or fact that is known¹³, and that these two are related in the specific way that constitutes knowing. That is, it is to recognise that *knowledge is a relation*. And, as always, the terms of the relation are independent of one another and of the relation into which they enter. The logic of relations, introduced above, and here applied to human

¹³ See John Anderson, *The knower and the known*, Chapter 4 of this volume. The same matter is discussed earlier in Holt et al., (1912).

knowing requires us to distinguish the cognising subject or person from that which is cognised. Each (person and fact) must have its own intrinsic properties. With respect to the knower, then, neither the knowing relation into which the person enters, nor the matters known, can be part of the person's properties.

This insistence that knowledge is a relation may seem superfluous for, at least in discussions about the intentional nature of mind, it is acknowledged that cognitions (beliefs, knowledge, schemata etc.,) are *about* something, and so our commonsense mental language does often convey that we are dealing with relations. But psychology generally fails to work through the fact that cognition is a relation, and mental talk, especially that in psychological theory, also treats cognitions as if they were things *in* the mind, indeed in the brain, internal to the person, specifiable independently of anything outside the person. Indeed, modern psychological theory, with its functionalist philosophy, proceeds in direct contradiction of the logic of relations. It explicitly defines mental processes by their relations (functions). Yet simultaneously it attempts to treat mental “things” and processes as independent entities with measurable dimensions—exactly like the entities of the natural sciences we wish to emulate—because this is what is required for events to be causes in a properly causal, scientific psychology. Hence, in this cognitivist scheme beliefs (cognitions) are simultaneously, and impossibly, treated on the one hand as if they are entities that occupy space and time, specifically within the mind/brain, may be measured, may be causes or effects of other independently occurring events, *and* on the other as defined by their relations. A belief (e.g., that the cat is on the mat) is simultaneously defined as a wholly internal, ontologically independent, mental state of the believer and yet specified in terms of its relation to the cat being on the mat (what it is about).

In contrast realism leads to a *relational and extended view of mind*, in the sense that the mind consists of the person, situations in the external world (many of which may of course be physically within the

individual, as when one self-consciously sees one's own mental state—see below), and relations to these situations. Studying the internal state of the individual is relevant, but only insofar as it tells us something about the internal enabling conditions of cognitive relations. Knowledge of that internal state alone is knowledge of one term only of such mental relations with the external, and it is not knowledge of the mental relation as such.

A whole range of problems about the nature of mind flows from this failure in psychology to distinguish entities from the relations into which they enter. Some of psychology's main subjects of investigation, and the accompanying difficulties in getting any purchase on them, are brought about through this failure. Take, for example, what is termed *consciousness*. There, the relation *being conscious of* is reified and rendered as *consciousness*, a thing or a process whose mysterious and ineffable nature constitutes *the problem of consciousness*—something impossible to study, whatever employment it may provide for cognitive scientists, and enjoyment for philosophers.

We should note that cognitive relations themselves may be among the objects of knowledge. For example, a person may know that another knows that the earth is round. And, importantly, persons often know that they know something. This particular sort of cognitive relation is what may reasonably be understood by *self-consciousness*. *Knowing something* is not the same as *knowing that one knows that thing*. The latter is a subspecies of knowing things. It is of course psychologically important because it seems to be essential to what makes humans vastly more intellectually complex and sophisticated than their primate relatives. But knowing that one knows has no special ontological status: It is not the mysterious something that is created by reification of the cognitive relation; not some Cartesian thing that sits at the heart of being.

2.3.6 *Science as Critical Inquiry:*

The last aspect of realism to be mentioned here is a general position on the nature of science. As with speakability, this is neither strictly a principle of realism as such nor peculiar to it. Its bases are: Firstly, it follows from the facts that we can and do have knowledge and that all knowledge is of the one order (i.e., knowledge of situations), that there is no fundamental difference between ordinary knowledge and scientific knowledge; secondly, we can in principle be wrong about any knowledge claims we make, and indeed often are wrong, so all claims of knowledge require evaluation. Science, understood as *critical inquiry*, is a systematic error-correction procedure, itself fallible, but the means by which we evaluate such claims. Here, it is instructive to say what science is *not*: It is not working within a paradigm (an idea largely inspired by the relativist thesis that paradigms generate their own conditions of truth), nor is it the application of a set of techniques; it is not the application of the experimental method, nor is it quantitative analysis, though it may involve any of these. It neither provides the imprimatur of certified truth (a thesis often wrongly attributed to realism), nor is it merely another social activity, for it must be understood as a cognitive activity. Importantly for psychology, the element of critical evaluation in science is not merely empirical: Conceptual examination of theories' claims and inferences is just as much part of science, and as much part of the testing of empirical hypotheses, as are the various empirical and observational tests which follow. The principal implication for psychology, a point well exemplified in the essays here, is that the examination of the conceptual bases of psychology is just as much science as empirical testing, indeed no amount of the latter can substitute for the former. Philosophy is not then, as commonly held by psychologists, the source of alien and fruitless debate, or extra-scientific interference. It is about the very conditions of science, and fundamental to its purpose.

2.4 *Translating Realist Principles into Psychological Metatheory*

Each of the principles discussed above, and the ways in which they are intimately interrelated, are of close relevance to psychology, and will be called on often in the essays of this collection. Although we have tried to give some idea of their implications for psychology, we recognise that their importance might not be immediately obvious to the psychological reader. To bring what might still seem to be abstract theses closer to psychology, it is worth indicating some general issues in psychology on which they have special bearing. By general issues we mean metatheoretical matters commitments on which constrain and direct psychological theory and investigation. The realist re-conceptualisation of these alters them to such a degree that, so to speak, the agenda of psychology is reset. Emerging from the realism sketched above are the theses that: (i) The loci of investigation for psychology are embedded in the cognitive situation; (ii) mind is relational and extended; (iii) mind is causal, but the conventional formulation of this, involving causally efficacious internal mental entities, is incoherent; and (iv) motivation must play a large part in any full psychological explanation. These are themes that the essays in this collection return to again and again in different forms and for various purposes.

2.4.1 *The Loci of Psychological Investigation: Embedded in the Cognitive Situation*

The *cognitive situation*, which we are taking to be the fundamental locus of investigation for psychology, consists of three elements, the *cognisor* or person, the *object that is cognised*, and the *relation between* that constitutes the act of cognition. And correspondingly there are three groups of questions of interest to psychologists that the cognitive situation raises. The first group asks what is the cognising subject or person and what is it that equips it to cognise the world, including of course parts of itself. The second asks what is it that is cognised. The third asks about the nature of the cognitive relation. This way of presenting the major issues in psychology may sound

strange to psychologists. The second and third questions in particular are not in forms that psychologists would easily fit to their interests and practices. For example, most people take it as part of common sense that a person sees objects in the environment, the book on the table, a smile on a face, a car passing by, and one might expect from this that the objects of cognition are the things and events in the world. But of course almost all developed theories of cognition, in spite of the fact that they must start with this as a given, end up maintaining that things and events in the world are only the object of cognition in some indirect sense, and that the direct objects of cognition are indeed *in the mind*, representations of those external things. Similarly, rather than ask the *realist* question *what is the cognitive relation*, psychologists ask the typically cognitivist question *how does the mind process the information it receives from external sources and put together a picture of and a response to the events in the world from which this information derives*. We do not say that the former, realist question sets an easy programme for psychology, but the latter, cognitivist question sets an impossible one, because it depends on the truth of principles with which it is in conflict: It calls upon what must be a directly known fact, that the mind receives information, in order to develop an explanation of cognition that is wholly indirect.

At its most general, the purpose of specifying and separating the elements of the cognitive situation in this fashion is to show the issues of psychology in a different light, and that the positions one takes on these fundamental, *ontological* issues—issues which most psychologists think of as either irrelevant to their work or assume to be already resolved sufficiently for them to proceed without concern—*do* make a difference. It also shows the relational and extended nature of mind.

2.4.2 *Mind as Relational and Extended*

Given the cognitive situation as described above, mental (intentional) phenomena are to be understood *not* in the reified vocabu-

lary of beliefs, desires, cognitions, and similar mental things and processes *in the mind*. Nor, in reificatory terms, as things and processes internal to the mind, that cause behaviour. Instead, mental phenomena are relations between the person (though the question of what is the person in this context needs refining and specifying) and external situations. The primary relation is that of cognition and “a cognition” is the relation between the knower and the known: real, but not a reification. Mind is thus extended and not located, as it traditionally has been, within the bodily limits of the person nor exclusively identifiable with any part of the nervous system or brain. In that sense, there is no “mind” at all, if it is conceived as an *entity*. This of course recasts the standard problems of the philosophy of psychology, such as the so-called ontological problem, because there is no *mental thing* for which the protagonist in a discussion of the mind- brain relation has to find a corresponding and identical *brain thing*. All (though it is a very big “all”) we have to do is identify which (presumably) brain processes subtend the cognitive relation to the external objects of cognition. These brain processes are of course the first term in the cognitive relation and defined by their intrinsic properties, as any thing must be, not by any intentional or cognitive properties. Though of course what is special about these brain processes, and distinguishes them from other processes, is that they have the capacity to enter into cognitive relations. It is this capacity to which the research attention of the realist neuropsychologist should be directed, so as to investigate what features of the brains of cognising creatures enable them to be sensitive to the propositional structure (Michell, in press) of the world. For all our advanced techniques, and research effort, we seem only to be at the start of this research.

2.4.3 *Mind as Causal and Determined*

Realism rejects the idea of mental things and processes wholly internal to the person, and so must reject the traditional picture that the causal links between mind and behaviour consist of *internal* mental processes (beliefs and desires as states of the mind/brain)

causing behaviour. Of course, since a mental relation includes as one of its terms the physiological state of the person, internal biological processes do have their causal roles in producing behaviour and we should want to know what it is about the brain and biology of cognising creatures that enables them to enter cognitive relations. Moreover, realism is still committed to a determinist account of behaviour: All situations are caused and in turn bring about other situations. The causes that the realist will then be interested in are those *relational situations that span internal and external events*, for example, that are constituted by a person in a cognitive relation with some other situation, and which in turn bring about an effect.¹⁴ Moreover, the complex context within which such a cause brings about its effect is of interest. And an important part of this complex context which is identified as the causal field is the motivational state of the cognising person.

2.4.4 *The Motivated Subject*

The theme of the connection between cognition and motivation is one that will also recur in a number of the essays of this collection. Realism shares with a large part of psychology the idea that cognitions are real, and that they feature in the causes of behaviour. However, realism also argues that, properly understood, cognitions are not wholly internal mental states, but “cognitive relational situations”. While cognitive psychology typically focuses on cognition as though that were is all that there is involved in causes of behaviour, it clearly is not. Cognitive psychology misses the vital point that cognition per se implies no policy for action. That is to say, no matter what an organism cognises, however beneficial or threatening to it is the object cognised, it is insufficient to produce action unless the organism is in an appropriate and related motivational state. The knowledge of available food will not produce action (say, moving towards the food, eating it) unless the cognising organism

¹⁴ See Medlow (Chapter 22, this volume) for an extended discussion of the realist view of mental causation

wants food. This is the *belief plus desire* account of behaviour. And as long as beliefs (cognitions) feature in causal explanations and are real and *sui generis* (as realism holds), then those explanations require a complementary desire (motive) element if the explanation is to be complete. As we will see in the essays that follow, this has led a number of authors, following Maze (e.g., 1983) to argue that the primary term in the cognitive relation, that we normally refer to rather indefinitely as the person or knower, is one or another of the person's motivational structures, the instinctual drives. This of course is drives physiologically conceived, and not as any sort of entities defined by what they seek. In this is the recognition that knowledge—*contra* constructivist and postmodern views of realism—is objective in the sense that its object is a real situation, but is never disinterested because it is always motivated. Knowledge of situations operates to produce behaviour because the situations are relevant to the satisfaction or otherwise of motives.

Finally, we will see again and again in the essays of this collection (and the discussion and analysis of them in Chapter 2) that the orthodox treatment of all things mental, mental structures and concepts, cognitive processes, the extension of mind, measurement of the mental, the conceptualisation of class and category, meaning and semantics, symbolism, motivation and affects, turn out to have conceptual problems. Entities and events are confused with the relations that hold between them; the extended domain of mind is collapsed into internal supposedly mental entities that cannot feature in proper causal explanations; entities are mysteriously supposed to contain their own causes or effects; behavioural patterns, analysed by statistical methods that require the determinacy of behaviour, are theorised to be caused by internal, non-determined autonomous agencies; supposedly causal processes that, in order to be causes, must be specified independently of their effects, are defined by their effects; cognitions and beliefs are treated as if they had within them a directional force implying action; and so on. If these realist critiques are right, large sections of psychology require

both reconceptualisation and redirection of research attention before we can do justice to the wealth of skills, ingenuity, data, observational techniques and research methods of modern psychology.

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