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Victoria McGeer

Psycho-practice, Psycho-theory and the Contrastive Case of Autism

How practices of mind become second-nature[1]

> Eleanor: *You must know Henry isn't through with John. He'll keep the Vexin till the moon grows blue from cold and as for Richard's wedding day, we'll see the second coming first; the needlework alone can last for years.*
>
> Geoffrey: *I know. You know I know. I know you know I know, and we know that Henry knows and Henry knows we know it. We're a knowledgable family. Do you want my services or don't you?*
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> — James Goldman, Act I, scene iii, *The Lion in Winter*

The Lion in Winter is a masterful comedy of plot and counterplot, of alliances made and broken, of deceitful strategies pursued in earnest and earnest strategies pursued in deceit. It is the family Christmas from hell, as King Henry the Second of England holds Court at his palace in Chinon attended by his estranged wife, Eleanor of Aquitaine, their adult sons Richard, Geoffrey and John, each vying for the throne, Eleanor's once adopted daughter, the French princess Alais, now mistress to Henry and promised bride to whichever son inherits Henry's kingdom, and, last but not least, cousin Philip, King of France, one time lover of Richard now turned potential aggressor against England. The ostensive purpose of this gathering is to celebrate the holiday and make peace; but in reality it is to continue the family practice of everyone scheming against everyone else for power, position and the sheer perverse pleasure of it. The audience watches in fascination as each character tries to gain some advantage over every other by disguising what they know, or by playing on the others' sentiments, or by goading them into some ill-judged betrayal of themselves or someone else. Moreover, since the characters all know that they are playing a complicated game of bluff and double-bluff, no one is above susicion. The challenge for each of them is to see beyond the surface of what's being said, and assumed to be said deceptively, in order to know what everyone else is really wanting, thinking, plotting.

Now what about the audience? The playwright aims not to deceive us, of course, but to show us a family of characters helplessly tangled up in their own schemes. For this, the characters need to be revealed to us in their multiple acts of deceiving one another. Hence, the players' lines are not just rife with subtext; they are also all about

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it. Our challenge, then, is to read between the lines of the characters' reading between their lines. Yet despite these layers of meaning within meanings, the play is perfectly coherent. We know what is going on, and we know this even without knowing exactly what all the characters know or think they know at any given time. We are able to follow the twists and turns of plot as each family member tries to out-guess all the others, and so orchestrate the next move and counter-move to their own duplicitous ends.

None of these moves and counter-moves come off as planned, of course; but what does happen is perfectly explicable in terms of the family's constant manoeuvrings and what they know and don't know in consequence. In fact, the play is an ingenious combination of comedy and drama, deftly exploiting our own capacity, as well as the capacity of the characters in the play, to pass what psychologists call first-, second- and even third-order false belief tasks. We are indeed a 'knowledgable' species — knowledgeable in the ways human beings act, and can be expected to act, in light of the complex mental states we are able to attribute to them, sometimes on the basis of the most subtle cues imaginable — a shrug of the shoulders, a sideways glance, a barely perceptible start, a too-ready laugh. How on earth do we do it? What kind of knowledge is it that we deploy, occasionally with effort and uncertainty, but often with such ease that we are barely aware we are making inferences about other minds at all? How is this knowledge acquired? Does it help that we become psychologically complex creatures ourselves? If so, how does it help?

Naturally enough, this has been a controversial area of research and debate in both philosophy and psychology. In philosophy, the last thirty years or so has seen a split between 'simulation theorists' and 'theory-theorists',[2] with a number of variations on each side. In general, simulation theorists favour the idea that our knowledge of others is based on using ourselves as a working model of what complex psychological creatures are like. Theory-theorists claim that our knowledge of complex psychological creatures, including ourselves, is theoretical in character and so more like our knowledge of the world in general. There are many nuances to the arguments and counter-arguments both sides have made. While theory-theorists have tended to dominate the field in both philosophy and psychology, there is growing consensus that some sort of 'hybrid position' is called for since neither approach seems entirely adequate on its own (Stone and Davies, 1996).

Here I will argue for a third approach that aims to combine the insights of both these views without embracing the central tenets of either. I will use the dominant theory-theory approach as the argumentative backdrop to developing what I call a 'know-how' approach to normal psychological knowing, allowing differences to emerge with the simulation view along the way. (A full discussion of the simulation view must wait for another time.) As its label suggests, the 'know-how' approach distinguishes the practical knowledge involved in normal psychological knowing from theoretical knowledge proper, even if such knowledge is necessarily belief-involving.[3]

[2] I will use the term 'theory-theory' and 'theory of mind' approach to refer indifferently to nativist and constructivist versions of this overall position. Nevertheless, it should be noted that there are deep differences between these views that I do not mean to discount by this terminological decision of convenience.

[3] I do not say that what we know in the manner of practical knowledge isn't open to theoretical regimentation. But theoretical regimentation has its limits in capturing the dynamic aspects of know-how, since knowing how often involves modifying what one is doing (in new, but knowing ways) in the process of acting according to one's current know-how. Of course, theoretical regimentation may have its uses in this process as well. It makes explicit the guiding norms of current practices and hence can be

Theoretical knowledge simply involves coming to know about how other things are, or what other things do. Practical know-how, by contrast, consists in the development of a skill — the 'internalization' of methods for doing something *oneself* which are normatively guided by considerations of what constitutes doing it well.

Consider, for instance, what goes into being a good chess-player, or an Olympic diver, or a savvy experimental scientist. All of these activities involve methods that are developed and honed by individuals in the context of trying to do the activities themselves, and which reflect their growing sense of what it is to do the activity well or badly. The ability to do something thus involves developing a sensibility that is richly attuned to the shape of the practice in which one is engaged, as well as to the demands it makes on any of its practitioners. Skilled practitioners become attuned, for instance, to the kinds of mistakes anyone engaged in the practice is prone to make, the kinds of conditions which affect how things go and to which practitioners must therefore pay some mind, the kinds of corrections practitioners can make if things do begin to go awry, the kinds of innovations practitioners can institute, and finally the kinds of limits practitioners must be prepared to face, whether these involve their own capacities or are simply inherent in the nature of the activity itself. Such practical ability therefore involves not just the ability to do something; it also involves the ability to follow the ins and outs of others who are engaged in the same activity. Indeed, this ability to follow others in an activity by its nature outstrips the ability to engage in the activity oneself (Ryle, 1949, Chapter II). Participants in a practice are thus always potentially poised to learn about their own practices from those around them.

According to the position I will defend in this paper, our ways of knowing others involves this kind of practical expertise. It involves our becoming, therefore, psychologically able creatures *ourselves*; it involves the internalization of normatively guided practices of mind. These are methods of mind we are trained to take on as our own, though they are nevertheless the methods of a shared practice. Philosophers have generally come to call this practical capacity 'folk-psychology', though, from my perspective, a more fitting term would be 'psycho-practical know-how' or 'psycho-practical expertise'. I further distinguish the *study* of such expertise, whether this is conducted by philosophers or by psychologists, from the practical skill itself. 'Psycho-theory', on my account, is the study of the shape of certain normatively guided human practices and of how we in turn become shaped by them, thereby acquiring the capacity to know creatures like ourselves inside and out.

The body of this paper is divided into three parts. In Part I, I introduce the 'contrastive case' of autism. Autism is a developmental disorder that has recently become the focus of sustained philosophical and psychological attention because of the selective way in which it affects individuals' social capacities. Theory-theorists argue that autistic children's unique profile of assets and deficits is most fruitfully explained by their inability to develop and deploy a theory of mind. After considering the strengths of this hypothesis, I claim theory-theorists face two unresolved difficulties: (1) explaining why high-functioning autistics who develop some theory of mind capacities still fail to engage in normal psychological knowing; and (2) explaining why autistics are generally as unknowable to us in the privileged sense of normal psychological knowing as we are to them. In Part II, I provide the theoretical framework

useful for review, negotiation, instruction and a host of other meta-level practices we engage in as part and parcel of knowing how (Pettit, 1998).

for addressing these challenges by developing an account of normal psychological knowing as psycho-practical expertise. In Part III, I return to the problem of autism, showing how this psycho-practical approach to normal psychological knowing may further suggest how to encompass various aspects of the disorder that tend to be ignored under the prevailing theory-theory approach.

I: Normal Psychological Knowing and the Contrastive Case of Autism

Normal psychological knowing is distinctive in two broad respects. It is distinctive in how we know about human behaviour, and it is distinctive in what we know about it. Simulation theorists have tended to focus on the first of these qualities: they have insisted, and rightly so, that understanding the nuances of human behaviour well enough to follow a play like *The Lion in Winter* or negotiate the myriad forms of complex social interaction that structure our everyday life is deeply unlike our theory-guided understanding of objects and events in the world. These are things we know only from the 'third-person point of view'. But our knowledge of others seems at once too intimate, too resonant, too marked by a sense of 'getting' what it's like to be minded, to pass as theoretical in the standard sense. I will return to this point below. For now I want to focus on the second distinctive quality of normal psychological knowing, agreeing with theory-theorists that our judgments about human behaviour reflect a fairly sophisticated conceptual grasp of the causes and consequences of mental states and processes. Numerous empirical studies have traced the development of this understanding, and it seems clear that our success as social beings is tied to a growing facility with the abstract concept of mental representation. Theory- theorists may quibble about whether this facility matures in keeping with an innate program or is acquired somehow in development; but either way they have amassed an impressive body of evidence detailing the widespread transformations in children's social behaviour that march in step with their unfolding understanding of the representational nature of mind.

One body of evidence now claimed to provide considerable support for this view comes from studies in autism. Autistic subjects show wide-ranging abnormalities that vary considerably with age and individual ability. Nevertheless, they share a diagnostic triad of impairments in social, communicative and imaginative capacities (the latter demonstrated by the absence of pretend play in childhood and restricted interests and activities that persist throughout life) (Rutter and Schopler, 1987; Wing and Gould, 1978; 1979). Although seventy-five per cent of diagnosed autistics are mentally handicapped in a general way (as reflected in low IQ scores), the remaining twenty-five per cent have normal to high IQs and often perform well, sometimes better than average, on reasoning tasks that don't require any understanding of the mental life of agents. By contrast, on so-called 'theory of mind' tests, these 'high-functioning' autistic children are significantly impaired when compared with normal children and even those with Downs Syndrome who are matched with them for mental age (for a review of research see Baron-Cohen, 2000). For instance, on first-order false-belief tasks, which require subjects to predict another's behaviour on the basis of attributing to them a false belief, children will normally pass by a mental age of four years (Wimmer & Perner, 1983).[4] Autistic subjects, if they pass at all, only do so when they are considerably older: on average, at a verbal mental age of nine (Happe, 1995).

A prime example of this dissociation between social and non-social reasoning skills, involves the Zaitchik 'false-photograph' task, which is modelled on the standard false-belief task except insofar as it tests children's ability to reason about physical (photographic) representation instead of mental representation (Zaitchik, 1990). In one version of this task, children are shown how a Polaroid camera works. Then a picture is taken of a play scene in which a toy cat is sitting on a chair. The photograph is taken from the camera and put face down on a table. As the photograph develops the experimenter changes the play scene by moving the cat from the chair to a nearby bed. Then, before turning the picture face up, the experimenter asks the children: 'in the photo, where is the cat sitting?'. High-functioning autistics who fail the false-belief task have no trouble answering this question correctly. They understand that the photograph will show the cat sitting on the chair and not on the bed (Leslie and Thaiss, 1992). This pattern of failing false-belief while passing false-photograph tasks does not occur in normal four-year olds. Although some studies indicate normal children may show dissociation in the opposite direction (passing false-belief and failing false-photograph) (Leslie and Thaiss, 1992; Zaitchik, 1990), more recent studies suggest this may be an artifact of experimental design. Normal four-year olds do equally well on both tasks once incidental conversational and linguistic differences between them have been eliminated. Autistic subjects, on the other hand, continue to show the dramatic physical–mental dissociation seen in earlier studies (Peterson and Siegal, 1998; Slaughter and Mealey, 1998).

Results like these strongly suggest a specific inability in autistic individuals to reason about, and perhaps even conceptualize, mental states and processes. Theory-theorists claim that this is indeed the core deficit in autism, explaining the triad of abnormalities in social, communicative and imaginative capacities.[5] For instance, characteristic social abnormalities might easily be connected with an inability to attribute mental states to others, especially if these abnormalities reflect an apparent indifference or insensitivity to what others are thinking and feeling. Thus, autistic children show no interest in, and even a positive aversion to, meeting another's eyes. They show no tendency to engage in social referencing behaviours, i.e. directing another's attention towards an object in order to share their interest in it or gather information about it. They show little understanding of how their actions affect others or how others' actions are meant to affect them. They may often be confused by what other people do, but show little capacity to be hurt by intentionally malicious behaviour, or touched by intentionally kind behaviour whether or not the behaviour is experienced as beneficial. They may be amused by other people's physical 'antics', even when those antics betray extreme distress or pain. They understand sabotage, but are blind to deceit and other forms of slyness. Jokes, as opposed to pratfalls, are impossible to 'get'.

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[4] There are a number of variations of this task, but one simple version that has been used on autistic populations is the so-called 'Sally-Ann' task (Baron-Cohen et al., 1985; cf. Wimmer and Perner, 1983): Children are shown two dolls, 'Sally' and 'Ann'. Sally has a basket in which she places a marble. Then she goes away leaving her basket behind. Ann takes Sally's marble out of the basket and puts it in a box. Sally returns and the children are asked: 'where will Sally look for her marble?' To pass, children must correctly predict that Sally will look in the basket where *she* believes her marble to be, as opposed to the box where they know the marble is themselves.

[5] For a defence of this perspective and for details of autistic abnormalities from which the following limited summary is culled, see the collected papers in Baron-Cohen *et al.* (2000). See also Frith (1989); Happe (1994a).

Communicative abnormalities may also be rooted in this mentalizing deficit. Language skills vary widely across the autistic population. But even amongst those who develop fair linguistic capacity, typical problems remain. These are connected in particular with communicative and pragmatic aspects of language use that depend on the speaker's awareness of the conversational situation, including especially the listener's point of view: abnormal prosody (rhythm, stress, tone), abnormal shifts in topic, inability to give and receive conversational cues, abnormal accompanying gestures and facial expressions, pronoun reversals ('I' for 'you'), idiosyncratic use of words, abrupt interruptions and terminations of conversation, insensitivity to taboos on personal topics, and so forth. Autistic individuals also tend towards extreme literal-mindedness — showing an insensitivity to metaphor, irony, sarcasm, even idioms *as* idioms: to autistic individuals, 'he went the whole nine yards' means, literally, 'he went nine whole yards'. There is little or no understanding that others may intend to convey by their words something more or other than just what their words mean.

Some of these communicative abnormalities are closely related to the final element in this triad of deficits: autistic lack of imagination. From early childhood, autistics show a notable absence of spontaneous pretend play, as if it never occurs to them to think about things (represent them) other than as they are. Instead, autistics will engage in repetitive, stereotyped activities such as sorting objects or lining them up in rows. They also tend to show limited or absent interest in the larger meaning of things (function, associations, symbolic properties) but focus instead on superficial details, with obsessive interests that are circumscribed accordingly. It may be memorizing bus routes, timetables, birthdates, or even door colours. Many autistics are notable for their rote memory skills, even though they show little concern with focusing on what's worth remembering for other cognitive purposes. Perhaps this is because they have a limited capacity for imagining what those purposes might be, hence a limited capacity for opportunistic planning (for a discussion of planning deficits as connected with theory of mind capacities, see Currie, 1996; for an alternative perspective, see Russell, 1997).

Some more than others of these characteristic abnormalities may be more plausibly connected with an inability to conceptualize and attribute mental states. But there are in addition other kinds of autistic abnormalities that seem to have little to do with 'theory of mind' capacities, at least *prima facie*. These include sensory-motor problems: e.g. extreme and unusual physical sensitivities and insensitivities; slowed orienting of attention; oddities of posture and gait; tics, twitches and unusual mannerisms; stereotypes such as rocking, hand-flapping, spinning, thumb-twiddling and echolalia. They also include abnormalities in perceptual processing, leading to a characteristic autistic profile of assets and deficits on various perceptual tasks: e.g. insusceptibility to certain perceptual illusions, superior performance on finding embedded figures within a larger design, superior visual memory and capacity for rendering scenes in precise detail, perfect pitch, difficulties with 'gestalt' perception — seeing whole figures or scenes as opposed to their parts, absence of perceptual 'switching' with ambiguous figures such as the duck–rabbit, and so on.

Some theorists have argued that accounting for these abnormalities in conjunction with autistic mentalizing difficulties points not to a specific theory of mind deficit, but to a more global kind of cognitive disorder with a variety of effects across different domains (see, for instance Russell, 1997, on 'executive dysfunction'; Frith, 1989,

on 'weak central coherence'). I will not discuss the pros and cons of these alternative views here. Suffice to say that any account which purports to explain autistic mentalizing difficulties must also confront a potentially confounding fact that has emerged from studies in autism. This concerns a small, but significant proportion of high-functioning autistics who are categorized as having Asperger Syndrome in light of their superior linguistic and social abilities, as compared with the majority of autistic individuals. Interestingly, Asperger individuals do eventually acquire something like a representational theory of mind, allowing them to pass first- and sometimes even second-order false belief tasks, albeit well beyond the normal mental age at which non-autistic subjects pass.[6] Nevertheless, these individuals are still notably autistic in a number of respects: they suffer the same kinds of sensory-motor problems as other autistics, though these may become more controllable over time; they have the same autistic abnormalities in perceptual processing; finally, and most importantly, they continue to show characteristic disturbances in social, communicative and imaginative capacities despite the fact that they develop sufficient skills to function (abnormally) in relation to other people. In other words, Asperger individuals' learned capacity to explain and predict behaviour by means of attributing representational mental states ameliorates, but in no sense obliterates, the characteristic difficulties they experience in understanding and relating to others in day-to-day interactions. Indeed, the most striking fact about these autistic subjects is that their way of knowing others seems *more* theory-like than does our method of normal psychological knowing. That is, they seem to explain and predict others' behaviour in much the same way they would explain and predict the behaviour of other complex things in their environment, slowly and with effortful calculation based on a vast repertoire of (third-person) observations. Consequently, from the autistic point of view, there is a sense in which other people do not become easier to understand at all: they do not become 'familiar'. Rather, the strange behaviour of so-called 'normals' simply becomes easier to negotiate as a consequence of acquiring better tools for seeing predictable patterns in it. Undoubtedly this improves autistic 'social functioning'. But in the words of one such high-functioning autistic, Temple Grandin, she continues to feel 'like an anthropologist on Mars' (Sacks, 1995, p. 259) (cf. Grandin, 1995; O'Neill, 1999; Schneider, 1999; Willey, 1999).

What conclusions might we draw from the fact that Asperger autistics continue to experience such difficulties with others? For those that equate normal psychological knowing with developing and applying a representational theory of mind, there are two possibilities. First, it may be that because Asperger Syndrome autistics do not acquire a theory of mind in the same way as non-autistics, their use of it may be less expert than the use of non-autistics for whom it is 'second-nature'; alternatively, because of the way it is learned, the theory itself may be less fully elaborated than it is for non-autistics (Frith and Happe, 1999, pp. 6–7). A second possibility is that Asperger autistics do not really develop a *theory* of mind at all: that is, they may have

[6] To pass second-order false-belief tasks, children are required to predict what someone else will do based on attributing to them a false belief about *someone else's* belief (e.g. predicting where *Sally* will say Ann will look for her marble based on Sally's (false) belief about where Ann believes her marble is located). Children normally pass such second-order false belief tasks around six years of age. More complex tasks involving bluffs and double-bluffs are normally passed by children around eight years of age (Baron-Cohen, 1989; Happe, 1994b).

a hard-won body of empirical knowledge which is loosely organized into generalizations and paradigm cases, but which fundamentally lacks a set of governing (e.g. causal) principles that gives genuine theories their coherent structure and generative predictive/explanatory power (Gopnik *et al.*, 2000). Thus, even though their activities of explanation and prediction may look theory-like, they are not really theory-governed in the proper sense of the word.

Both of these options have some initial plausibility, but they both suffer from a crucial difficulty that goes right to the heart of the theory-theory view. They both assume that because expertise in the manner of theoretical knowing might account in principle for the *ease* with which we normally understand one another, such expertise must thereby account in principle for the sense of attunement we normally experience in understanding one another and which Asperger autistics notably lack — namely, the sense we develop of ourselves as one kind of creature, experiencing a common way of being in the world. But theoretical expertise in other domains does not generally produce such feelings of attunement between the knower and the objects known, even when the objects known are (in some sense) ourselves (cf. The consequences of becoming neuroscientific theories of cognitive functioning). Of course, becoming expert in various theories may well alter our perceptual experiences, as many philosophers and psychologists have justly observed. Thus, experts within the requisite domains may come just to *see* cancer in an ultrasound image, or the threatening economic recession in stock-market fluctuations, or a poor vintage in water-bloated grapes. But this is not the same as seeing in other people *our own ways of being*, and vice versa. What then could account for this difference?

In what follows I will be arguing that theoretical expertise, no matter how well-developed, remains third-person expertise: it is the expertise of an outside observer looking on. Folk-psychological expertise, by contrast, is insider expertise: it is the first-person expertise, not of a neutral 'inside observer' (whatever Cartesian fantasies that might conjure up), but of a normatively invested skilled participant who is attuned to others because she knows the nuances of minded behaviour in two distinct but deeply related ways: she knows how to read the thoughts and actions of others by understanding these in accord with shared folk-psychological norms; and she knows how to make her own thoughts and actions meaningful to others by operating in accord with those same norms.

This is what autistic individuals lack. That is, they do not just lack what is, by their own lights, a *sense* of attunement with 'normals', a sense that they are in the world in a way that differs from us. More significantly, they *are* out of tune with 'normals'; they are out of tune with us; and being out of tune with us, they are as strangely unknowable to us as we are to them. Their minded ways of being do not conform to ours; and, hence, in a thousand different ways, *we* do not 'get' the nuances of their behaviour any more than they get the nuances of ours. We may develop theories, of course — (third-person) theories of what it is like to be autistic. But we must be wary about how such theories get constructed. From our point of view, the most salient feature of autistic existence is their inability to engage in normal social interactions. This points, we think, to some lack of interpretive capacity in them that accounts for their inability to understand us. But we must be sure that however we specify what is lacking in autistic individuals, it explains our inability to get them as much as it explains their inability to get us. This means that, as theorists, we need to focus on how

autistics do not become good psychological objects for us by acting in accord with shared norms, as much as it means focusing on how they do not become adept at understanding us in light of those same norms.

II: The Normative and Regulative Dimensions of Psycho-practical Expertise

It is time now to introduce an alternative approach to the analysis of normal psychological knowing which can address these outstanding issues in a fruitful way. The approach that I espouse involves two crucial elements. The first involves a fundamental shift away from thinking of psycho-practical expertise in terms of acquiring and deploying an empirical theory of how human beings generally behave towards thinking of such knowledge in terms of our investing in a normative stance. The second element, to which I will shortly turn, involves analysing what regulative impact this investment has on our own behaviour.

With regard to the first element, as many philosophers have noted, understanding one another involves not just explaining and predicting what we do; it involves *making sense* of what we do, and this means bringing norms to bear in our judgments of one another's thoughts and actions (Blackburn, 1991; Davidson, 1984; Dennett, 1978;1987; McDowell, 1981). We do, of course, have views about what human beings generally do under various circumstances. But our views about what they generally do, what they can be *expected* to do, are heavily influenced by our views about what they *ought* to do, what it makes sense to do, in the circumstances.

This shift to a normative perspective invites two further questions. First, where do our views about what people ought to do under various circumstances come from? Second, how do we explain why people generally do what they ought to do, so that making normative judgments about them works pretty well as a technique for explaining and predicting their behaviour? In philosophical discussions of these questions, much emphasis is placed on human rationality as the decisive explanatory feature in successful psychological knowing. Firstly, our views about what people ought to do in various circumstances stem from our capacity to determine the rational thing to do in the circumstances; and, secondly, people generally do what they ought to do in various circumstances because they too have a capacity to determine the rational thing to do, and generally do what they think it is rational to do in the circumstances. Of course, this is a very general constraint on behaviour and interpretation, and there are things to be said in its favour. But without discounting the rationality of many of our social practices, it seems by far too minimalistic to account for the myriad norm-governed expectations we develop around social behaviour, and the myriad norm-governed ways we learn to act so as to meet and break those expectations in sense-making ways. Is it *rational* to dress in a particular way when we appear before others in some authoritative role? In one sense, no. But it is a matter of social usage; so not dressing appropriately sends a message whether we intend it to or not. So it goes for countless other details relating to our daily interactions. Our ways of organizing our environment, our ways of conducting ourselves in spatial orientation to one another, our ways of using voice and body, our ways of dressing, all come to be normatively guided, conveying our thoughts and feelings to one another as much as our explicit communicative acts (Garfinkel, 1967; Gergen, 1982; Goffman, 1959).

Skilled psycho-practitioners are aware of these nuances of minded behaviour and conduct themselves accordingly, observing or transgressing social norms and

routines as suits their current purposes. On the one hand, many of our day-to-day transactions are made meaningful just by our conforming to such norms and routines. On the other hand, we often draw attention to ourselves by saying or doing things that are unexpected in context, creating 'surplus meanings' that others will respond to with interpretive efforts (Bruner, 1990; Grice, 1989). Depending on what we say and do we may also direct these interpretive efforts in particular ways. Of course, as with any skilled activity, degrees of proficiency may vary widely, and in varying respects. Some people may be acutely aware of these various dimensions of social-communicative life, but little able to manipulate the interpretations others make. Others may be less aware of these dimensions in some articulable sense, yet highly competent in conveying meanings that suit them best, including sincere assertions of what they take to be the case. What kind of awareness, then, is required to make us skilful in producing meaningful acts that are readable by one another? Again, as with any skilled activity, the link between the ways we deport ourselves as minded beings and our conscious appreciation of that deportment is rarely direct, even though conscious appreciation can play an important role in mediating change or development. That is, we can pay greater attention both to the norms that structure our meaningful activities and to those activities themselves, becoming aware in new ways of how our doings affect our interactions with others. We may even guide and monitor what we are doing, shaping our behaviour in this way and that. But until such actions become second nature, sinking below the level of regulation by conscious awareness into a kind of practical awareness-in-action and -reaction, our performances will seem awkward and artificial, not just to ourselves but to others who are remarkably adept at detecting the fluidity and grace of someone at home in their practices. In many cases, however, we don't pass through any consciously mediated phase of change or development. Self-regulation in terms of norms often occurs without deliberate attention or effort, occasionally even to our surprise or embarrassment as we become suddenly self-conscious of mimicking those around us in gesture, word or deed.

These observations highlight the second element of normal psychological knowing I mentioned above: skilled psycho-practitioners are not just able to read other people in accord with shared norms; they also work to make themselves readable in accord with those same norms. This aspect of psycho-practical understanding is often ignored, perhaps for reasons that are not altogether surprising. Philosophers and psychologists tend to inscribe their own project of inquiry into our ordinary methods of understanding one another, so that in the context of everyday life we too are presented as navigating in our social world primarily by observing, hypothesizing, predicting how creatures like us operate. We may be supposed to do so by using ourselves as a working model, or by developing and testing progressively more sophisticated theories which we apply indifferently to ourselves and everyone else. But in either case there is an implicit distinction made between our behaviour insofar as we are objects of folk-psychological theoretical attention and our behaviour insofar as we are folk-psychological theorists. The latter is supposed to revolve around explanation and prediction; the former around what calls for explanation and prediction. Of course everyone agrees that the more able we are as folk-psychologists, the more sophisticated our interactions will be. But the explanation for this generally emphasizes how the increasing theoretical knowledge we develop as folk- psychologists makes us more adept at anticipating the thoughts and actions of the creatures we have

under study. It does not much focus on how we, as 'objects' of such theoretical attention, become shaped and shape ourselves in this process of development. But surely this half of the equation is just as vital for understanding the ease with which we ordinarily make reliable, yet fairly complex inferences about one another's thoughts and actions. As Goffman reminds us: 'Of course, others also live by inference in their dealings with the physical world, but it is only in the world of social interaction that the objects about which they make inferences will purposefully facilitate and hinder the inferential process' (Goffman, 1959, p. 3).

In terms of understanding our psycho-practical expertise, there are in fact four specific advantages to focusing theoretical attention on our aptitude for making ourselves understandable to one another, as much as on our aptitude for understanding one another. These four points build on each other according to the order in which I discuss them. The first two suggest a shift in the way theorists model individual folk-psychological capacities in order to account for the ease with which we understand one another as mature human beings; the third discusses how this kind of account connects naturally with an explanation of the phenomenological distinctiveness of normal psychological knowing; and the fourth explores the developmental implications of this shift as a way of setting the stage for some concluding reflections on how we conceptualize the disabilities involved in autism.

1. If we learn to govern our behaviour in ways that make us more readable to others, then their work as interpretive agents is greatly reduced. The same is true for us, if they learn to govern themselves likewise. This banal observation challenges an all too common assumption that understanding must require remarkable interpretive skills on the part of each individual if we are too explain the ease with which we ordinarily interact with one another. But just as one person's weight-lifting skills are not so remarkable if they lift a weight with others, so too a person's individual 'interpretive capacities' are not so remarkable if the burden of understanding is normally distributed between them and the person they come to understand (cf. Millikan, 1993). We can, of course, show considerable interpretive ingenuity when called upon to do so; and this may require drawing upon fairly generalized knowledge about the psychological springs of human behaviour in addition to whatever particular knowledge we may have of individual peculiarities. However, what is exceptional about these moments is not just their relative infrequency, but also the difficulty and uncertainty with which such interpretive efforts proceed. Moreover, if these moments become too frequent, we abandon our interpretive efforts altogether, adopting an 'objective' stance towards those who seem generally unresponsive to psycho-practical norms. We judge such individuals to be: 'eccentric', 'irrational', 'disordered', 'mad', 'compelled', 'discursively unreachable'. At the extreme, such individuals fall outside the realm of subjects we can interact with as free and responsible agents, able to make commitments to us or to understand the commitments we make to them (Bilgrami, 1998; Dennett, 1987; Pettit, 1993a; Strawson, 1982).

2. If we make ourselves more readable to one another by conforming to shared norms of readability, it follows that much of the work of understanding one another in day-to-day interactions is not really done by us at all, explicitly or implicitly. The work is done already and carried by the world, embedded in the norms and routines that structure such interactions. Hence, it is not just that we often behave in ways that make sense from a psycho-practical point of view; it is that many of our sense-making

ways of behaving already have their significance built into them. Indeed, this foundation of pre-determined meaning dramatically expands our resources for what we can make meaningful, not just by ordinary recursive methods, but, as already noted, by creative transgression. That is, in breaking with norms and routines, we expect our actions to signal the need for special interpretation. But, equally, we generally only succeed in conveying what we mean when such interpretations can be reasonably guided by the meaning of whatever norms and routines are transgressed (metaphors, for instance, only work if the literal meaning of the words used serve as a plausible guide to what the speaker means). When we develop as psycho-practitioners, we no doubt hone our interpretive skills; but, more importantly, we come to live in a world where the kind of interpretive work we need to do is enormously enhanced by how much meaning our interactions already carry for us and carry because of the way we habitually conform to norms that invest our actions with common meaning. Becoming a good psycho-practitioner is, in this sense, no different from becoming a native speaker within a linguistic community. The ease with which we speak comprehensibly and understand others is based on the practices we share. Of course, the relationship between conforming to psycho-practical norms and conforming to linguistic norms is closer than mere analogy: in becoming proficient speakers of our native tongue, we become able psycho-practitioners, *and* vice versa. These two skills are importantly intertwined, since so many of our methods of being comprehensibly minded are embedded in the semantics and pragmatics of our language.

3. I claimed earlier that psycho-practical expertise is *insider* expertise, the 'first-person' expertise of someone who is skilled at reading others in accord with shared norms because she is skilled at living herself in accord with those norms, and vice versa. As with the insider expertise of linguistic fluency, these two capacities come together. Indeed, it would be more accurate to say they are one and the same capacity exercised in two different respects: *speaking*, on the one hand, and *listening*, on the other — or, more generally, *expressing* and *attending to what is being expressed*. These are two sides of exercising a skill or competency; they are the two sides of what Gilbert Ryle called 'knowing how':

> If understanding does not consist in inferring, or guessing, the alleged inner-life precursors of overt actions, what is it? If it does not require mastery of psychological theory together with the ability to apply it, what knowledge does it require? We saw that a spectator who cannot play chess also cannot follow the play of others; a person who cannot read or speak Swedish cannot understand what is written or spoken in Swedish; and a person whose reasoning powers are weak is bad at following and retaining the arguments of others. Understanding is part of knowing *how.* The knowledge that is required for understanding intelligent performances of a specific kind is some degree of competence in performances of that kind. The competent critic of prose-style, experimental technique, or embroidery, must at least know how to write, experiment or sew. Whether or not he has also learned some psychology matters about as much as whether he has learned any chemistry, neurology or economics. These studies may in certain circumstances assist his appreciation of what he is criticising; but the one necessary condition is that he has some mastery of the art or procedure, examples of which he is to appraise. For one person to see the jokes that another makes, the one thing he must have is a sense of humour and even that special brand of sense of humour of which those jokes are exercises (Ryle, 1949, p. 54).

Analysing normal psychological knowing in terms of psycho-practical know-how makes its phenomenological distinctiveness quite unmysterious. The way we 'get'

what another person is up to is by knowing what it's like to be the kind of person whose sayings and doings are expressive of ways of being minded according to the norms we share. This attunement does not depend on putting ourselves in others' shoes. We are already in their shoes, as they are in ours. This doesn't mean that we can always express our psycho-practical know-how as others do. Hence their thoughts and actions may be surprising, intriguing, innovative, instructive from our own point of view. Nevertheless, they make sense to us because we have some competence in being a person *like that*: our understanding is schooled in precisely the way our own expressive performances are schooled, so we feel in our bones what it's like — what it *would* be like — to express ourselves in word or deed as they have done. Of course, others can sometimes act in ways that make no sense to us; but, then, so too can *we* sometimes act in ways that make no sense to us either. In both cases, our performances have failed to live up to norms that transform mere doings into actions that have meaning for us. Iin both cases our relation to the 'other' changes, from being someone on the inside familiar with the sense of agency expressed by our performances, to being on the outside where that sense of familiar agency fails. Needless to say, such failures are more disconcerting in our own case. But this is not because we have failed to *perceive* something that should be obvious to us from our first person point of view — viz. the causal springs of our own behaviour. It is because those ways of behaving, which we know to come from us, are not second-nature to us *as ways of being minded.* Our ordinary competence for acting in comprehensibly self-regulated ways has somehow failed and we have limited resources for making sense of such failures except as departures from what we ought to do, and can work to try to do better in keeping with the normative dictates of our psycho- practical know-how (cf. McGeer, 1996; McGeer and Pettit, 2001).

4. Even supposing this skill-based account of psycho-practical expertise is on the right track, there remains the developmental question of how the norms which govern our shared ways of being minded become habitual for us, i.e. how they become 'second-nature'. Must we begin life with some innate sense of the special qualities of human behaviour in order to become conversant in the norms which govern our daily interactions? Or do we develop this sense as a consequence of becoming conversant in the norms? Here, too, a satisfying answer to such questions depends on keeping all parties involved in the process of normal psychological knowing clearly in view — namely, the child as developing psycho-practitioner and other people as the objects of her developing psycho-practical knowledge. For, as in the non-developmental context, there is work that must be done on each side in order for this kind of knowing to succeed, although the work that's done will naturally be of a somewhat different kind reflecting the peculiarities of the developmental situation.

To begin with the child as a developing psycho-practitioner, a number of empirical studies provide substantial evidence of an innate human disposition to respond differentially to social stimuli. From birth, infants will orient preferentially towards the human face and voice, seeming to know that such stimuli are particularly meaningful for them. Moreover, they register this connection actively, imitating a variety of facial gestures that are presented to them — tongue protrusions, lip pursings, mouth openings. They will even try to match gestures with which they have some difficulty, experimenting with their own faces until they succeed. When they do succeed, they show pleasure by a brightening of their eyes; when they fail, they show distress. In

other words, they not only have an innate capacity for matching their own kinaesthetically experienced bodily movements with those of others that are visually perceived; they have an innate drive to do so. That is, they seem to have an innate drive to imitate others who they judge to be 'like me' (Meltzoff and Gopnik, 1993; Meltzoff and Moore, 1977; 1983; 1994; 1997). Within a few months, infants will use this awareness of their essential link with others in yet more elaborate ways, imitating simple actions others perform on objects by nine months and more elaborate goal-directed activities by eighteen months. Moreover, studies indicate that by eighteen months babies are not just imitating what others actually do; they are performing their actions based on their understanding of what others mean to do. That is, they read through others' 'failures', improving on their actions in order to accomplish unmet, but apparently intended, goals (Meltzoff and Moore, 1995). (For a more elaborate summary of this progression, see Gopnik *et al.*, 2000.) By this age, babies also show clear signs of using others' emotional responses to the world as a guide for their own behaviour, avoiding things that elicit fear, disgust or anger in others and approaching those in which others manifest interest or delight (Campos and Sternberg, 1981; Repacholi, 1998). They engage in 'joint attention' behaviours, following another's gaze or point to an object outside their visual field, and use pointing gestures themselves to direct another's attention in similar fashion. While some of these pointing gestures are 'instrumental', aimed at getting the object indicated, others seem clearly intended to do nothing more than elicit the other's response to something shared (Bates *et al*., 1975). In these ways and many others, even very young children show a basic readiness to learn from others' expressions and actions, interpreted therefore as having particular import for themselves. As Bruner says, 'we come initially equipped, if not with a "theory" of mind, then surely with a set of predispositions to construe the social world in a particular way and to act upon our construals. This amounts to saying we come into the world already equipped with a primitive form of folk-psychology' (Bruner, 1990, p. 73).

Now what about the objects of this primitive form of 'folk-psychology'? Though infants clearly respond differentially to social stimuli, it is crucial to keep in mind that they are helped along at every stage of this developmental trajectory by those who provide such stimuli. Human infants do not confront a world of 'unstructured experience', and not just because they have innate mechanisms for ordering whatever experience is given to them. Their own ordering capacities are given a significant boost, not just once but again and again over the course of development, by parents who shape their children's experience by involving them in structured interactions governed by the sense-making norms of psycho-practical knowledge. That is to say, parents treat their children as intentional participants in practices that initially extend beyond their intentional competence, leaving the parents to maintain, and even exaggerate, the formal structure and affective import of such interactions for both. In fact, parents will often treat their children as initiating just such interactions, elaborating on what they do in ways that direct and enrich their children's initial intentions. Jerome Bruner has called this sense-making structuring of activity, 'parental scaffolding' (Bruner, 1983). It begins in early infancy, when child and parent engage in 'conversational dances', trading vocalizations, gestures and expressions that the parent ensures are made 'conversationally relevant' to one another, not just by rhythm and affective tone, but often through responsive imitation (Brazleton and Tronick,

1980; Kaye, 1982; Trevarthen, 1979). These mutual imitation games, delighted in by child and parent alike, are the primary means by which the child identifies him- or herself as like another and so, eventually, as a person whose thoughts and actions belong to the kind that persons produce (Meltzoff and Gopnik, 1993). They are also the primary means by which the parent moulds the child to react, think and feel about things as persons do. As Meltzoff and Gopnik remark:

> . . . mutual imitation games are a unique and important constituent of early interpersonal growth. Adults are both selective and interpretive in the behaviour they reflect back to the child. They provide interpretive imitations to their infants, reflections that capture aspects of the infant's activity, but then go beyond it to read in intentions and goals to that behaviour . . . This, in turn, leads the infant beyond his or her initial starting point. Likewise, selected actions, especially those that are potentially meaningful in the culture, will be reflected back [to the infant] more often than others . . . (Meltzoff & Gopnik, 1993, p. 349).

Thanks to these kinds of structured and progressively more sophisticated interactions with others, the experiences children have and the responses they are called to give shape their own sense of agency, both viscerally and conceptually. In the course of normal development, children are thus bootstrapped into regulating their own experiences, feelings, thoughts and actions, not just in concert with others, but in accord with the intersubjective norms of a shared psychological practice. In a word, they become comprehensible agents, i.e. good psycho-practical objects; but the manner in which they become such agents, no less than what they become, accounts in important ways for their capacity to understand others 'like them', i.e. others in whose image they have been substantially made.[7]

[7] To emphasize the role of others in the development of agents whose dispositions are regulated in accord with shared norms of mindedness is not to deny the need for innate machinery. However, it does suggest modifications in the way theorists conceptualize the nature of what is innate and the role it plays in this same process. There is considerable dispute about this even amongst those who favour a theory of mind approach to explaining our psycho-practical talents. Some argue the theory is innate, consisting in a dedicated 'theory of mind' mechanism (ToM) for generating representation of mental representations. This mechanism is considered to be 'hardwired' and simply triggered by appropriate experience (e.g. Baron-Cohen, 1994; Leslie, 1987). Others claim the theory is more genuinely like a theory insofar as it consists in a causally-governed set of abstract entities posited to account for a variety of observed events, in this case human activities. Theory of mind is therefore domain specific, but the innate structures that support its construction *qua* theory are domain general: powerful inferential mechanisms that allow human beings to move from their observations of events to substantive hypotheses about the underlying causal structure of the world. On this view, the child's 'experience' is not just a trigger, but constitutes data in the full scientific sense of that word (e.g. Gopnik & Meltzoff, 1996; Wellman, 1990).

A number of considerations have been raised to adjudicate this dispute, prominently the rapid development of a highly sophisticated facility in social reasoning on the basis of relatively limited experience. For 'ToM' proponents such experience is not just limited, but 'impoverished'— and impoverished largely because they have lurking in the background a picture of the child's transactions with others as consisting in the passive presentation of stimuli to a cognitive system that must extrapolate indifferently from what's given. Constructivist theory-theorists improve on this picture, contesting both aspects: On their conception, the presentation of social stimuli is not seen as passive; nor is the child pictured as extrapolating indifferently from what's given. The kind of feedback adults give to their children is carefully geared to their current stage of development, going some way beyond their capacity to respond as self-standing participants in these interactions, but not so far that they lose all sense of being involved in a mutually responsive *inter*action. In this way the child's extrapolations are directed towards elaborating on the special properties of agentive behaviour. Nevertheless, on this approach, the child is still conceptualized as engaged in what seems to be primarily a cognitive enterprise aimed at developing a more comprehensive understanding of the world. The regulative dimension of these interactions are not especially highlighted, with critical consequences for research in autism. I return to this point in the following section.

III: Some Concluding Notes on Autism

This paper began with a challenge: to account for our capacity to follow the ins and outs of other people's actions in a way that does justice to its various distinctive features. I have argued that our ability to follow such ins and outs hinges on our becoming psychologically complex creatures ourselves, in the manner of those we follow. However, this is not to agree with standard simulation accounts that we use ourselves as a *model* for understanding others except *per accidens*. It is rather to say we come to develop, through our regulative interactions with others, an intersubjectively shared psycho-practical know-how. As with any know-how, psycho-practical expertise involves the practical application of norms in what we do and in what we interpret others as doing, so that we become at once comprehensible to one another and comprehending of one another. Acquiring psycho-practical expertise is thus like becoming expert in our native tongue: we become adept both at speaking and understanding others who speak the language we share.

Where does this leave the autistic child? I ended Section I with the observation that, however we characterize what is lacking in autistic individuals it must account for our inability to understand them, as much as it accounts for their inability to understand us, in the privileged insider sense of normal psychological knowing. On the present proposal, this amounts to saying we must account for their inability to become structured as normally minded persons, who regulate themselves and understand others to be regulated in terms of the myriad norms and routines of an intersubjectively shared folk-psychology. Thus, I agree with Hobson that autism is '. . . best viewed as an interpersonal impairment, an impairment in what can and cannot transpire *between* the young autistic child and others' (Hobson, 1992, p. 164). This is not, as Hobson adds, to take the focus away from abnormalities present in the autistic child. But it does suggest that we be cautious of any account, including Hobson's, that conceptualizes these abnormalities in unilaterally recognitional terms — that is, which emphasizes how the autistic child cannot see *us* a certain way because she lacks a theory of mind, or because she lacks even more basic 'perceptual-affective' capacities geared to 'directly perceiving and empathetically responding to the bodily expressed attitudes of other people' (Hobson, 1993b).

This recognitional paradigm can seem particularly compelling from our standpoint. For whatever else may be amiss with autistic children, their most salient abnormality to us is unquestionably their lack of normal social engagement. Almost all descriptions begin with this (diagnostic) aspect of the disorder. Hobson himself provides a representative example. In order to describe what autistic children are like, he writes: '. . . one needs to convey what it is like to relate to an autistic individual, how it feels to communicate or otherwise become engaged with the child. In such a situation, it is not uncommon to feel that one is faced with a strangeling who moves on some other plane of existence, a person with whom one cannot "connect". The experience of being with an autistic child seems to correspond with something essential that is lacking in the child's own experience of other people.' (Hobson, 1993a, p. 2)

It is fascinating to compare this kind of report of what it feels like to be with autistic children with another kind of report stemming from verbally able high-functioning autistics themselves: reports of what it is like *to be* autistic. For, in contrast to what *we* see as the most salient feature of autistic experience — their lack of awareness of us

— what emerges as particularly salient for *them* seems to be the intensity of their sensory engagement with a vibrantly noisy, often terribly distracting and occasionally terrifying world. In many cases, this sensory intensity seems to be coupled with a remarkable capacity to become detached from their own bodily sensations, so that sensory stimuli are perceived without being experienced, in any *mattering* kind of way, as happening to them. Indeed, this capacity to detach from sensations often seems to serve as a means of coping with the overwhelming sensory stream and the powerful affective reactions thereby induced. Yet it also seems to generate for some autistics a pathological experience of self-identity fractured by a sense of disembodied embodiment. It is hard to convey the depth of these abnormalities with a few quotations, but the following representative excerpts give a taste of the autistic sensory world.

> I had — and always had had, as long as I could remember — a great fear of jewellery. That terror also included hairclips and metal buttons. I thought they were frightening, detestable, revolting. If I was made to touch jewellery, I felt a sharp whistling metallic noise in my ears, and my stomach turned over. Like a note falsely electrified, that sound would creep from the base of my spine upwards until it rang in my ears, tumbled down into my throat and settled like nausea into my stomach . . .
>
> My insensitivity to pain was now as good as total . . . nothing hurt at all. And yet I felt — my actual feelings were not shut off — because when I was aware that I had injured myself somewhere, I could sense something, a non-pain, which branched out into my body from the place where the injury was. But the fact was, it didn't hurt (Gerland, 1997, p. 54, p. 157).

> I could hear but had no need to listen and appeared to be deaf . . . In response to sudden loud noises there was no response, not because I was deaf, for I could certainly hear sound and perhaps even more sound and more clearly than most people, but because I had no capacity to process sound, to interpret it and make the normally instinctual physical connections to respond to it.
>
> I could feel but had no need of touch and appeared to be unable to feel pain. I could feel physical sensations but they were slow to register and were floaty and without distinct location or meaning or even a developed sense of whether they were internal or external to me. There was no response because the information, though perceived, remained unprocessed and uninterpreted.
>
> I was somewhere between three and five when my body called to me . . . [I]t started to make its presence felt as though nagging me to listen to it and respond to it. At first, I tuned out this foreign invasion as was natural and instinctive to do with things that gave the feel of robbing one of control. Later, I tried to escape the sensed entrapment of physical connectedness, first spiritually by getting out of it and later physically by trying to pull it off from its suffocation of the me inside, slapping at it, punching it and later trying — physically — to run from it but the damn thing just came after me. As far as I was concerned, my body was welcome as a sensory tool, but as a body with something of a competing will of its own, it was like a leech that happened to be there by coincidence but wouldn't take the hint and couldn't be got rid of. It was my first known enemy (Williams, 1999, p. 53).

> When I was little loud noises were also a problem, often feeling like a dentist's drill hitting a nerve. They actually caused pain. I was scared to death of balloons popping, because the sound was like an explosion in my ear. Minor noises that most people can tune out drove me to distraction. When I was in college, my roommate's hair dryer sounded like a jet plane taking off. Some of the sounds that are most disturbing to autistic children are high-pitched, shrill noises made by electric drills, blenders, saws and vacuum cleaners. Echoes in school gymnasiums and bathrooms are difficult for people with autism to tolerate. The kinds of sounds that are disturbing vary from person to person. A

> sound that caused me pain may be pleasurable to another child. One autistic child may love the vacuum cleaner, and another will fear it. Some are attracted to the sound of flowing, splashing water and will spend hours flushing the toilet, while others wet their pants in panic because the flushing sounds like the roar of Niagara Falls.
>
> Children with autism often appear to be deaf. They respond to some sounds and not to others . . . I still have problems with losing my train of thought when distracting noises occur. If a pager goes off while I am giving a lecture, it fully captures my attention and I completely forget what I was talking about . . . (Grandin, 1995, p. 67).

> Many a time, my actions brought my parents and me to the hospital. I loved to chew crunchy things, even if they were poisonous. When I was finished with my little tin foil table settings, I used to chew them until they crackled their way into a tight, neat ball. I shaved the sand from Emory boards with my front teeth. I took great delight in grinding the striking strip of a match book between my back teeth. I chewed sugar packets whole, loving the way the grainy sweet sugar overcame the bitter paper packet. I ate school paste and play dough and paraffin . . .
>
> As much as I loved to chew scratchy and gritty textures, I often found it impossible even to touch some objects. I hated stiff things, satiny things, scratchy things, things that fit me too tightly. Thinking about them, imagining them, visualizing them . . . any time my thoughts found them, goose bumps and chills and a general sense of unease would follow. I routinely stripped off everything I had on even if we were in a public place. I constantly threw my shoes away, often as we were driving in the car. I guess I thought I would get rid of the nasty things forever! . . .
>
> I also found many noises and bright lights nearly impossible to bear. High frequencies and brassy, tin sounds clawed my nerves . . . Bright lights, mid-day sun, reflected lights, strobe lights, flickering lights, fluorescent lights; each seemed to sear my eyes. Together, the sharp sounds and bright lights were more than enough to overload my senses. My head would feel tight, my stomach would churn, and my pulse would run my heart ragged until I found a safety zone.
>
> I found solace underwater. I loved the sensation that came from floating with the water. I was liquid, tranquil, smooth; I was hushed. The water was solid and strong. It held me safe in its black, awesome darkness and it offered me quiet — pure and effortless quiet (Willey, 1999, pp. 25–6).

> I wanted to feel the good of being hugged, but when people hugged me the stimuli washed over me like a tidal wave. When I was 5 years old, I used to daydream about a mechanical device I could get into that would apply comforting pressure. Being able to control the device was very important. I had to stop the stimulation when it became too intense. When people hugged me, I stiffened and pulled away to avoid the all-engulfing tidal wave of stimulation. The stiffening up and flinching was like a wild animal pulling away (Grandin, 1992, p. 108).

> When I was very young I can remember that speech seemed to be of no more significance than any other sound . . . I began to understand a few single words by their appearance on paper.
>
> It was ages before I realized that people speaking might be demanding my attention. But I sometimes got annoyed once I realized that I was expected to attend to what other people were saying because my quietness was being disturbed (Jolliffe *et al*., 1992, p. 13).

There is no question that other people figure rather oddly in these autobiographical accounts. Significantly, they are not presented as other centres of meaningful action, thought or even sensation; they do not appear as a resource for empathetic contact or comfort. Instead, they tend to be presented as constituting additional sources of sensory stimulation that may be more or less confusing, dangerous or upsetting. This implies something like a recognitional deficit, to be sure; but it is so dramatically subsumed under the scope of autistic sensory disturbances that it is hard to see this as a

deficit relating specifically to other people, except insofar as they are a particularly interactive and, hence, intrusive features of the autistic's environment.

Still, how dependable are these autobiographical accounts as a guide to theorizing about the underlying source of autistic social and communicative abnormalities? On the one hand, it is not surprising that the scope and importance of autistic sensory disturbances might be underestimated from the (non-autistic) third-person point of view. We, after all, do not live in that kind of sensory world. On the other hand, it is not surprising that autistic individuals would themselves be blind to the centrality of their social handicaps. They, after all, do not live in the kind of social world where other people figure so significantly for one another. Hence, we could easily be misled by the autistics' slanted perspective into misidentifying the actual source of their difficulties.[8] As Happe cautions:

> Abstracting the content from these accounts, without considering style or possible limitations in the writer's insight, not only discards valuable data, but must lead to questionable conclusions. What are we to make, for example, of an autistic person's comment that his mental processes or sensations are radically different from other people's when he is likely to have severely impaired insight into other minds? Is it not probable too, that an autistic child will have peculiarly unreliable memories from a childhood without self-awareness? While these remain open questions, we must be careful in how we use the contents of autistic autobiographies (Happe, 1991, pp. 222–3).

Unfortunately, this observation cuts both ways. As theorists, we too must be careful about how we use the contents of autistic autobiographies. For it may be tempting simply to minimize or sideline possibly central features of reported autistic experience that do not fit easily into our preferred theories, especially as these theories reflect the preoccupations of our own slanted perspective.[9] Our own theories are geared after all to the pivotal role others play in shaping the warp and weft of normal human subjectivity. This makes it more difficult for us to see how abnormalities apparently unrelated to us could play any role in autistic 'mindblindness'. Some methodological humility is therefore in order.

Perhaps the most neutral way to proceed is by what Dennett calls, in another context, the method of *heterophenomenology* (Dennett, 1991): we take subjects' at their word, letting their descriptions of what it's like to be them stand as an authoritative account of their 'heterophenomenological' world — the world of their own experiences, including, of course, the world as they experience it. Our task as theorists is then to develop a scientific explanation of this heterophenomenological world *in all its details*, reconciling it with what we observe to be true of their capacities from a third-person point of view. It may be that our best explanations of why their

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[8] Another problem with using these autobiographical accounts as representative of autistic experience is that such high-functioning autistics only comprise about twenty-five per cent of the autistic population. Clearly, any suggestions for further research based on phenomena reported in these accounts must find third-person means of corroborating the existence of such phenomena more generally within the autistic population.

[9] One minor way this bias may show up is in the simple reporting of these features, as when Happe asks what we are to make of 'an autistic person's comment that his mental states or processes *are radically different from other people's*'. In fact, autistic observations seem to be focused on what it's like to be them, without particular regard for how their experiences compare with others'. Indeed, their writing often evinces little sense of how odd their claims might seem to us, as Happe herself elsewhere notes. Of course, the implications are certainly everywhere that their experiences are different from ours, but the *judgment* that they are so comes mainly from us who are struck by the abnormality of their reports.

experiences seem to them a certain way do not gibe with their own understanding of these experiences, but we shouldn't prejudge this question by beginning — in this case unnecessarily — with theories developed purely on the basis of third-person observations of their abilities and disabilities.

What kind of theory could reconcile the data provided by first-person autistic accounts of their unusual sensory experience with the non-autistic 'interactional' appearance of their suffering a specific impairment relating to the recognition of other people? A first step towards sketching such a theory is to focus on what normal infants get in the kinds of reciprocal, affectively patterned relations they normally have with others. On the view I've been developing in this paper, infants are not just learning about others and the world through these interactions; they are themselves becoming well-regulated by them. As I argued in Part II, this is not to deny the need for 'innate machinery' supporting the infant's capacity to engage with others. But it does suggest that an infant's innate proclivity for imitating others may be driven as much by machinery dedicated to serving a self-regulative goal as it is to machinery dedicated to the epistemic goal of understanding self and others.

This fits with a theme emphasized by Hobson and other theorists that what matters to a child's normal social cognitive development is the *affective quality* of her intersubjective experience (Hobson, 1991; 1993b; Stern, 1985; Trevarthen, 1979; Trevarthen and Hubley, 1978). That is to say, the initial innate bridge between self and other is not just sustained by the cognitive satisfaction of finding and imitating something 'like me'; it is sustained by perceiving and reproducing the bodily expressed *feelings* of others: smile for smile, frown for frown, fearful look for fearful look (Hobson, 1991; 1993b; cf. Stern, 1985; Trevarthen, 1979; Trevarthen and Hubley, 1978). This makes others potentially significant for the infant in two respects at once: not only do they provide information about the world and human experience; they also serve as a critical source of sensory-affective regulation. Thus, for instance, a mother may comfort a distressed child by, first, adopting in face and voice expressions that are recognizable to the child as mirroring its own distress, then modulating these in a way that expresses the easing of distress. The child, carried along by its innate proclivities for imitation, will often follow the direction of the mother's expressive modulation, experiencing the easing of its own distress in consequence (Gergely, 1995). Indeed, the regulative benefits of imitation may be so critical to an infant's well-being that it is they, rather than any direct epistemic rewards, which drive the infant's interactions with responsive others. For in learning how to be like others, the infant is learning how to be itself in tolerable contact with the world. Of course, these structured interactions, first with others then later with objects and situations via the mediation of others, become enormously rewarding on the epistemic front as well. For they allow the growing child to metabolize its experiences in ways that are conducive to developing a picture of the world as a stable, predictable place. The normal child who becomes well-regulated in the manner of other people thus derives a double epistemic benefit from this process: the world, including the progressively more complex and differentiated behaviour of other people, is made open to manageable exploration, while at the same time other people become known to the child inside and out in a way that precedes more elaborate theories about them.

If this is a reasonable sketch of what happens in normal development, it suggests a clear connection between autistic sensory disturbances and their failure to engage

with others in the preferential ways children normally evince. Autistic individuals need not lack a basic capacity, or even drive, to imitate others — indeed, some autistics show extraordinary if oddly selective parroting tendencies. But this innate capacity for imitation would hardly be evoked in a sustained and potentially regulatory manner if autistic children find their contact with others, on the whole, far too stimulating to be tolerated. Indeed, in an effort to manage their sensory experiences, autistics might need to shut other people out in a fairly pointed way. But so far from indicating that they lack any specialized machinery for attending to others, this may well show that they *have* such machinery with the consequence that others constitute a disproportionately powerful source of stimuli that quickly become overwhelming for them. In any case, the devastating effects of finding in others an abnormal source of sensory disregulation rather than a normal source of helpful regulation are twofold. (1) Autistic individuals would be cast back on their own resources for managing their sensory experiences perhaps by reducing, repeating or drowning out incoming sensory stimuli in ways they can control. This could explain a number of characteristic autistic behaviours that range from being seemingly dull and repetitive to bizarrely self-stimulatory and even self-abusive: lining up blocks, counting and calculating, repetitively flushing toilets, examining grains of sand, chewing things regardless of taste or danger, spinning, hand-flapping, rocking, echolalia, head-banging, biting and slapping oneself, and so forth. (2) Being excluded from the regulative influences of other people, autistics will not develop habits of agency that conform to shared norms of what it is to experience, think and act in recognizably normal ways. Hence they will be deprived of the very kinds of interactions that give rise to ordinary psycho-practical know-how, a disability reflected in the perplexing nature of their own behaviour as well as in their own perplexity at the behaviour of others.

If these speculations are on the right track, it suggests that becoming minded as others are minded, and sharing thereby in the advantages of normal psychological knowing, may finally depend on something as basic as having sensory access to others in a way that makes possible their regulative influence on us as developing children. In general, philosophers and cognitive psychologists have paid scant attention to the possible link between autistic sensory disturbances and autistic 'mindblindness', despite the suggestive label. In part, this may be due to a tendency in cognitive science to look for dedicated systems underlying higher-order cognitive functions. In part, it may be due to the conceptual gulf that seems to separate such higher-order functions from lower-order sensory processes. In this paper, I have tried to bring these two features of our embodied nature together, suggesting along the way that higher order cognitive functions are as much dedicated to regulating our sensory experiences as they are to using our sensory experiences as an informational conduit to aspects of the world.

In support of this general approach, I have one final observation to make: if autistic sensory disturbances do indeed lie at the developmental core of these other diagnostic abnormalities, then it would seem that other clinical populations with sensory problems ought to show similar kinds of higher-order abnormalities — and indeed this is the case. Although I have not been able to discuss such research in this paper, deaf children of hearing parents as well as congenitally blind children suffer autistic-like deficits in social, communicative and imaginative skills, as well as selective incapacity to pass reasoning tasks with a mentalistic component (Brown *et al.*, 1997;

Hobson, 1993b; Peterson *et al*., 2000; Peterson and Siegal, 1998; 1999).[10] Indeed, the parallels among these populations are so stunning as to call for a unifying explanation. Generalizing, then, from the conclusion I reach about the source of autistic social and communicative disabilities above, I suggest that any child will be unable to develop the skills of a normal psycho-practitioner so long as it is sensorially impossible for her to make good regulative use of other people. This may stem from having a missing sensory avenue to others, as much as it may stem from having one's sensory avenues to others overwhelmed by the over-stimulation involved in sustained exposure to them. This apparent connection between autistic, deaf and blind populations makes Donna Williams' first-person reflections on her own autistic difficulties singularly apt. I therefore conclude with her words, as a fitting spur to further research on the centrality of autistic sensory-motor abnormalities to the consequent development of their alternative practices of mind:

> Mine was not a situation unlike that of the deaf-blind. Unable to filter information and being flooded with information at a rate I could not process in the context in which it happened, I was left meaning deaf and meaning blind as well as context deaf and context blind. Sometimes a sensory experience had no interpretation at all, leaving me in the sensory, struggling for the literal. At others it had a literal meaning but had no significance.
>
> I perceived sound and visual information directly and consciously only at the cost of its cohesion. I could interpret the part but lost the whole. I saw the nose but lost the face, saw the hand but continued to see the body but would not know what it was except piece by piece. I'd get the intonation but lose the meaning of the words or get the meaning of the words but only at the cost of tuning out the intonation, as though independent of the words.
>
> The conscious mind, however, is not the only way of taking things in. The preconscious state takes things in, not directly, but indirectly. Using peripheral perception, we accumulate all the knowing we aren't always aware we are taking in. Taking things in indirectly, peripherally, the fragmentation didn't happen; things were more cohesive, they retained context. Yet the mind-jolting senses of direct vision and direct hearing could not be consistently relied upon as meaningful primary senses. In spite of this, I didn't remain under-developed, so much as I became differently developed. Like the deaf-blind, I used other systems more fully than most would ever develop them (Williams, 1999, pp. 62–3).

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[10] It is interesting to compare these various clinical populations with Downs Syndrome children who do pass false-belief tasks at the same mental age as normal children. Hence, Downs Syndrome children are developmentally retarded, but they seem to follow a normal developmental trajectory (see, for instance Baron-Cohen *et al*., 1985). By contrast, congenitally blind children and deaf children of hearing parents follow the same abnormal developmental trajectory as autistic children: they are unusually delayed in passing theory of mind tasks compared with non-social reasoning tasks. They also show autistic-like abnormalities in social, communicative and imaginative abilities; but, as is not the case with autistic children, these abnormalities tend to disappear as they become more able to relate to others through developing skills that overcome their handicaps in a context of able and responsive others (Brown *et al.*, 1997; Peterson and Siegal, 1998). It is also notable that deaf children whose parents are native signers, and who therefore have rich proto-conversational and conversational interactions with others from an early age, do not show any 'autistic' social or cognitive abnormalities in the nature of their conversational behaviour (Meadow *et al*., 1981). In particular, they do not have any difficulty passing 'theory of mind' reasoning tasks. These comparative results are discussed in Peterson and Siegal (1999).

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