

The Skill of Perceiving Persons

SECTION 1: PERCEIVING PERSONS

What is it that we ordinarily perceive when we perceive a person? The behaviourist might claim we see a body, apparently self-propelled, interacting in various complex ways with its surrounding environment. If we are daring (or naïve), we might go beyond these observable features of body, inferring — as some might say — the presence of something like an animating agency or personality, a seat of sensation, emotion and reasoning akin to what we experience in our own case. How daring are these so-called inferences? To some philosophers, they have seemed daring enough to generate a sceptical problem of other minds. To others, the problem of other minds has seemed nothing more than a philosophical pseudo-problem, rooted in a deeply misguided picture of what we actually perceive when we perceive a person.

A fresh perspective on this dispute may come from abnormal psychology. There are certain human beings for whom the problem of other minds is profoundly real. Individuals with autism seem not to perceive persons as others typically do. As one highly intelligent young man with autism observed:

“I really didn’t know there were other people until I was seven years old. I then suddenly realised there were other people. But not like you do. I still have to remind myself that there are other people. I could never have a friend. I really don’t know what to do with other people, really.” (quoted in Hobson 1992: 165)

For typical individuals, it’s hard to imagine what this kind of experience could be like. If anything, everyday encounters with other individuals have an irresistible agentive quality about them. Typical human beings are more than ready to see others as persons, discerning in their activities an animating agency constituted by a rich variety of intentional, emotional and perceptual states: beliefs, desires, hopes, fears, joys, jealousies, pains, pleasures, and a panoply of others. In fact, typical human beings are not content with perceiving other adults in this way — they readily attribute such states to infants, to family pets, to other domesticated and undomesticated creatures, even to their word processors.

In one compelling study of this ‘anthropomorphizing’ proclivity, the psychologists Heider and Simmel prepared a short animated film clip consisting of nothing but geometric figures — two triangles and a circle — moving in and around a large rectangular enclosure (Heider and Simmel 1944 — see figure 1) The animation, which lasts about a minute and a half, conveys to most people who view it a heroic tale of a young Galahad protecting his small companion from the bullying attacks of an evil oppressor. Not so for high-functioning autistics who fail, by and large, to make any mentalistic attributions at all — and even among those who do make such attributions, they fail to weave them into the sort of sense-making narrative that characterizes the experience of a typical viewer (Klin 2000). Two sample narratives collected from adolescents viewing the Heider and Simmel film will give a taste of this difference. The first is from a typically developing individual; the second from a high-functioning individual with autism of comparable verbal IQ (Klin 2000: 840):

(Typically developing adolescent) “What happened is that the larger triangle — which was like a bigger kid or bully — and he had isolated himself from everything else until two new kids come along and the little one was a bit more shy, scared, and the smaller triangle more like stood up for himself and protected the little one. The big triangle got jealous of them, came out, and started to pick on the smaller triangle. The little triangle got upset and said like, ‘what’s up?’ ‘Why are you doing this?’” (adolescent with autism) “The big triangle went into the rectangle. There was a small triangle and a circle. The big triangle went out. The shapes bounce off each other. The small circle went inside the rectangle. The big triangle was in the box with the circle. The small triangle and the circle went around each other a few times. They were kind of oscillating around each other, maybe because of a magnetic field. After that, they go off the screen. The big triangle turned like a star — like a star of david — and broke the rectangle.”

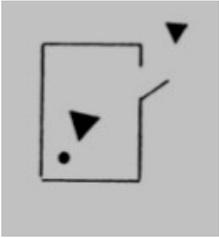


Figure 1. Still image from Heider and Simmel (1944) film clip

The contrast between typical and autistic human beings is clear: Typical human beings are not only active mentalizers: they are inveterate metalizers — a fact that has a profound effect on the nature and quality of their interactions. From the autistic perspective, such interactions seem nothing short of miraculous. This is nicely captured by Oliver Sacks, describing the (self-reported) childhood experience of Temple Grandin, a remarkably gifted individual with autism:

Something was going on between the other kids, something swift, subtle, constantly changing — an exchange of meanings, a negotiation, a swiftness of understanding so remarkable that sometimes she [Grandin] wondered if they were all telepathic. She is now aware of the existence of these social signals. She can infer them, she says, but she herself cannot perceive them, cannot participate in this magical communication directly, or conceive the many-levelled kaleidoscopic states of mind behind it. Knowing this intellectually, she does her best to compensate, bringing immense intellectual effort and computational power to bear on matters that others understand with unthinking ease. This is why she often feels excluded, an alien (Sacks 1995: 272)

A natural explanation for this continuing alien experience is expressed in these observations: Grandin, and other autistic individuals (if they are lucky), come to know about other minds by genuine inference, working to understand the kind of complex psychological states others have based on observing their behaviour. Typical human beings, by contrast, have a different kind of access to other minds — something very like direct perception. As the psychologist Alison Gopnik remarks:

... our perception of mental states in others is, at least much of the time, no less immediate than our perception of our own mental states. I 'see' my son's hunger or my friend's disappointment just as directly as I see my own. Indeed, if we imagine what a purely physical perception of other people would be like, a perception from which we then inferred their mental states, it seems as bizarre as imagining ordinary visual perception as an inference from an uninterpreted pattern of light and dark. Imagine seeing the other people around you at the dinner table, say, as bags of skin stuffed into bags of cloth, with two small restless black spots near the top and a hole underneath that emits noises. This is a mad view. At the most immediate

phenomenological level, particularly with familiars, there is no other minds problem. Like so many other problems, it only emerges when we begin to think (Gopnik, 1993b: 269).

Following on Gopnik's suggestion, we might ask: what is it about theoretical reflection that breeds the 'other minds' problem? On the one hand, phenomenology speaks to one kind of model of normal psychological knowing — a perceptual model: we see other minds as directly and easily as we see an apple on the table before us. Support for this model comes with the recognition that, whatever we are doing, it cannot be what autistic individuals are doing. Moreover, this is not just a phenomenological point. Our method of knowing other minds meets with the kind of success that grinding inferentialists can only dream of. On the other hand, if we focus on the kind of knowledge we have of other minds, it seems that only an inferential model will do. Mental states, whatever they are, are not in the public world in the way that bodies are. So how on earth can they be available to direct inspection, except possibly in the case of those present in our own minds? Further support for this model comes with the recognition that the attribution of mental states involves considerable interpretive sophistication, mediated by a highly-elaborated conceptual knowledge of the causal properties of different kinds of mental states coupled with a highly-elaborated understanding of how individuals' awareness of one another's mental states affects the complexity of our potential interactions. In other words, our understanding of one another's behaviour must be permeated, not just by a recognition of 1st-order mental states (states that are about things in the world), but by a recognition of higher-order mental states (states that are about other mental states) to some considerable degree of complexity.

Consider just one example of our virtuoso talents in this regard, as captured in Coventry Patmore's dialogical poem, "The Kiss":

"I saw you take his kiss!" "*'Tis true.*"

"O, modesty!" "*'Twas strictly kept:*

He thought me asleep; at least, I knew

He thought I thought he thought I slept."

Without knowing anything further about the participants in this conversation, we know at least this: That someone — a young woman, as it may be — is defending her modesty (a bit cheekily) by elaborate appeal to how she and her lover think of one another. Just how elaborate? Here at least is the schema of how things must go: The first explanation — "he thought me asleep" — involves a 3rd-order mental state, since the young woman's account expresses (3) her belief about (2) her lover's *belief* about (1) her (sleep induced) ignorance of his kiss. But then comes the true explanation — an explanation that involves a 5th-order mental state. That is, the young woman expresses (5) about (4) her lover's belief about (3) her belief about (2) his belief about (1) her ignorance of his kiss. And, of course, if the disapproving interlocutor understands this explanation, then her understanding

involves a 6th-order mental state — as does our's. Yet, remarkably, all of this content can be conveyed in a few pithy lines: “He thought me asleep. At least I knew, he thought I thought he thought I slept”.

Now here's the challenge: given the elaborate structure of thoughts about thoughts captured in these lines, it seems hard to believe that inference is *not* the driving psychological mechanism underlying our interpretive talents. How can a more perceptual approach accommodate such complexity?

There are two concessions an advocate of the perceptual model can make at this point. First, there is no need to claim that the knowledge we have of other minds is always and inevitably perceptual. Other people can be fairly puzzling to us; indeed, they often are. Far from immediately understanding why they do what they do, we find ourselves expending considerable amounts of effort trying to work out what thoughts, emotions, and perceptions could possibly animate their activities. Still, these efforts are built upon a foundation of seamless psychological interactions that are mostly invisible to us because they are so seamless. Individuals with autism drive this point home. And so, too, in their own way do con artists and liars: They, after all, become adept at manipulating the transparent quality of psychological perception precisely in order to hide what they are really thinking, hoping, believing. Hence, if we want to understand what normal psychological knowing amounts to, we need to bring this ‘invisible’ foundation into the glare of theoretical light.

The second concession concerns the notion of ‘inference’. This term can be understood in either a sub-personal or a personal sense. The sub-personal sense is common in cognitive science. Here the term is used of a range of sub-personal cognitive processes through which richer informational contents are extracted from cues that are more impoverished. For instance, our visual experience is the way it is because our visual system manages to transform a considerably impoverished 2-D retinal image along several different dimensions. Not only do we see objects as 3-dimensional, we see them as uniformly coloured and as textured in a particular way (despite confounding conditions of shade and light); we see them as near or far (despite confounding conditions of relative size); and we see them as large or small (despite confounding conditions of relative distance). How does the visual system do all this? Well, in a sense, by “making inferences” — i.e. by using various contextual cues to disambiguate alternative possibilities, which disambiguation is accomplished by various complex algorithms encoded into the response properties of hierarchically structured networks of neurons. Now, clearly, we have no conscious awareness of this activity and play no role in enabling it. We have no access to the information the visual system receives at the input end

— the particular pattern of stimulation of rods and cones on the retina; we are simply beneficiaries to what is made available at the output end — the visual experience. We are, in effect, ‘jumping cue’ — perceiving objects ‘directly’ without having to engage in any conscious inferential process at all.

Contrast this with another kind of inferential process. We see some tracks in the snow and we infer that a smallish animal has passed this way. If we’re good at “reading” tracks, we might infer that it was a European rabbit, weighing approximately three pounds, with a damaged right hind limb, travelling at considerable speed, and likely within the last five minutes. If asked how on earth we know all that, we might answer as follows: only European rabbits make tracks of this shape; the weight of the rabbit is discernible from the depth of the tracks; the damaged right limb from the uneven imprint; the speed from the distance between the tracks; and finally the timing from the steamy little bits of rabbit droppings in their midst. Expertise may bring a certain confidence and ease to this process, but we are not ‘jumping cue’ in the following sense. What is perceptually available to us are certain features of the tracks (position, depth, shape). We bring background knowledge to bear in order to interpret these features and thereby extract some richer knowledge of conditions in the world that produced them. We are making inferences to those conditions in a deliberate, conscious way from cues of which we are directly aware. This is the meaning of “inference” in the personal (explicit) sense — and it’s what I shall mean by the term henceforth.

With these clarifications in place, we see what a perceptual model of normal psychological knowing is committed to — that much of our knowledge of other minds is not (explicitly) inferential. At the personal level, we do not consciously infer the existence of particular mental states from others’ behaviour — we perceive their mental states directly. However, in order to be clear about what this model entails, there is one last proviso that should be mentioned. To adopt this model is not to suggest that our perception of other minds is ‘hard-wired’ in the same way that perception of 3-D objects is hard-wired into the visual system. The perceptual model would be too limited if it did not allow for the gradual development of psychological expertise. However, it does imply that the development of expertise can take different forms. One form is exemplified in the example of learning to read tracks in the snow. Here expertise consists in becoming much more savvy about the kind of inferences one can make from low-level perceptual cues, and consequently it involves becoming more sensitive to various aspects of those perceptual cues (e.g. the position, depth and shape of animal tracks). But expertise can take another form as well. It can actually produce a transformation in the qualitative nature of perceptual experience itself — a kind of gestalt transformation, so that the former way of seeing is no longer immediately available, no longer available without considerable attentional effort, often conceptually mediated. Sub-cognitive processes in the brain have taken over what the conscious self formerly accomplished; the brain has enabled the self to ‘jump cue’. Anyone who

has learned a foreign language will recognise the power of such perceptual transformations, and recognise the difficulty involved in trying to recover their original experience of hearing that language merely as a torrent of sounds with little or no determinable syntax, let alone semantics.

I stress all this because there is plenty of developmental evidence to suggest that the skill of perceiving persons is indeed acquired. Hence, a broadly perceptual approach to normal psychological knowing had better be able to accommodate this fact. Of course, this is commensurate with saying that we could hardly develop this skill in the absence of various biologically given attributes. And this may suggest that certain biological deficits could entirely account for why autistic individuals fail to develop it, though I think the story will be more complicated than this. However, before turning to the topic of autism, a primary object of this paper is to develop a satisfying perceptual account of normal psychological knowing on which more productive speculations about autism might be based.

So far, I have provided some *prima facie* evidence to show why we need a perceptual account of normal psychological knowing. The experience of autistic individuals contrasted with our own experience of knowing other minds suggests that the inferential model is deeply flawed. Indeed, I think an ordinary encounter with Patmore's poem likewise suggests a defect in the inferential model. Consider what happens in reading the poem (I hope that what I report is not idiosyncratic). On first acquaintance, we smile in understanding — we seem to have a pretty good sense of what's going on. But if asked to produce an inferential reconstruction of the kind I offered, thinking through each iteration of embedded thought, a fog creeps over the whole and our sense of understanding disappears. Can we recover that initial moment of enlightenment? Not it seems by trying to hold the many levels of thought and counter-thought together in our heads. Here is a better technique: provoke a perceptual level response to the putative agents involved. For instance, try to imagine how this little interlude would be acted out on the silver screen: The heroine is draped invitingly on her couch. She hears the hero at the door. She closes her eyes, pretending to sleep. The hero enters; observes her slight, anticipatory smile, her delicate blush; he pauses, then smiles conspiratorially himself and approaches for the kiss; but then, just as his lips touch her cheek, we see her smile increase the very smallest bit — “Ahh”, we now effortlessly conclude, “they're playing a coy little game with each other of bluff and counter-bluff, as lovers often do”.

My plan for the rest of the paper is as follows: In Section 2, I will briefly present the two standard approaches that philosophers and psychologists have pursued as a way of accounting for what is often called our ‘folk-psychological’ expertise. These are the ‘theory-theory’ and the ‘simulation theory’. After dis-

The Skill of Perceiving Persons
Victoria McGeer

cussing the relative strengths and weaknesses of these approaches, I will agree with a growing number of theorists that neither of them is adequate on its own. However, while other theorists have begun to call for some sort of “hybrid” account, I will argue that a more radical shift is needed in the way we think about normal psychological knowing. In Section 3, I present my own “psycho-practical” account of our folk-psychological expertise (cf. McGeer 2001, 2007). I begin by identifying what amounts to a common blind spot in standard accounts — namely, a conviction that the practice of attributing mental states to one another is geared primarily to the explanation and prediction of behaviour. By contrast, I will contend that this everyday practice is geared primarily to *regulating* behaviour, which fact importantly contributes to the explanatory/predictive purchase we gain from it. Moreover, recognizing this fact can also give us a better way of accounting for the kind of skilled perception involved in seeing others as minded. Here I will defend the view that such skilled perception is “*performance (or practice) dependent*”: it’s dependent on becoming a certain sort of agent oneself — namely, an agent that is well-regulated according to our shared norms of what constitutes understandable agency. In Section 4, I show how the psycho-practical approach to normal psychological knowing can accommodate the strengths of each of the standard views without encountering their weaknesses — and indeed I think it can do a little bit more. However, the real pay-off for any theory is in its empirical applications. So, finally, in section 5, I consider very briefly what those pay-offs might be in the field of autism research.

SECTION 2: TWO STANDARD APPROACHES TO NORMAL PSYCHOLOGICAL KNOWING

The capacity for normal psychological knowing has gone by many names — ‘commonsense psychology’, ‘folk-psychology’, ‘taking the intentional stance’, ‘mindreading’, ‘mentalising’, ‘theory of mind’ (or ToM), ‘folk-psychological expertise’ — and probably some others. Many of these terms have particular theoretical implications, so I have coined the term ‘normal psychological knowing’ to designate this capacity in an expressly neutral way. Nevertheless, I will sometimes also refer to it as ‘folk-psychology’, since this term is so widely employed by a variety of theorists. The theorists themselves — philosophers, psychologists, or even cognitive neuroscientists who study this capacity as a theoretical enterprise — I will simply refer to as ‘psycho-theorists’: theorists *of* the capacity for normal psychological knowing (cf. McGeer 2001).

Despite the confusing proliferation of terms, there are really only two prominent theories of the capacity for normal psychological knowing. They are the theory-theory and the simulation theory. In this section, I offer a brief sketch of the general structure of these two approaches, ignoring many variations in the particular accounts presented on either side. I believe they do not affect my overall argu-

ment. I also mention some points that have made each of these approaches seem attractive in comparison with the other.

The theory-theory (albeit not under that title) was originally suggested by Wilfrid Sellars (1997), and has been variously developed and defended by David Lewis (1972), Paul Churchland (1981), Daniel Dennett (1987), Jerry Fodor (1987), Alison Gopnik (1996), Henry Wellman (1990), and many others (the following brief description is most directly indebted to Churchland (1981)). Proponents of the view maintain that we explain and predict the behaviour of various complex creatures (most notably conspecifics) by using a commonsense, proto-scientific theory of behaviour. This theory of behaviour — folk-psychology — is like any other scientific and/or commonsense theory in so far as it quantifies over a set of theoretical entities that are related to one another and to various observable phenomena by a set of laws or law-like generalizations. The theoretical entities of folk-psychology are just our ordinary mental states (propositional attitudes, emotions, sensory and perceptual states); and the laws consist of a dense network of everyday platitudes that relate mental states to one another, to sensory inputs and to behavioural outputs — e.g.:

- People who suffer bodily damage tend to feel pain
- People who feel pain tend to want to relieve that pain and will take steps to do so
- People who feel angry tend to express their anger in words or in deeds
- People who want that P, and believe that Q is sufficient for bringing it about that P, and don't have any conflicting preferences will tend to try and bring it about that Q

Theory-theory has been challenged on a number of fronts, but a recurring concern is simply this: could the everyday explanation and prediction of behaviour really hinge on learning and deploying such a dense network of generalisations, platitudinous though they may be? Theory-theorists have offered various responses to this challenge, leading to a proliferation of theory-theory views. In the main, they fall into three categories (although a combination of these responses is also possible): (1) bite the bullet; (2) go native; (3) go normative. Here is a brief description of these three alternatives.

Theory-theorists who advocate a 'bite the bullet' response (e.g. Churchland) insist that the learning problem is overblown. After all, they claim, we learn many other, more complicated theories over our lifetimes; and, in any case, we've been having constant tutorials in folk-psychological theory from our earliest days at

mother's knee. By contrast, nativists (e.g. Fodor) are impressed by Chomskian considerations: Given how early children develop the rudiments of folk-psychology and given the 'poverty of the stimulus' (the evidential base they have to go on), there must be something like a theory of mind module (analogous to universal grammar) that encodes the basic principles of folk-psychology. Finally, there are the normativists (e.g. Dennett), who make an important observation (I come back to this in sections 3 and 4). Their idea is that when we use folk-psychology to explain and predict behaviour, we do so in virtue of applying a *normative standard* to that behaviour. We *make sense* of what people do. Further, they claim that the normative standard in question is a standard of rationality. Thus, the platitudes of folk-psychology are rendered more manageable in virtue of the fact that they are generated under the following simplifying assumptions: human beings are rational in the mental states they tend to form (relative to their perceptual capacities, their epistemic and biological needs, and their particular circumstances) and rational in the way that the mental states they form carry through to behaviours. Of course, this means that failures in the application of the theory — failures to explain and predict instances of behaviour — are only to be expected if people fail to think and act rationally. Under these conditions, according to the normativists, we will not be able to *make sense* of behaviour — and that will be true whether the behaviour is someone else's or our own.

The simulation approach also has several adherents, including Alvin Goldman (1989), Robert Gordon (1986), Jane Heal (1986) and Paul Harris (1989), among others. Like their theory-theory counterparts, simulation theorists do differ in their views, though not critically enough to concern us here. Their main idea is that normal psychological knowing does not depend on human beings acquiring a lot of general knowledge about what makes people tick. For even supposing we had such knowledge, simulation theorists claim we don't normally use it in everyday explanations and predictions of behaviour. Instead, we use ourselves as a working model for what other people are like, using our own cognitive processes to *simulate* theirs. That is to say, we take our own behavioural control system 'off-line', plug into this system various 'ersatz' mental states — mental states we imagine ourselves having under their circumstances — and then wait to see what our system 'outputs' as the appropriate attitudes to adopt or behaviours to perform. Our explanations and predictions therefore amount to judgements of what *we* would think or do under their circumstances, supposing we were they.

On this approach, failures to explain and predict others' behaviour could happen for a couple of different reasons. For instance, we may not adjust appropriately for others' situations, failing to imagine how our own mental states would really be affected by being in their shoes. Hence, since we don't run our simulations with the appropriate input, it's no surprise that we get faulty output — as the saying goes, 'garbage in, garbage out'. Alternatively, it may be that our own cog-

nitive system is a poor model for theirs because of critical differences between the two. This may be true in some specific respects that affect particular simulations — or it might be more generally true if the differences are more systemic. However, there is one important point that simulation theorists are inclined to make. Mere failures of rationality will not undermine the simulator's ability to explain and/or predict behaviour, so long as relevant cognitive shortcomings are shared. So, for instance, we can very often predict when people will be distracted and do something stupid, according to the simulation theorist, because we can tell what sort of things will distract us and lead us to do something stupid. Fail-safe devices are designed on this principle.

In sum, simulation theorists maintain that knowledge of other minds is primarily non-theoretical. It proceeds case-by-case and is process-driven — driven by the process of simulation. So though we may know a variety of 'folk-psychological platitudes', our knowledge of others is generally not based on such platitudes. So, importantly, it does not depend on acquiring anything so elaborate as a systematic set of causal laws that relate our network of psychological concepts to the kinds of situations that typically cause them as well as to the kinds of behaviours they typically produce.

In view of this, it may seem as though simulation theorists avoid the kind of learning problem that confronts theory-theorists — a point that surely argues in their favour. But this would be overly sanguine. After all, as simulationists must admit, in order to use our own minds to model the minds of others, we have to have an understanding of our own minds in psychological terms. But this entails two things: first, that we have somehow acquired the sophisticated concepts and kinds that constitute our psychological expertise (beliefs/ desires, intention/action, reason, deliberation, will, freedom, emotion, valuation, etc.); and secondly, that we have somehow learned how to apply these concepts in our own case. Theory-theorists will insist that the best explanation of how these feats are accomplished will involve learning and applying a body of knowledge that is very like a theory. Moreover, they will point to developmental evidence that suggests that children's understanding of their own minds in no way precedes an understanding of other minds, as one might expect on the simulationist approach (Gopnik, 1993a). Hence, what looks to be an advantage of simulation theory is really no advantage at all.

Simulation theorists have various responses to this challenge — in my view, none of them are very successful. However, there is another advantage they claim for their approach that merits serious attention. It is that simulation theory seems to capture the phenomenology of normal psychological knowing more accurately

than theory-theory. For instance, when we attribute mental states to one another in everyday contexts, it doesn't seem to us as though we're doing anything like theorizing. If anything, it feels like empathising — which simulationist understand as actively putting ourselves in another's shoes. More fundamentally, when we see others as minded, it carries with it a sense of *attunement* with the other — i.e., a sense of *knowing what it's like* to be minded in that way. Again, simulationists say this is explained by the fact that we are actively putting ourselves in another's shoes. But how can these phenomenological points be explained on the theory-theory?

Theory theorists may argue that becoming *expert* in a theory can have transformative effects on the way we experience the objects of our theoretical attention. And this is surely true. Experts within the relevant domains may just come to *see* cancer in an ultrasound image, or the threatening economic recession in stock market trends, 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. Theoretical expertise, no matter how well developed, remains third-person expertise: it is the expertise of an outsider looking on. Folk-psychological expertise, by contrast, is *insider expertise*: it is the expertise of someone who understands something of what it is like to *be* the agent in question. Simulation theorists offer an explanation for this difference — and that is surely a point in their favour.

SECTION 3: NORMAL PSYCHOLOGICAL KNOWING AS PSYCHO-PRACTICAL KNOW-HOW

My aim in the preceding section was not to give an exhaustive survey of arguments for and against the standard approaches to normal psychological knowing. Rather, it was to give a sense of the difficulties each approach faces, even though there are merits on either side as well. This has led a growing number of theorists to call for some kind of “hybrid account” that would combine the virtues of both approaches, while avoiding their weaknesses. I share the overall goal; but in my view simply trying to combine these two approaches is not the way forward. Rather, I think we need something like a ‘gestalt shift’ in the way we think about normal psychological knowing, re-conceptualizing the foundation upon which a new theoretical approach can be built.

One way to provoke this shift is to ask, not about the differences between the standard views, but about what they share in common. In particular, do they have a common blind spot? One thing these two views take for granted is that our primary concern in attributing mental states to one another is the *explanation and prediction of behaviour*. Of course, such theorists will concede that when we attribute mental states, we may also be interested in evaluating people's agential activities: “is X responsible, blameworthy, etc...?” But however important these evaluative activities are, they are viewed as parasitic on the ability to explain and

predict behaviour. Hence, such theorists will claim, nothing is lost by focussing on the capacity for explanation and prediction as the core skill of interest in normal psychological knowing.

I disagree — at least with the conclusion, if not with some of the observations that psycho-theorists make along the way. For instance, I agree with psycho-theorists that we have a remarkable facility for using our attributions of mental states to explain and predict others' behaviour — especially the behaviour of those we know well. But this facility can be greatly exaggerated. There are plenty of failures in our folk-psychological encounters — a fact that Paul Churchland has emphasized.¹ We also have plenty of techniques for papering over such failures — plenty of excuses that might be offered for any given breakdown in anticipating what another will do. For instance, an unsuccessful predictor may claim that he wasn't paying enough attention to the agent or to her circumstances to make appropriate attributions of mental states. Or the predictor may assume that while he did make appropriate attributions to the agent, the agent's mental states somehow failed to carry through into the appropriate (predicted) behaviour. Perhaps the agent was distracted or suffered from weakness of will or some other (unpredictable) psychological anomaly. And so on.

But the everyday fact of all these failures now raises a question: If folk-psychology really is a technique for explaining and predicting behaviour, why don't we search for a better technique — for theory-theorists, a better theory — if this one is continually letting us down? In response, some psycho-theorists (e.g., Dennett 1987; Fodor 1987, 1990) have suggested that it's the only predictive/explanatory game in town, at least for practical intents and purposes. But I think this overlooks an even more obvious explanation. It's simply this: The practice of attributing mental states to one another is not primarily geared to explaining and predicting behaviour at all. Rather, its primary function is *regulative*: it is essentially geared to moulding individuals into what I will call "well-behaved folk-psychological agents" — i.e. agents who can be (fairly) well predicted and explained using the concepts and sense-making norms of 'folk-psychology'. Indeed, they are fairly well predicted and explained, on this account, in large part *because* they are agents who work to make themselves (and others) conform to the shared norms of folk-psychology. Agents demonstrate their on-going sensitivity to the regulative power of these norms in a number of ways, one of the most important being that they take suitable reparative actions when lapses occur (e.g. by giving explanations and excuses, making behavioural and attitudinal adjustments) — and often when called to book by the failed explanations and/or predictions of their fellows (for a more detailed defense of this view, see McGeer 2007).

The Skill of Perceiving Persons
Victoria McGeer

On my view, then, to engage in normal psychological knowing is to engage in a normative practice that involves self-regulation as well as regulation by others. This means that the core skill of interest on which psycho-theorists ought to be focussing is not the skill of explaining/predicting behaviour. Rather, it is the skill (or know-how) involved in being a well-regulated, and so well-behaved, folk-psychological agent: it is the skill of knowing how to regulate one's own behaviour according to the norms of folk-psychology. This constitutes a shift in focus, to be sure. But, as I will shortly argue, it is not one in terms of which the skill of explaining and predicting behaviour simply disappears as a phenomenon of explanatory interest. Rather, it is demoted from a self-standing or independent skill to one that is performance (or practice) dependent: That is, it is dependent on becoming/ being a well-regulated, well-behaved folk-psychological agent oneself; it is dependent on developing a shared "psycho-practical know-how".

In order to defend this psycho-practical approach to normal psychological knowing, there are two main questions that need to be addressed:

1. What's involved in becoming/being a skilled or well-regulated folk-psychological agent oneself — i.e., what does it take to develop psycho-practical know-how?
2. Why should this know-how give one any special capacity for perceiving others as minded — i.e., why should it generate a performance-dependent perceptual capacity?

I think it will help to address these issues first in a general way — i.e. in a way that pertains to *any* kind of norm-governed practical know-how — before turning to the more specific case of psycho-practical know-how. So more generally we can ask:

1. What's involved in becoming/being a skilled practitioner in any norm-governed activity? e.g. chess-playing; mountaineering; experimental science
2. Why should this know-how give the practitioner any special ability for perceiving the ways in which others are engaged in the same activity? (Why should performance enable this kind of perceptual capacity?)

To answer question (1), we should begin by noting that skilled activities — such as chess-playing, mountaineering, or experimental science — can be done well or badly, i.e. not just according to explicit rules (if there are any), but in keeping with various methods or procedures that are developed in light of a shared understanding of what constitutes doing the activity well or badly. In learning to do the activities in question, practitioners gradually master such procedures and methods, being corrected along the way by experience and by others, and so coming to regulate their own behaviour according to a practically-rooted developing

knowledge of what is commonly accepted as *doing* the activity well/badly. This practical knowledge-in-action is multifaceted, reflecting the various sorts of normative demands the activity makes on anyone engaged in it. For instance (and this is not an exhaustive list), skilled practitioners become practically attuned to the following: the sorts of mistakes practitioners are prone to make; the sorts of conditions that affect how the practice will go; the sorts of corrections practitioners can and do make if things begin to go awry; the sorts of innovations practitioners can institute — that make sense in the context of the practice; the sorts of manipulations or deceptions practitioners can employ to mislead others as to the true nature of their activities; and finally the sorts of limitations practitioners must accept in pursuing the activity either due to constraints imposed by their own cognitive systems (memory, attention, motor skills) or due to constraints imposed by the world around them (social, economic, physical conditions).

Now turn to question (2). Given the sort of skilled regulation of their own behaviour that practitioners must develop in order to engage successfully in any norm-governed activity themselves, it should come as no surprise that they are able to recognize a similar pattern of struggles, successes, mistakes, corrections, innovations, manipulations and accommodations in others. A certain perceptual capacity — by which I now mean recognitional knowledge (i.e. understanding the ways in which others are engaged in the same activity), arises in conjunction with skilled performance in any norm-governed shared practice — or ‘form of life’ (cf. Ryle 1949, p. 54; Wittgenstein 1958). Consider a mundane example: learning how to play chess. In the beginning, the novice will make moves that mostly conform to the rules, although she may need some instruction in this. She knows what her objective is — to take the other’s king and protect her own — but, not being very adept at making moves herself, she’ll have little capacity to understand what her opponent is up to, and mostly fail to anticipate dangerous situations. But as her skill improves, she’ll be able to strategize more effectively and co-incidentally she’ll be better able to perceive her opponent’s strategies as these unfold on the board in front of her. And if she persists in the practice, exposing herself to more matches and more styles of play, her performance will improve still further, encompassing both her ability to produce novel and interesting moves herself and her ability to perceive virtuoso play in the actions of others. Skilled performance and skilled perception emerge together, as two sides of the same coin.

The final step of this section is to apply these general lessons to the case of normal psychological knowing. The psycho-practical approach begins with the idea that becoming a well-regulated folk-psychological agent involves mastering various methods and procedures that constitute the practice of normal folk-psy-

chological agency. They are the methods and procedures, honed in community with others, that govern the appropriate formation and expression of our rich array of mental states — beliefs, desires and other propositional attitudes, emotions and even perceptions. They are the methods and procedures through which we regulate, develop, share and/or disguise our mental states, so as to (among many other things): ease or intensify social situations, manipulate others to get what we want, convey our faith and trust in them, assure them of our dependability or our friendship. In short, they are the methods and procedures that constitute our norm-governed knowledge-in-action of what it takes to be a recognizable folk-psychological agent in attitude, expression and action.

Now, it may be objected that all this talk of learning to regulate our actions and especially our attitudes in accord with shared folk-psychological norms is deeply out of place. Beliefs and desires are not states human beings learn to have; they are states that form in us spontaneously in regular, expectable ways — as do all sorts of other propositional attitudes, let alone emotions and perceptions. Indeed, many would argue that we share this feature with non-human creatures: Just as in them, so too in us, mental states form spontaneously in regular, expectable ways — a fact that explains why we can use our folk-psychological framework to explain and predict the behaviour of non-human creatures.

With respect to non-human creatures, I am happy to concede this point. There are states, appropriately termed ‘beliefs’, ‘desires’, ‘fears’, ‘joys’, ‘angers’, ‘sorrows’, ‘pains’ and ‘pleasures’, that occur spontaneously in a variety of creatures and that govern their behaviour. Moreover, I don’t think this is, or need be, understood simply as a *façon de parler*. In many cases, such spontaneously formed states are embedded in a dense enough cognitive network to invite, not only the attributions, but also the rich implications of making such attributions — for instance, serious moral concern about how such creatures should be treated. Not all philosophers would agree. There are many who argue that creatures without language could not possess states so complicated as beliefs, desires and other propositional attitudes (most notably, Davidson 1985; but see also, Levi 1980; McDowell 1980; Bilgrami 1998). Their reason for this is that such states are properly individuated in terms of contents that bear logical relations to one another: e.g. the beliefs with contents ‘p’ and ‘if p then q’ imply a belief with content ‘q’. But unless a creature is able to explicitly respect the logical relations between the putative contents of attributed beliefs — i.e. by explicitly representing these contents and understanding the inferential connections between them, then we have no grounds, so they claim, for attributing beliefs with those contents in the first place. Such creatures are not (explicit) reasoners and hence they are not believers, and *mutatis mutandis* for other propositional attitudes.

I think such philosophers are unduly demanding (cf. McGeer and Pettit 2002). The reason it seems entirely appropriate to attribute a basic array of propositional attitudes, emotions and perceptual states to non-language using creatures

is that they act in ways best explained by supposing their internal states are related in ways that respect appropriate logical relations between these states. A dog may not be able to explicitly reason from the belief that *p* and the belief that if *p* then *q* to the belief that *q*. But it certainly can manifest in its behaviour that such a transition is occurring in its internal states (e.g., from the belief that its master is picking up the leash and the belief that if the master picks up the leash, then it's time for a walk to the belief that a walk is about to happen).

There is, however, a very big difference between non-language using creatures and human beings. Language gives us the power to explicitly represent the contents of our mental states and to reason about the connections among them, thus prompting the formation of new states as these are entailed by states we already possess. Moreover, language gives us the power to articulate and develop norms for possessing various kinds of mental states — for instance, norms for *believing* that *p*, as opposed to merely *hoping* that *p* or *wishing* that *p*; or, norms for being *jealous*, *envious*, *outraged*, or *forgiving*. Once such norms are articulated, they too have a power to shape our spontaneous dispositions and attitudes such that they better conform to states that fit with the normative categories of folk-psychology. We become, in effect, more coherent and consistent harbourers of states that we manifest in common with other creatures, and we also become capable of harbouring states more finely articulated, more complex in their structure and interconnections than languageless creatures could possibly possess. Such creatures may become angry, for instance, but what is a relatively undifferentiated emotion in other creatures is titrated for us into an array of possible states, finely differentiated in terms of normatively appropriate causes and normatively appropriate behavioural manifestations: outrage, resentment, bitterness, frustration, indignation, irritation, hostility and so on.

I have said that in becoming well-regulated folk-psychological agents individuals have to master various methods and procedures that govern the appropriate formation and expression of the rich array of mental states — propositional attitudes, emotions and perceptions — that are part and parcel of our folk-psychology. So far I have mainly focussed on the formation of such states, but what about their expression? I think this is worth separate mention because, again, it will seem as if there are natural and spontaneous modes of expression for many of our mental states, especially those we share in common with other creatures. Indeed, there are. But, once again, well-regulated folk psychological agents are agents that master a set of methods and procedures that reflect a rich set of shared norms for the appropriate expression of many of their internal states: for instance, norms having to do with facial expression and bodily deportment (e.g., how to

make appropriate eye-contact or stand at the right distance in causal conversation), norms having to do with different kinds of conversational exchanges (norms governing greetings as opposed to serious communication), norms having to do with the effectiveness of conversational exchanges (cf. Gricean maxims of cooperative conversation (Grice 1989)), norms having to do with appropriate behavioural routines in different contexts (cf. Goffman (1959), acting post-office in the post-office), norms having to do with dress. This list can obviously be extended. Importantly, such norms cannot be contravened without consequences for what an agent can successfully communicate to others. Agents that are adept enough can put this fact to good use, intentionally contravening norms to deliberate communicative ends (Bruner 1990; Grice 1989); less adept agents (depending on the extent of such norm contraventions) will merely seem weird, disturbed or otherwise psychologically impaired.

In sum, according to the psycho-practical approach to normal psychological knowing, individuals master various methods and procedures governing both the formation and the expression of their psychological states. These methods and procedures are developed and honed in community with one another. Hence, such methods and procedures express our shared normative sense of what it is to be a well-behaved folk-psychological agent; they constitute our shared practices of mind. Now, in mastering these methods and procedures, individuals not only become well-behaved folk-psychological agents themselves, they develop a rich practical knowledge-in-action of what it takes to enact our shared practices of mind, including (among other things) the various kinds of mistakes, corrections, innovations, deceptions and accommodations that well-behaved psychological agents are prone to make. And this in turn enables a form of skilled perception — namely, the capacity to perceive these self-same practices of mind, so far as these are instantiated in the activities of others.

SECTION 4: HOW DOES THIS PSYCHO-PRACTICAL APPROACH TO NORMAL PSYCHOLOGICAL KNOWING FARE IN CONTRAST WITH THE STANDARD VIEWS?

Having laid out the essential features of the psycho-practical approach to normal psychological knowing, my aim in these final two sections is to evaluate the approach in terms of both its theoretical and empirical implications. Specifically, I aim in this section, to compare the psycho-practical approach to the standard theoretical alternatives discussed in section 2 — theory-theory and simulation theory. My argument will be that this approach not only accommodates the strengths theorists have claimed for each of these alternatives without succumbing to their various weaknesses, it also has additional strengths not evident in either of the standard theories. In section 5, I will then try to bolster the case for this psycho-practical approach by considering its empirical implications in the field of autism research.

Let me begin the theoretical evaluation of the psycho-practical approach by comparing it with theory-theory. One of the points I noted in favour of the theory-theory was that mastering the concepts of folk-psychology seems to involve having a fairly well elaborated knowledge of how all these concepts relate to one another and to the kind of situations that tend to produce them and to the kind of actions they tend to produce. For instance, one wouldn't have any idea of what it is for someone to be *crafty* without knowing that that is a particular way (a complex multi-faceted way) of going about one's business — involving whole networks of other attitudes, reactions and tendencies. And so on for all the other folk-psychological concepts — whether applied to others or applied to oneself.

The psycho-practical approach agrees that becoming a well-regulated folk-psychological agent involves mastering this complex body of knowledge — but the kind of knowledge so acquired is not primarily propositional. It is knowledge in action. It is know-how. It comes through practice and correction, experience in the world, and experience with others as guides and exemplars of how to act in ways that fit (normatively speaking) with the various attributions we make using folk-psychological concepts. Such know-how inevitably generates some — maybe quite substantial — propositional knowledge. But an agent's capacity to think and act in ways that conform to folk-psychological norms is not dependent on the capacity to articulate — at least in great detail — what conforming to those norms involve.

Proponents of theory-theory also hold that folk-psychological explanations and predictions have a normative structure: we can only predict and/or explain behaviour that we can *make sense* of, so far as it conforms to certain norms. Our attribution of mental states is guided by such norms; hence, when behaviour fails to conform to these norms, we are at a loss to explain and/or predict it. The psycho-practical approach can agree with this. In fact, it insists that what makes behaviour recognizable and comprehensible to folk-psychological agents is that it conforms to the norms of a shared practice.

Theory-theory insists that the norms involved are norms of rationality — so that we cease to make sense to others or to ourselves — when we fail to operate in rational ways. Simulation theorists have balked at this — and so can proponents of the psycho-practical approach, but for a different reason. It's not that sense-making norms aren't crucially operative in the practice of normal psychological knowing — but these norms are much richer than the norms of rationality. Consider our two lovers described at the outset of my talk. Is it rational to play this lover's game of bluff and counter-bluff — of teasing, and hiding, and pretending innocence? It seems a stretch to say that — but we all understand this as normal behaviour, as the

sort of behaviours lovers do, and even should, engage in, if they want to maintain the sense of playfulness and erotic tension that goes with being good lovers.

So the psycho-practical approach need not deny the importance of norms of rationality for making sense of behaviour; it can even agree that when behaviour (whether its our own or anyone else's) fails to be rational, it ceases to make sense, *so long as no others sense-making norms are in play*. Hence, the lesson we should take from theory-theory is that behaviour stops making sense when it fails to conform to any of a myriad folk-psychological norms, and not simply when it fails to conform to norms of rationality.

What's now left to the attractions of simulation theory? Mainly, I think, the phenomenological points. Simulation theorists point out that when we go around explaining and predicting behaviour in everyday contexts, it doesn't seem as if we bring our propositional knowledge of folk-psychology into play in the way that theory-theorists must assume. And, of course, the psycho-practical approach can agree with this. In general, we don't need to bring propositional knowledge into play because, in virtue of having become norm-governed folk-psychological agents ourselves, we are capable of recognizing — that is, just *perceiving* — when and how others are engaged in the same norm governed practice. Skilled performance and skilled perception are two sides of the same coin.

But something more can be said. This phenomenological point is, in a sense, over-determined — and in a way that isn't recognized by standard simulation theory. We often don't have to do a lot of explicit propositional work to understand what others are up to because, in addition to the perceptual capacity that's enabled through knowing how to be well-regulated folk-psychological agents ourselves, others are (often) making things easy for us by working to make their behaviour comprehensible in terms of norms we commonly share. They too are well-regulated folk-psychological agents. This means, for instance, that even when they innovate in the practice — i.e. do things that are new or surprising to us — they know how to give us enough clues about what they're up to so that we don't suffer a check in understanding; understanding can proceed just as smoothly — that is, without a lot of inferential agonizing — even along these innovative lines

Now, finally, another important point that simulation theorists have made: normal psychological knowing involves a sense of attunement with others that is entirely unlike our theoretical knowledge of other objects and events in the world. I hope it's clear why the psycho-practical approach can agree with this: As individuals, we have moulded ourselves to conform to *shared* norms of well-regulated folk-psychological agency. But this means that the psycho-practical explanation of our sense of attunement with others will be rather different from the explanation offered by simulationists. On standard simulation theory, the reason our understanding of others feels like insider knowledge is that we are using our very own cognitive system to model theirs. And when all goes well, these two cognitive systems (the model and the modelled) just happen to be similar enough in

terms of cognitive processing to enable successful explanation/ prediction. The psycho-practical approach depends on no such contingently occurring synchrony. As Ryle fittingly says, “this account of understanding ... [does not] require, or encourage, us to postulate any mysterious electric sympathies between kindred souls. Whether or not the hearts of two chess-players beat as one... their ability to follow one another’s play depends not on this valvular [or we might add, cognitive] coincidence but upon their competence at chess, their interest in this game and their acquired familiarity with one another’s methods of playing” (Ryle 1949, p. 55).

I hope this says enough to show that, on theoretical grounds, the psycho-practical approach to normal psychological knowing has much to recommend it. But the real pay-off for any theory is in its empirical applications. In the next and final section, I will briefly sketch what those pay-offs might be in the field of autism research.

SECTION 5: TESTING THE APPROACH — EXPLORING THE PUZZLE OF AUTISM

Autism is a neuro-developmental spectrum disorder, with wide-ranging symptoms that can be more or less severe depending on age and the extent of individual impairment. Although the majority of individuals diagnosed with autism are mentally handicapped in a general way (as reflected in below normal IQ scores), there is a high-functioning minority (individuals with normal to high IQs) that perform well, sometimes better than average, on many types of reasoning tasks.² Despite this range of symptoms, individuals with autism have a characteristic profile — including, most notably, a distinctive impairment in normal psychological knowing. This impairment may be more or less severe, more or less socially disabling; but even in less severe cases, it’s not clear that individuals with autism aren’t using some sort of compensating strategy to make up for what remains a basic and substantial impairment in perceiving others as minded (as indicated by the atypical narratives of high-functioning individuals in relation to the Heider and Simmel animations, discussed in Section 1).

The question is: what accounts for this impairment in normal psychological knowing in autism? The standard approaches would suggest that it’s either a deficit in theorizing (a deficit in developing and deploying an appropriate theory of mind) or a deficit in simulation (autistic individuals aren’t able to use their own cognitive systems to model those of others). The psycho-practical approach makes a different proposal: The deficit in perceiving others as minded is a practice-dependent deficit, rooted in the fact that autistic individuals do not become

The Skill of Perceiving Persons
Victoria McGeer

minded in the same way that typically developing individuals become minded. That is to say, autistic individuals do not learn to regulate their agency in accord with our shared norms of sense-making psychological agency; they do not develop any real psycho-practical expertise.

What advantages does the psycho-practical approach have over its standard rivals? There is one critical fact, often overlooked in characterising autistic disabilities, that the psycho-practical approach can easily explain, but which is quite mysterious on these rival approaches (perhaps accounting for why this fact is so often overlooked). It is simply this. The perceptual impairment that exists in autism is actually a *two-way* impairment: *We* have trouble understanding the behaviour of autistic individuals, as much as they have trouble understanding ours. For instance, why does an autistic child persistently line things up in a row? Is it a kind of play behaviour? Is it a kind of obsession? Is it a way of avoiding other stimuli in the environment? Such behaviour seems peculiar to us; and, despite the fact that standard theories suggest *we* are not impaired in theory of mind or mental simulation capacities, we have no immediate way of making sense of much of what autistic individuals do in ordinary folk-psychological terms. This fact requires an explanation, and the psycho-practical approach readily supplies one. Our difficulty in reading autistic behaviour stems from a difference in the way autistic agency is formed and regulated — a fact which will have knock-on perceptual consequences affecting how autistic individuals read us as much as it affects how *we* read them.

The psycho-practical approach thus suggests a new direction for cognitive research in autism. Instead of searching for targeted neuro-cognitive abnormalities that might explain a one-way recognitional incapacity (e.g. lack of theory of mind or simulation abilities), researchers should focus on what endogenous and exogenous factors might prevent the autistic child from becoming a normatively well-regulated psychological agent, able to recognize other such agents and be recognized as such in turn. I will conclude this paper by suggesting a few specific hypotheses that might fit this bill. However, these hypotheses will make sense only in light of a more detailed consideration of what enables the normal development of psycho-practical know-how. Hence, I turn to a brief review of this process, which I see as essentially transactional: it involves directed effort from both the child, as developing psycho-practitioner, and from other people, as object and mediator of the child's developing psycho-practical knowledge. I discuss what enables and shapes this effort on each side in turn.

Focussing first on what the child brings to the normal development of psycho-practical know-how, 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 find such stimuli especially compelling, indicating a perceived functional connection between self and other: Indeed, 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; Gopnik, Alison, Capps and Meltzoff 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, Camaioni and Volterra 1975). In these ways and many others, even very young children show a basic readiness to learn from others’ expressions and actions, which they clearly interpret as having particular import for themselves.

Now what about the other side of this transaction — the individuals with whom the child interacts? Though even very young 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

The Skill of Perceiving Persons
Victoria McGeer

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 (Brazelton 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 and 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 upon 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 inter-subjective 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.

If this developmental account of ordinary psycho-practical know-how is on the right track, we are now in a position to ask: what disables autistic children

from engaging in such structured interactions with their caregivers? Could some fairly low level abnormality occurring in early infancy interfere in this process of engaging with others, such that autistic children never learn to shape and regulate their behaviour in accord with the sense-making norms of folk-psychology and, hence, to readily discern such patterns in the behaviour in others? This possibility merits further empirical investigation, and I offer two speculative hypotheses that might explain why the regulative scaffolding of others fails to shape autistic agency in the normal way.

The first, more direct hypothesis is that autistic individuals are born with an impaired capacity to imitate others, thus severing the primary link between self and other through which shared agential capacities are eventually developed. Since this hypothesis has been advanced and discussed by others (Meltzoff and Gopnik 1993), I say no more about it here. I will focus instead on a second hypothesis that is not quite as direct as the first, but which has the advantage of showing how the inter-subjective impairments that are characteristic of autism may be linked to other, less commonly discussed features of the disorder — viz., a range of sensory-perceptual abnormalities.

Sensory-perceptual abnormalities are present to varying degrees and in varying form across the autistic spectrum. They are often idiosyncratic, but include extreme and unusual sensitivity or lack of sensitivity in any of several exteroceptive senses (sight, hearing, touch, taste, smell) and/or interoceptive senses (nociception, proprioception, thermoception, balance). At present, given their wide variety, such abnormalities are not considered diagnostically central. Further, given that they do have any obvious connection to features that are considered diagnostically core — i.e. the characteristic deficits in social interaction, communication and imagination — they tend to be discounted.³ Still, however much these abnormalities are discounted from a third-person perspective, anecdotal evidence in the form of autistic self-report indicates that they are experientially central: autistic individuals seem deeply preoccupied with the problem of managing a sensory-perceptual environment which they find challenging, confusing, unpleasant, and sometimes even terrifying. (for a sample of such reports, see Gerland 1997; Willey 1999; Grandin 1992, 1995; Williams 1999). Moreover, these self-reports indicate that many of the puzzling behaviours in which autistic individuals engage are actually aimed at managing these sensory-perceptual experiences — behaviours such as, spinning, hand-flapping, rocking, chewing on inedible and sometimes dangerous things, use of peripheral instead of direct vision, avoidance of eye contact, and so on. Hence, such abnormalities seem to constitute a persistent and prevalent feature of the disorder.

The Skill of Perceiving Persons
Victoria McGeer

But how to connect these sensory-perceptual abnormalities (apparently so central from a first-person autistic perspective) to what seems the more central feature of autism from our third-person perspective — viz., the autistic incapacity to understand, or indeed enact, our normal forms of agency? The developmental account of normal psychological knowing suggests an answer.

As noted above, human infants have an innate capacity and innate drive to imitate con-specifics, which capacity and drive has an invaluable epistemic payoff, allowing children to make use of others in learning about the world and how to behave successfully in it. However, in imitating others, infants and young children are not just reproducing the bodily movements of others; they are reproducing the bodily expressed *feelings* of others: smile for smile, frown for frown, fearful look for fearful look (Hobson 1991, 1993; 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 of regulating parental-scaffolding: 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.

Now return to the situation of autistic individuals. In contrast with the first hypothesis, the second hypothesis I wish to advance suggests that autistic individuals do not lack a basic capacity, or even drive, to imitate others — witness the fact that autistic individuals sometimes show an extraordinary, albeit oddly selective, capacity for parroting what others say and do. However, this innate capacity for imitation would hardly be evoked in any sustained way if autistic children find their contact with other people unhelpful for, or even detrimental to, the task of

regulating their sensory-affective experiences. This might occur for two reasons. Because of their sensory-affective abnormalities, the sorts of situations typical individuals find either benign or engaging may simply be intolerable to individuals with autism; hence, others' attempts to mediate their engagement with the world (by directing their attention, or presenting them with various sorts of stimuli) may become quickly overwhelming. But still more devastating is the following possibility: Precisely because of the existence of an intact capacity and drive to imitate con-specifics, it may be that other people serve as a particularly salient and powerful source of stimuli for autistic individuals, leading them to avoid too much direct contact since this would become quickly overwhelming. In other words, autistic individuals may be actively motivated to avoid engaging with other people, as opposed to showing not much interest in them, as is commonly thought. One interesting instance of this phenomenon can be found in autistic looking behaviour. It is well known that autistic individuals avoid looking at others' faces and in particular their eyes. A common explanation for this is that, due to a higher-order cognitive deficit for understanding other minds, autistic individuals simply fail to appreciate the cognitive significance of monitoring what others are looking at. However, an alternative explanation, bolstered by self-report, is simply that autistic individuals find direct eye-contact a particularly overwhelming sensory experience, hence something to be avoided at all costs.

I therefore conclude with the following speculative hypothesis that I hope will inspire further empirical investigation. Supposing autistic individuals find others to be an abnormal source of sensory-perceptual disregulation rather than a normal source of helpful regulation, two consequences might well be expected. In the first place, autistic individuals would be cast back on their own resources for managing their sensory-perceptual 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. A second consequence is more significant: Being excluded from the regulative influences of other people, autistic individuals 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

The Skill of Perceiving Persons
Victoria McGeer

¹ In fact, Churchland makes this fact the ground for his defence of ‘eliminativist materialism’ — the view that, in the fullness of time, we won’t need to conceptualise our cognitive lives in the antiquated terms of belief and desire. Like bodily humours, such concepts will be abandoned, once we have a more developed neuro-cognitive theory that will do a better job of explaining and predicting behaviour by quantifying over more precisely and accurately defined causal states of a cognitive system (Churchland 1981).

² High-functioning individuals with autistic symptoms are often diagnosed with Asperger syndrome, and there is still considerable debate amongst clinicians and researchers as to whether Asperger syndrome should be viewed

as a distinct nosological entity (as indicated in DSM-IV and ICD-10), or whether it is simply part of the autistic spectrum. This question does not affect the main argument of this paper because, even under current diagnostic criteria, high-functioning individuals with autism show very similar traits to those with Asperger syndrome — indeed, cannot be differentiated according to the symptoms I discuss here. Hence, for terminological convenience, when I use the term ‘autism’ I mean to include individuals with Asperger syndrome.

³ This tendency may be changing, as some researchers are beginning to give renewed attention to these abnormalities. For a sample of recent work, see (Mottron and Burack 2006).

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The Skill of Perceiving Persons
Victoria McGeer

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