

# AUTISTIC SELF-AWARENESS

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**ABSTRACT:** A currently popular view traces autistic cognitive abnormalities to a defective capacity for theorizing about other minds. Two prominent researchers, Uta Frith and Francesca Happé, extend this account by tracing further autistic abnormalities to impaired self-consciousness. This paper argues that Frith and Happé's account requires a treatment of autistic self-report that is problematic on both methodological and philosophical grounds. However, the philosophical problems point to an alternative account of self-awareness and self-report in normal individuals; and this account gives us a methodologically more attractive approach to explaining autistic abnormalities.

**A**LTHOUGH OFTEN PROFOUNDLY DISABLING, autism is a developmental disorder that comes in degrees, and those at the high end of the spectrum are often capable of giving gripping reports on what it is like to be autistic. These reports open up interesting methodological opportunities for both philosophers and cognitive scientists, and constitute an extremely interesting body of evidence on the nature of autism. So, at any rate, I would like to suggest in this paper, taking as my starting point the critique of an alternative perspective by two well-known researchers in the area, Uta Frith and Francesca Happé.

The paper is in six sections. First, I look at a sample of autistic reports to provide the reader with a sense of what autism is like from the first-person point of view. Then I look at a speculative

approach to these reports that Frith and Happé have recently proposed as an important extension of the theory of mind (TOM) deficit account of autistic cognitive abnormalities (Frith and Happé 1999). In the final four sections of the paper I subject this account of autistic self-report to criticism, attempting to open up an alternative approach to the broader range of autistic abnormalities: The third section argues that Frith and Happé's account is procedurally questionable in so far as it raises substantial methodological concerns. The fourth section argues that it is philosophically questionable in so far as it relies on a neo-perceptual model of introspective self-knowledge. In the fifth section, I argue for an alternative direct-expressivist model of self-knowledge and self-report. In the sixth and final section, I show how this approach gives us, not just a philosophically less troublesome perspective on autism, but also one that escapes the methodological problems encountered by Frith and Happé.

## AUTISM AND AUTISTIC REPORTS

Autism is a neurodevelopmental disorder with a number of associated features. The primary diagnostic (or core) abnormalities of autism involve selective impairments in social, communicative and imaginative abilities that are usually quite severe. Whereas seventy-five percent of diagnosed autistics are mentally handicapped in a

general way, the remaining twenty-five percent—often identified as having Asperger’s syndrome<sup>1</sup>—show average to good cognitive functioning as measured in standard intelligence quotient tests. But even those with Asperger’s syndrome display these characteristic abnormalities to some degree. The following is a representative survey of symptoms in these three primary areas:

- *Social abnormalities*, evident from early childhood, include treating others as inanimate objects, disinterest in and even aversion to meeting another’s gaze, absence of social referencing behavior (that is, directing another’s attention in order to share interest in or gather information about a mutually discernible object), lack of normal response to others’ emotional displays, and so on.
- *Communicative abnormalities* include abnormal prosody (rhythm, stress, tone), abnormal gestures and facial expressions accompanying linguistic utterances, pronoun reversals (*I for you*), idiosyncratic use of words, extreme literal mindedness, abnormal shifts in topic and abrupt terminations of conversation, inability to give and receive conversational cues, insensitivity to taboos on personal topics, and so on.
- *Imaginative abnormalities* include an absence of spontaneous pretend play in early childhood, a tendency to engage in repetitive, stereotyped activities (e.g., sorting objects or lining them up in rows), limited or absent interest in the larger meaning of things (function, associations, symbolic properties), and corresponding focus on superficial details, with obsessive interests that are circumscribed accordingly (e.g., memorizing bus routes, timetables, birth dates, or even door colors). Many autistics are also 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.

Apart from this core of social-cognitive abnormalities, autistics—high-functioning and otherwise—tend to display a further range of typical characteristics in sensory-motor, perceptual, autonomic, and affective dimensions. These include extreme and unusual physical sensitivities and insensitivities; oddities of posture and gait; tics, twitches, and unusual mannerisms; stereotypies such as rocking, hand flapping, spinning, thumb

twiddling, and echolalia; slowed orienting of attention; apparent insusceptibility to certain perceptual illusions; superior visual memory for detail; perfect pitch; difficulties with gestalt perception (e.g., seeing whole figures or scenes as opposed to their parts); repetitive, obsessive behaviors and compulsions; hyperanxiety, mood swings, tantrums, and so on.

Although some attention has been given to these further characteristics—indeed, importantly by Frith herself<sup>2</sup>—cognitive theorists are naturally preoccupied with core cognitive markers as a locus of explanatory concern. Without disputing the importance of these markers, or the work that has explored them, I think there is danger in such theoretical precedence. Specifically, cognitive theorists may be inclined to overestimate the explanatory scope of such cognitive features and, correspondingly, underestimate the importance of other noncognitive features in accounting for the nature and genesis of autistic cognitive difficulties.

In this paper, I focus on a particular subset of these additional features—namely, autistic sensory abnormalities. As Frith herself has observed,

One mysterious feature that is not currently given much importance may hold further clues. Some Asperger individuals give first-hand accounts of sharply uncomfortable sensory and strong emotional experiences, often including sudden panic. From autobiographical accounts we learn that again and again the Asperger individual’s interpretation of perceptions by ear, eye or touch, tends to be either extremely faint or overwhelmingly strong. There can be hyper- as well as hyposensitivity. Feeling scratchy clothes, for example, is not merely uncomfortable, but agonizing. On the other hand, pain may be tolerated to a phenomenal degree. Both the interpretation of the sensation and the subsequent emotional reaction, or lack of it, seem to be out of the ordinary. The same may also be true of other types of autistic individuals, but, unlike the Asperger syndrome person, they cannot tell us about their sensations. Unfortunately, we are far from a clear understanding of the mechanisms by which human beings normally interpret sensations and react to them (Frith 1991, 14–15).

My concern in this paper is not only with the mechanisms by which human beings, normal or autistic, “interpret sensations and react to them”; it is also with the presuppositions by which cog-

nitive theorists interpret these autistic autobiographical accounts and react to them as builders of cognitive theory. In particular, I will be considering how seriously and literally we should take the contents of such first-person autistic reports, as against Frith and Happé's approach that recommends taking them seriously all right, but—problematically, I think—merely as a symptom of distorted higher-order self-consciousness.

Before going on to consider Frith and Happé's theory in detail, it will be useful to give some illustrative examples of the sorts of reports under discussion. Here are some representative passages taken from three different authors:

I had—and always had had, as long as I could remember—a great fear of jewelry. ... If I was made to touch jewelry, 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, 54, 157)

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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. ... 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. (Grandin 1995, 67)

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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, 25–6)

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I wanted to feel the good of being hugged, but when people hugged me the stimuli washed over me like a tidal wave. ... 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, 108)

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## A DISCREDITING THEORY?

While tending to focus on particular aspects of the disorder, the ambition of autism research is to develop a plausibly unifying account of the entire range of autistic abnormalities—that is, an account that shows how they are interconnected, perhaps through being rooted in the malfunction of a single cognitive, or possibly subcognitive, system. Uta Frith and Francesca Happé describe

one such approach, currently much favored, and propose an important and theoretically plausible extension of it:

A widely accepted theory is that the core symptoms of autism are due to a deficient neuro-cognitive mechanism which underpins the normal ability to develop a 'theory of mind' [TOM]: the ability to attribute mental states and predict behavior accordingly. Here we want to extend the idea of a lack of theory of *other* minds, which is the ability standardly tested, towards the notion of a lack of theory of *own* mind. Taken to its logical conclusion, the inability to 'attribute mental states to self and others', i.e. 'theory of mind', is the same as not having introspective awareness. (Frith and Happé 1999, 1)

Elaborating further, they say:

At first glance, the ... attributions [to self and other] seem entirely different: own mental states do not have to be inferred through observation like those of others, and they may be less likely to be erroneous. However, even though the input channels by which the relevant information is received may well be different, a crucial part of the process is to distinguish mental states, be they first-person or other people's, from representations of the physical world. For example, it is necessary to distinguish the representation of physical reality ('there is a pencil in the tube') from the representation of belief (*I thought* 'there are sweets in the tube', or John *thinks* 'there are sweets in the tube'). It seems plausible that the mechanism that keeps (second-order) representations of mental states separate from (first-order) representations of physical states is the same for self and other attribution. Even if the appreciation of others' mental states results in representations that are more error prone than the representations of own mental states, this difference becomes trivial if one is unable to represent mental states at all. (Frith and Happé 1999, 4–5)

Consequently,

... individuals with autism may know as little about their own minds as about the minds of other people. This is not to say that these individuals lack mental states, but that in an important sense they are unable to reflect on their mental states. Simply put, they lack the cognitive machinery to represent their thoughts and feelings *as* thoughts and feelings. Likewise, although they are able to observe the behaviour and emotional expressions of other people, they are still unable to make sense of their behaviour by attribution of mental states. (7–8)

What makes their extension of the TOM-deficit approach attractive is that it may help explain autistic abnormalities that are characteristic of the disorder, but seem to have little to do with core cognitive symptoms plausibly attributable to a defective capacity to read other minds. These include the sensory-motor, perceptual, and autonomic/affective abnormalities mentioned. In general, the wide range of autistic abnormalities has presented a problem for theories of autism. So if Frith and Happé are right to attribute some of these apparently noncognitive abnormalities to inadequate or absent self-consciousness that would be a very nice enhancement of the TOM-deficit account of autism.

Frith and Happé begin their speculations with a provocative question: What would a mind without "introspective awareness" be like—a mind that only contains "first-order representations of events and experiences" and no second-order representations of these first-order states (p. 8)? Here are some of their proposals (cf. pp. 8–10). There might be:

- impaired understanding of one's own actions: "without self-awareness, an individual might not know how she is going to act until she acted, nor why she acted as she did ... A person who lacks self-consciousness may be unable to distinguish between her own willed and voluntary actions."
- improved performance in situations where action without in-depth conscious reflection is superior to consciously performed action: for example, an insusceptibility to visual illusion, even in conscious verbal responses.
- relatively good capacity to perform routinized actions (automatically, without conscious control) coupled with a poor capacity to act flexibly and imaginatively (which requires conscious planning, action monitoring, and/or error correction).
- abnormal sensory awareness.

Of course, these speculations are not really generated from first principles. They are directed toward phenomena found to be characteristic of autism. So a better way to pose Frith and Happé's question may be this: How could the hypothesis of impaired self-consciousness account for these particular autistic features? For reasons I will make clear in a moment, I want to concentrate on their explanation of how autistic sub-

jects' introspective impairment could lead to abnormal sensory awareness—and, hence, how in their model sensory awareness (which involves second-order states) is to be distinguished from sensory experience (which involves only first-order states). They write:

If low-functioning autistics are unable to reflect on their inner experiences, then they would be unable to develop over time the richly connected semantic and experiential associations which normally pervade our reflective consciousness. Observation by parents suggests that the *awareness* of sensations and experiences may be peculiar in children with autism. Anecdotal reports of abnormal sensory and pain experiences are on occasion quite extreme.... One anecdotal example is the case of a young girl with autism who was found to have suffered acute appendicitis, but has not complained of pain and, when asked how she felt, did not report anything wrong. Abnormal response to heat and cold, as well as hypo- and hyper-sensitivity to sound, light or touch are frequently reported... Such responses might be expected if there was an inability to reflect on inner experiential states. Of course, normal pain perception is greatly affected by attribution and expectation. *These individuals might feel immediate pain in the same way as everyone else*, but would not be able to attribute to themselves the emotional significance that normally accompanies pain. This might explain why they do not complain about it. *We may speculate that the self-conscious person reflects not only on the pain but also on the experience of pain. This person is feeling 'misery' in addition to feeling pain.* (10–11, my emphasis)

This passage raises an interesting conceptual problem that should be familiar to philosophers: what do we mean by pain? What do we mean by pain experience? Whereas Frith and Happé suggest distinguishing between the experience of (immediate) pain that autistic individuals share with others (after all, their first-order mental states, including sensations, are presumed to be unaffected by the disorder)—and the feelings (such as misery) that normally accompany pain experiences and constitute the awareness of pain, how tenable is this distinction? In what way could an autistic person really be “having” a normal sensory experience of pain if the normal subjective accompaniments of that experience are not “felt” by her as an experiencing subject? I will set this conceptual question aside for the moment. How-

ever, it does raise an immediate worry about how philosophically loaded—and perhaps theoretically untenable—their approach really is.

There is another worry that may arise fairly quickly, and I will press it again in a slightly different form in the next section; namely, that it seems downright implausible to suggest that any group of people who write as vividly and as consistently as these autistics do about their own sensory experiences could really be missing a mechanism that purportedly makes such experiences available to them as experiencing subjects. Frith and Happé do consider this problem and provide the following explanation: Subjects who make such reports constitute a relatively small subset of the (diagnosed) autistic population. Usually diagnosed with Asperger's syndrome, these individuals have intellectual and linguistic capacities that enable them to develop sometimes extraordinary compensatory skills for negotiating the demands of human life. In particular, they come, after a significant developmental delay of perhaps five or six years, to pass standard theory of mind tests. Hence, Frith and Happé argue that this small percentage of the autistic population “appear to arrive at an explicit theory of other minds by a slow and painstaking learning process, just as they appear to arrive at self-consciousness through a long and torturous route” (Frith and Happé 1999, 2). However this means that whatever compensatory capacities they have developed for “introspective awareness,” the straightforward reliability of their self-reports must still be called into question. In particular, the autobiographical writings, although full of suggestive material, are suspect not just because they are memorial reconstructions of experience (perhaps a reason to be suspicious of any autobiographical text); they are additionally suspect because they are the reconstructed subjective reports of individuals who are still significantly handicapped in this regard. Thus we must be wary about taking such reports “at face value” (1999, 18). As Happé 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 adult 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 autobiographical writings. (1991, 222)

Frith and Happé's solution is not to disregard what autistics say about themselves altogether, but to "read between the lines," focusing more on what they do not say than on what they do say—and if on what they do say, then on the pragmatic oddities of how they say it (Frith and Happé 1999, 18; Happé 1991, 221–5).

### THE APPROACH IS PROCEDURALLY QUESTIONABLE

On Frith and Happé's approach, the process of extracting data from the autobiographical reports of high-functioning autistics obviously involves a delicate process of interpretation. Too delicate, I fear. Despite the sensitivity and theoretical imagination with which Frith and Happé approach these questions, their proposals would nevertheless force us to disregard the letter of what autistics say in a way that raises two important methodological concerns.

The first of these relates in an interesting way to a moral question that must arise in responding to what autistic individuals say about their own condition. One of the striking and recurrent themes commonly sounded by so-called expressive autistics is not just how difficult it is for them to understand the nuances of normal human behavior, but also how strongly they experience a problem of not being understood themselves. Sometimes this gap in mutual understanding is noted with frustration: for instance, a twenty-eight-year-old autistic reports finding it annoying that "someone who has much better inherent communication abilities than I do but who has not even taken a close look at my perspective to notice the enormity of the chasm between us tells me that my failure to understand is because I lack empathy" (Cesaroni and Garber 1991, 311).

The autobiographical writings are directly addressed to overcoming this chasm with autistic individuals taking up the challenge of explaining to "normals" how autistic behavior is linked with autistic experience, convinced that others only find them baffling because they do not really understand what it is like to be autistic. In fact, autistic writers enunciate two distinct kinds of reasons for trying to convey the nature of autistic experience to others. The first is straightforwardly practical: to improve the quality of autistic–non-autistic interactions, especially where these involve parents or therapists who are dealing with autistic children that cannot yet (and perhaps never will be able to) speak for themselves. As Therese Jolliffe puts it, "If only people could experience what autism is like just for a few minutes, they might then know how to help!" (Jolliffe, Lansdown, and Robinson 1992) The second kind of reason is not without practical import, but is itself poignantly non-instrumental and strangely at odds with the standard conception of autistic "aloofness," not to mention autistic lack of self-consciousness. It expresses a basic human desire to be known and accepted by others for what one is: abnormal perhaps, but importantly human nonetheless. It therefore expresses a familiar resistance to being treated with a wholly objective (often reformative) attitude, and a corresponding need to be recognized and respected as a 'participant' person in the Strawsonian sense (Strawson 2003).

Both these sorts of reasons are representative evident in the following explanation for autistic stereotypes given by Jasmine Lee O'Neill, herself a mute, though verbally accomplished, high-functioning autistic. She writes:

A major trait of autism is self-stimulatory behaviour. It is an outward manifestation of a deeply inward personality. It is a trait that seems to irritate outsiders. It attracts attention and rude comments. Some parents and schoolteachers strive to eliminate a child's self-stimulations. That is, in my opinion, wrong to do....

I happen to have many self-stimulatory behaviours. I love them and enjoy them. I affectionately call them my 'stimmies'. Autistic people generally do enjoy their stimulations. They are comforted by them,

and are relaxed by them. They may be embarrassing to parents or others, but they are pleasant for the autistic one, so they must be allowed to be part of the whole person. (O'Neill 1999, 73–4)

Such appeals may pose a moral quandary for clinicians who aim to help moderate autistic abnormalities in so far as they are socially dysfunctional: In what way should therapeutic intervention be influenced by the very human need these individuals show for being accepted as they are? But are such appeals of equal relevance to cognitive theory? For however much (high-functioning) autistics express displeasure, or even distress, at others failing to get what it is like to be them, questions for cognitive research are surely orthogonal to the issue of respecting these individuals as persons, important as that may be. Cognitive scientists are simply concerned with the structure of autistic cognitive processing. And here, in particular, they are concerned with the reliability of autistic introspection, that is, whether this is the kind of disorder that prevents autistics from exercising a normal capacity to deliver the straight goods about their own mental lives, and so obviate any need for special strategies of interpretation. Surely this is a fair concern.

I agree that it is, all things being equal. But the fact that these individuals express the particular frustration of not having their experience understood by others indicates a kind of competency that seems *prima facie* in tension with the kind of *in*competency suggested by the TOM-deficit approach, even given the ameliorating coping strategies that Frith and Happé allow. For it shows that these autistic individuals are not only aware of their own experience but aware that others could not have the same experience, else they would not find autistic individuals so hard to understand. This is a sophisticated capacity. Thus, the moral concern raised in relation to responding to these individuals as self-aware in the ways they articulate translates into a substantial methodological concern: Is the putative TOM-deficit proposed by Frith and Happé simply too gross a deficit to coexist with such abilities?

There is also a second methodological concern that may be raised in connection with Frith and Happé's approach to autistic self-report. De-

nying a voice to autistics, or at least a voice that is taken literally, can work to the detriment of cognitive theorizing. Commenting on the reports of a number of autistics—in particular, on a particular subject's report that he felt “something terrible would happen” if he did not ritualistically do certain things at certain times—Happé herself makes this clear. In an earlier paper, she writes:

The topic of autistic people's obsessions has been neglected in the research literature, even though the autistic child's ‘obsessive insistence on sameness’ (Kanner 1943) has always been recognised as an important symptom. Baron-Cohen (Baron-Cohen 1989) has argued that autistic people cannot be said to have obsessions or compulsions because they cannot report the diagnostically vital subjective experiences of distress, ego-dystonia and resistance. Instead, he suggests that we should refer to autistic people's ‘repetitive activities’. For autistic people as able as our three authors, however, this argument may not hold—since they do have some, albeit limited, insight into their own feelings and thought processes. With someone like David, then, there may be something useful to gain from the application of current theories of obsessive-compulsive disorder. (Happé 1991, 219–20)

As this passage underlines, one important reason to pay careful attention to autistic self-report is the check it provides against conclusions that may be overly influenced by theoretical preconceptions. This potential benefit is lost if the going theory systematically calls into question the reliability of autistic self-report. Worse, it is hard to see how such a theory will not license researchers to manipulate the data in a way that comes perilously close to compromising standards of scientific objectivity. Thus, however much they couch their proposals as purely “speculative,” and despite the care they take in elaborating their view, the special interpretive strategies they adopt to compensate for autistic “introspective incapacity” (such as focusing on what is not said) practically ensures discovering these reports to be riddled with ‘signs’ of the very disability their theory predicts. Thus, for instance, Frith and Happé find evidence for the TOM disability in ‘facts’ such as these:

We find relatively little about other people's feelings or attitudes. Unlike ordinary biographers, [autistics]

are not constantly wondering how others might see them and their families. They are not interested in making an impression. They are seemingly oblivious to the possibly defamatory effects of what they tell about themselves and their relatives. Thus, harrowing events ... are reported, while possible reasons for otherwise bizarre behaviour on the part of other people are left extremely vague. (Frith and Happé 1999, 18)

My point is not that Frith and Happé are not right to notice that other people do figure strangely in these autistic writings, especially as they concern “memories from childhood.” Significantly, others are not presented as centers 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 to the extent that these descriptions are so sensorily preoccupied, it is hard to see this deficit as one which relates specifically to other people, except in so far as they are a particularly interactive and, hence, perhaps intrusive feature of the autistic’s environment.

Support for this possibility can be found throughout autistic writings—for instance, in the following passage from Donna Williams’ autobiographical account:

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, 62–63)

Apart from serving as a check on one’s own theory, paying close attention to autistic self-reports may be methodologically desirable because it suggests alternative approaches for understanding the disorder. Thus, one theoretical possibility made salient by these reports is that basic and dramatic sensory abnormalities at the first-order “experiential level” contribute distally to the development of autistic higher-order social-cognitive problems, rather than resulting proximally from them as the effect of “abnormal sensory awareness”. In connection with this, it is interesting to note that congenitally blind children, as well as deaf children of hearing parents, show autistic-like patterns of failure on TOM tasks (Brown, Hobson, and Lee 1997; Hobson, Lee, and Brown 1999; Peterson, Peterson, and Webb 2000; Peterson and Siegal 1998, 1999.). It is unlikely that such children suffer from any impairment to the introspective mechanism proposed for autistic children, particularly as their social-cognitive difficulties tend to disappear once their communicative interactions with others improve as a consequence of training in compensating communicative techniques. So one potentially fruitful avenue of research that comes of taking autistic reports of sensory disturbances at face value is exploring how such disturbances might get in the way of their interacting normally with other people, especially in early childhood and with cascading consequences for normal social-cognitive development. In particular, such impaired interactions may explain why autistics fail to acquire capacities for understanding others, and even for regulating their own minds, in ac-

cord with the shared norms of folk psychology—norms that depend heavily on agents stabilizing their own patterns of thought and action around well-articulated concepts of belief, desire, intention, motive, plan, and so on. Without ordinary interaction with others, it is hard to see how autistics could develop into normal folk-psychological agents, with all the capacities this entails for understanding others and making themselves understandable in intentional terms; hence, their failure to experience themselves—or express this experience—in ways that are indicative of normal self-consciousness.<sup>3</sup>

### THE APPROACH IS PHILOSOPHICALLY QUESTIONABLE

I argue in this section that Frith and Happé's approach to autistic self-report is not only procedurally questionable, raising two substantial methodological worries, but also philosophically suspect. It presupposes a philosophy of mind—in particular, a philosophy of self-knowledge—that is highly debatable despite its being embraced by a number of philosophers and cognitive theorists. Thus, even though my criticisms in the following section are occasioned by Frith and Happé's work on autistic self-report, my target is wider in scope.

Consider first the basic question: how do we know about our own cognitive and experiential states—our own beliefs and desires, our own emotions, our own immediate sensory states? There is a long and venerable philosophical tradition according to which such knowledge depends on a capacity for inner perception: literally a capacity for *intro-specting* our own subjective states and processes. By means of this capacity, we make judgments—form second-order beliefs (or *metarepresentations*)—about the contents of our own minds. And it is these second-order judgments that we then express in self-reports. But even though self-reports express second-order judgments, they are presumed not to express first-order states at all. For, on the perceptual model, such first-order states are only contingently related to the second-order states that make such reporting possible: they are indepen-

dent objects of inner perception just as things in the external world are independent objects of outer perception—the objects of seeing, hearing, smelling, and so forth.

In its most traditional garb, the perceptual model is often associated with Descartes, who conceived of the contents of minds as self-intimating: subjective states and processes, so long as they are clear and distinct, are not the sorts of things we could go wrong about (Descartes 1911). But if second-order states are only contingently related to first-order states and processes, as the perceptual model implies, this surely implies a gap (at least in principle) between how things really are—even in our experience—and how we judge them to be. This potential gap is happily exploited by many philosophers and cognitive theorists who continue to endorse a quasi- or neoperceptual—sometimes called *inner sense*—model of introspective self-consciousness (Armstrong 1980; Goldman 1997; Lycan 1996; Frith and Happé 1999). After all, there seem to be many things about the way our own minds work that we as subjects do not know and often could not know by introspection (e.g., unconscious or subcognitive processes). Still, on the neoperceptual model, we are self-conscious to the extent that we are able to access or track the first-order states and processes that constitute the real bedrock of our mental lives—our beliefs, desires, perceptual experiences, and so forth. Such states and processes exist independently of, and are only contingently related to, the second-order judgments we make about them, even if such judgments are made subcognitively—that is, even if we simply find ourselves having second-order beliefs about our own mental states (for discussion, see Shoemaker 1996, essays 10 and 11, pp. 201–45). And, just as with more traditional versions of the perceptual model, it is these second-order beliefs about our first-order states and processes that are publicly expressed in subjective report. However, because proponents of this neoperceptual model have replaced the all-seeing eye with a respectable cognitive mechanism that subserves introspective activity, there is no assumption of infallibility. Indeed, the reliability of this mechanism becomes an open question for

philosophers and cognitive scientists to explore in detail (see for instance, Frith 1992, ch. 7; Goldman 1997, 2000).

Neoperceptualists thus focus in sharp detail on the many ways in which we can be mistaken about our own minds, suggesting that these are only intelligible if introspection is subject to some (even if not all) of the obstacles that can put any perceptual process wrong. These forms of ignorance and error include certain ordinary phenomena that have been discussed by philosophers with varying theoretical intentions in a number of works. For example: being unaware or even mistaken about the way objects look—that is, *really* look—under certain conditions (as in, the square table *really* looks rectangular from this perspective and so on) (Akins and Hahn 2000); being unaware or even mistaken about the range of acuity in one's visual field (Dennett 2001); being unaware or even mistaken about the extent to which one uses auditory information to navigate or identify objects in the world (human "echolocation") (Schwitzgebel and Gordon 2000).

According to Schwitzgebel and Gordon (2000), for instance, blind subjects occasionally report feeling "facial pressure" as they approach a solid wall, not realizing (and, at least in one case, explicitly denying) that they are attending to auditory cues. These errors of ignorance or misidentification may be rectifiable through more attentive introspection (as in the auditory case), or they may not be so rectifiable (as perhaps in the visual acuity case): subjects may never become aware of the lack of resolution in their parafoveal regions in the same way, or to the same extent, that they may become aware of the auditory phenomena by means of which they can detect objects in space. But whether rectifiable or not, these errors arise, according to the neoperceptual model, because subjects make judgments about features of their experience that normally, perhaps invariably, escape introspective attention.

More interestingly, there are various phenomena that may indicate a more radical kind of introspective failure. These include certain pathologies that result from brain injury—for instance, various forms of anosognosia, such as

Anton's syndrome in which cortically blind subjects appear to be unaware of their blindness—hence, to be unaware of their lack of normal visual experience (Goldman 1997, 532). And, of course, there is the widespread phenomenon of seemingly bizarre sensory awareness in autism, as well as other indications of abnormal subjectivity. If these cases genuinely involve subjects' failure to know about their own first-order states and processes, including their own sensory experiences, the neoperceptual model of introspection seems tailor-made to account for it. It simply involves a breakdown in the mechanism that subserves introspective activity, leading to either (1) a complete inability to make second-order judgments, or (2) an ability that is seriously impaired and sometimes additionally compromised by confabulatory noise.

It should be clear that Frith and Happé rely on just this sort of neoperceptual model of introspection in their proposed account of abnormal autistic subjectivity. The basic philosophical premise of their approach is that it is possible that people with autism are mistaken even about their own occurrent sensory experiences. They think, for instance, that an experience is painful when it is not; they think it is not painful when it is; and so on. How are such errors possible? To repeat what Frith and Happé say themselves: "... if the mechanism which underlies the computation of mental states is dysfunctional, then self-knowledge is likely to be impaired just as is the knowledge of other minds... This is not to say that these individuals lack mental states, but that in an important sense they are unable to reflect on their mental states. Simply put, they lack the cognitive machinery to represent their thoughts and feelings *as* thoughts and feelings" (Frith and Happé 1999, 7).

Still, however widely this model may be endorsed in philosophy or cognitive science, I think it is highly questionable. Its most questionable features will emerge in part from my discussion in the next section, when I introduce an alternative picture of self-reflective subjectivity. But just for the record one fairly obvious difficulty which immediately confronts the neoperceptualist can be noted—namely, the problem of regress.

Recall that on the neoperceptual model, subjects must express their second-order states in order to report their own first-order states and processes. However, because giving linguistic expression to second-order states means choosing words that appropriately express the contents of these states, it seems that subjects must have reflective self-knowledge of such contents. But how is this knowledge possible on the neoperceptual account, save by courtesy of some mechanism for generating higher-order representations of the second-order states in question? This means that, on the neoperceptual account, reporting one's first-order states and processes must require not just expressing one's second-order states, but expressing them by means of forming third-order states that reflect subjects' knowledge of their contents.

So far, so good. After all, this regress is not necessarily vicious—it just suggests that self-report depends on a more complex hierarchy of states than the neoperceptual model initially allows. Moreover, there seems no reason in principle to require a similar hierarchy of mechanisms for generating successive levels of representation, because one and the same mechanism will do the job so long as its inputs can be iteratively structured. However, there is one empirical bar to this proposal. Autistics (and perhaps others who suffer from various pathologies of self-consciousness) are supposed, on this approach, to be unable to generate second-order beliefs that adequately map their first-order states and processes. At the same time, they are supposed to express these distorted second-order beliefs well enough—hence, it would seem, by forming third-order states that do adequately track their second-order states. For instance, autistics are presumed to give adequate linguistic expression to their inadequate sensory awareness of their normal sensory experience. How is this possible if there is only one mechanism for generating higher-order representations? That is, how can one and the same mechanism be faulty in generating second-order states, but not faulty in generating third-order states?

An obvious solution is simply to multiply mechanisms: autistics have a dysfunctional mech-

anism for computing second-order states, but a perfectly good mechanism for computing third-order states. However, there seems to be an empirical bar to this proposal as well. For just as there are first-order false-belief tasks, there are second-order and third-order tasks as well—tasks that test subjects' ability to reason about third- and higher-order representational states. If the hypothesis were correct, it seems autistics should have less trouble with these higher-order tasks than they do on the original false-belief task. But, of course, this is not the case. Some high-functioning autistics, although significantly delayed, do manage to pass some first-order tasks, and even some second-order tasks. However, as might be expected, they find second-order tasks no easier than first-order tasks—and, in fact, are more likely to fail on second-order tasks despite acquiring some capacity to manage the standard first-order tasks.

A better solution may be to stop the regress to higher- and higher-order representations before it gets started. That is, neoperceptualists may concede that appropriately expressing one's second-order states requires no reflection on those states in any neoperceptual way, despite the fact that it is a voluntary linguistic act of the sort that could go awry. But if that is the case, then why suppose the “reporting” of first-order states—which is to say, giving adequate linguistic expression to their contents—normally requires reflecting on such states in the neoperceptual way, hence the formation of second-order representations in the first place? Presumably one could still misexpress one's first-order states in a way that allows for (some) first-person error without bothering to go to the second-order level at all. Because neoperceptualists must stop this regress of levels at some point themselves, the question is: why not right at the start?

Neoperceptualists may retort that, however sharp these difficulties, the phenomena of introspective error cannot be adequately accounted for without embracing some form of the neoperceptual model of introspection. It is certainly necessary to correct the combination of wholesale infallibilism and perceptualism associated with Descartes, as indeed the phenomena noted

by neoperceptualists show. But it is not at all clear that the way to correct it is to drop the infallibilism, at least with respect to occurrent experiences, and keep the perceptualism. In the next section, I present an alternative account of self-reflective subjectivity that does precisely this: it jettisons the perceptualism while retaining a very restricted, and I claim unobjectionable, notion of infallibility, in fact, such infallibility makes good philosophical sense—or so I shall argue. However, it is precisely this kind of infallibility—infallibility with regard to occurrent sensory experiences—that Frith and Happé must deny in giving their account of autistic sensory reports. Hence, my approach supports a position that stands in direct contrast to theirs. Happily, this position escapes the methodological objections raised, so may be preferred on both philosophical and procedural grounds. I return to these points in the final section.

### AN ALTERNATIVE DIRECT EXPRESSIVIST ACCOUNT OF SUBJECTIVE REPORT AND ITS IMPLICATIONS FOR REFLECTIVE SELF-AWARENESS

As we have seen, the neoperceptual model of introspective awareness pictures the mind as constituted by first-order states and processes (both intentional and perceptual/experiential) that human beings have a normal capacity to access or track by means of some internal cognitive mechanism. Consequently, we (normally) form second-order beliefs that constitute our subjective awareness of ourselves, as against our subjective (including experiential) condition as it is in itself. Subjective report, on this model, is just the expression of these second-order beliefs, however well or poorly (reliably or unreliably) these are formed. By contrast, the direct expressivist model of self-awareness reconceptualizes the role of second-order beliefs in a subject's cognitive economy. To the extent that such beliefs are formed, they are not formed as a consequence of perceptually tracking particular first-order states and processes, nor are they what subjects generally express in subjective report. Instead, what is gen-

erally expressed in self-report—what is directly expressed—are the subject's first-order states and processes themselves.

The idea of directly expressing one's first-order states and processes builds on a feature already present in the neoperceptual model, namely, reporting our first-order states by means of directly expressing our second-order beliefs about them. Strictly, advocates of this model should have no trouble accepting the fact that, in addition to expressing second-order states, we very often directly express our first-order states as well. If I say, "It is raining," then—under the usual provisos of sincerity and linguistic competence—I directly express my belief that it is raining; and I do so simply by saying how a certain state of the world is, by my own lights. Likewise, if I say, "That is a latte," then—again, under the usual provisos—I directly express my belief that the drink in front of me is a latte; and I do so simply by saying how a certain state of the world is, again by my own lights.

But what happens when I am asked, not about how the world is *per se*, but about what I myself believe? The answer comes straightforwardly. If asked whether or not I believe that is a latte before me, I make my answer by attending to the drink, knowing, of course, that it is because the drink inclines me to judge unreservedly that it is a latte (or does not so incline me) that I can answer the belief question. Similarly, if asked whether or not I believe that it is raining, I make my answer by attending to weather in my immediate vicinity, knowing that it is because my environmental conditions incline me to judge unreservedly that it is raining (or do not so incline me) that I can answer the belief question.

Notice that putting my ability to answer these questions about myself in this way, I am not required to scrutinize or track my (first-order) beliefs in any quasi-perceptual way to know whether I have a particular belief about the world, I merely attend to whether or not things are that way in the world—by my own lights of course. Does it look like a latte, smell like a latte? Do I have lingering doubts, inspired perhaps by the implicature of your surprisingly posed question about what I believe? If not, if I can confidently

reassert (re-express) my belief that this is really and truly a latte, I have a fortiori answered “yes” to the belief question about myself. On this account, knowing what I believe requires only two things: (1) having background knowledge about what believing in general requires—a robust inclination to judge something to be the case; and (2) the capacity to make and express judgments that report particular features of the world. Consequently, self-reflection on this model is not a capacity for internally monitoring one’s first-order states at all. It is rather a capacity to look at the world again—even if only memorially or imaginatively—prompted by the recognition that it may not be as it seems (i.e., as one initially judges), and trying to rule out possible sources of error in so far as these are known. (Such sources of error may include, for instance, common perceptual illusions, common epistemic biases, one’s own known biases based on past experience, and other contingencies of the situation.) If such sources of error cannot be ruled out, but not precisely pinpointed either, then someone competent in the language of folk psychology will know how to back off presenting themselves as a fully confident believer, saying something like, “It sure looks like a latte to me.” Again, on the expressivist model, these statements do not depend on scrutinizing or tracking one’s own inner states; they depend rather on a persistent inclination to judge something to be the case despite questions raised about it.

I think this model can be elaborated to account for self-knowledge of the range of intentional and quasi-intentional states—desires, hopes, fears, intentions, emotions, and so on.<sup>4</sup> It is not quite knowledge in the traditional sense, because it does not involve the subject’s making her so-called first-order states and processes the direct target of her epistemic activity. Her target is the world, even when her activity is self-consciously reflective. But such reflective activity is distinctive in so far as it does depend on subjects’ knowing about folk-psychological concepts and the norms which govern them (what counts as believing, hoping, desiring, fearing, and so on); and it involves knowing how these norms apply in particular cases: Is my hesitation in judging

this a latte due to something detectably strange about the drink itself, in which case I can no longer say whole heartedly, “It is a latte”; or is my hesitation likely the result of my questioner’s scoffing manner, in which case I refuse to be put off: “What do you mean, do I believe it’s a latte? Of course, it’s a latte. Can’t you see for yourself?!” The point is, in coming now to say that I believe that *p* under the circumstance of being queried about whether or not I believe it, I stake myself on a judgment I make about the world; I endorse it; I stand by it even after considering various ways in which I could be misled.

Assuming the direct expressivist view of intentional self-report is generally on the right track, can it be extended to cover our reports of our own sensory experience—our reports of how things looks, taste, smell, and so forth? I think it can. On the direct expressivist model, if I say, “it tastes ...” or “smells like a latte to me,” I am not scanning and so reporting on how it is with some internal state of mine—my latte taste or smell experience. I am simply expressing that experience, which is to say I am expressing how I take things to be according to one sense modality or another. On this account, I am able to know that I am having a certain olfactory experience, say, just by virtue of being able to tell how things smell, and I am able to communicate that I have such an experience to others simply by virtue of knowing how to say how things smell in words (e.g., it smells bitter, sweet, like roses, and so on). I may be queried about my sensory experiences, but just as in the case of belief, my only way of checking on what I am really experiencing in a certain situation is not to scan my sensory states internally; it is rather to focus my attention on how, in this moment, things smell, look, taste, perhaps at the same time suppressing the urge to enrich my judgments with contextualizing information gleaned from other sources. Self-reflection in the sensory case, just as in the case of intentional states, does not involve any special sort of inward looking; it involves, instead, a special sort—that is, a focused sort—of outward looking (or smelling, or tasting); it involves, in other words, the attentive redeployment or reengagement of my sensory systems toward some

aspect of the world. In doing so, I perceptually take (or re-take) the world in a certain modality, and it is this perceptual (re-)taking that I express in my subjective experiential report.

Stated thus baldly, the expressivist model of experiential awareness makes no mention of what is often supposed to be the defining feature of genuine subjectivity—namely, the real seeming, often called *phenomenal character*, of experience. But is this not just what we are really paying attention to when we say, in reflective mode, how experientially things seem to us to be? The expressivist denies this: the real seeming of our experience is just our way of perceptually taking the world in one sense modality or another. Hence, when we say how things are in our experience, we are not in any way accessing or tracking the qualitative nature of some independently existing phenomenon—our experience; we are tracking instead the qualitative nature of the world. On this model, the so-called phenomenal richness of experience—the “quality” that makes it seem so special—is nothing more than the richness of the world we perceive.

Summarizing thus far, the neoperceptualist and I can agree that subjective sensory reports are just reports of how things seem to us, whether in visual, olfactory, auditory, kinesthetic, or whatever mode. But I say that such claims are made, not on the basis of scanning and reporting internal experiential states, as the neoperceptual model has it, but rather on the basis of a practical ability to tell how the world is according to our perceptual takings. Of course when I give voice to how things are with me experientially, I am ordinarily expressing how my “stable” sensory takings represent the world. *Stable sensory takings* are how we normally perceive things to be—that is, perceive them to be without doing anything special, either cognitively or mechanically, to affect how we perceive things to be. When I perceive something as green, for instance, and that perception remains stable through attentive observation to what I perceive as green, my unmanipulated experience is as of something green. That is how I perceptually take the color to be. I may still correctively judge that the object I am seeing as green is actually blue. Perhaps I have

background information—about the lighting, for instance—that inhibits me from making an all-out judgment about the object’s color based on my perceptual taking—my *prima facie* judgment—of how it looks to be. This is a common phenomenon that expressivists have no trouble explaining.

## CONSEQUENCES OF ADOPTING THE DIRECT EXPRESSIVIST MODEL

There are two critical ways in which this expressivist model comes apart from the neoperceptual picture, one epistemic and the other metaphysical. The critical epistemic difference is that people’s awareness of their own sensory states will be immune to a sort of error that can arise in perception—namely, error through misidentifying or misclassifying a sensory item. Articulating how I perceptually take things to be may not be true to how the world is, as everyone agrees: things may look blue and be green or be no way at all (I may simply be imagining a blue object before me). But on this picture articulating my sensory judgment will be the linguistic expression of my sensory experience—of the kind of experience I am having: say, a looks-blue experience—that cannot be mistaken through a perceptual or quasi-perceptual misidentification of the experience involved.

The reason for this immunity to error can be found in the critical metaphysical difference between the expressivist and neoperceptual models. On the expressivist approach, a subject’s awareness of her experience does not consist, as this phrase misleadingly suggests, in a quasi-perceptual relation between two levels of subjectivity: the subject’s experience, on the one hand, and her awareness of that experience, on the other, as produced by scanning or tracking her experiential state. Rather, her awareness of her experience consists in a practical ability to tell how things are according to how she perceptually or sensorily takes things to be. It is first and foremost a perceptual awareness of how the world is—of how things look, taste, feel, and so forth—and only secondarily, in cognitive sophisticates such as human beings, a recognitional or cogni-

tive awareness—that the world may not be as it now is perceptually taken to be. Subjective report reflects this sophistication in so far as a subject restricts herself to saying how things seem to her to be—that is, how things are, according to her perceptual takings and only according to her perceptual takings. In using the language of *seems*, the subject self-consciously withholds any interpretive, corrective or endorsing judgments she may be inclined to make about how the world really is, now according to her beliefs rather than simply according to her current perceptual takings.

The expressivist model thus collapses the experience/awareness distinction as it is configured in the neoperceptual model. According to the expressivist, experiences are never the objects of perceptual awareness and only become, as it were, objects of cognitive or recognitional awareness via the subject's sophisticated understanding that the world may not be as she is currently experiencing it to be. Strictly speaking, then, the subject is not aware of her experiences qua internal states at all. Rather she is aware of the world as an experiencing subject, with all this entails for her cognitively in terms of acknowledging her liability to various kinds of perceptual error.

The expressivist does not rule out all sources of error in subjective report. For given that such reports are linguistic in character, it is quite consistent with the model that people should misexpress, or inadequately express, how they are experiencing things through limitations of language. It is also possible that they should misremember their past experiences; or that they should be bad at telling what their sensory capacities—their capacity to register things sensorily—really are, and so on. And it is quite consistent with the model that some people should be subject to radical sorts of delusions or confusions, signaling an experiential world that is significantly disconnected from the world as normally perceived.

We are now close to the denouement. For suppose that we go along with the expressivist model sketched in the previous section, avoiding any problems associated with the neoperceptualist picture. What effect will this have on the

question of how to treat autistic reports? Clearly, it will mean that we have to reject the Frith–Happé story about those reports—in particular, their claim that autistic reports of occurrent sensory experiences are not to be taken at face value. Or at least it will do this in so far as independent sources of error are apparently absent: there is no massive confusion or linguistic incompetence in evidence, for example. The expressivist model will enable us to construe autistic reports as detailed expressions of abnormal modes of experience, not as inaccurate quasi-perceptual reports of normal modes of experience.

There are many advantages to doing this. The obvious ones, from my point of view, are methodological—to go back to the procedural lessons of the third section. The model means that we can give due respect to the autistic subjects whose reports provide part of the evidence for our theorizing. And it means that we can look at those reports with an open mind as to how best to make sense of the well-documented TOM abnormalities investigated by cognitive theorists over the past fifteen years. Take the reports at face value, as I suggested earlier, and they testify to a sensory-based inability to interact with others in a normal way throughout early development, thus depriving autistic children of the kind of self–other interactions that likely play a critical role in the acquisition of adult capacities of social cognition (McGeer 2001).

To sum up: the Frith–Happé approach to autism—and, in particular, to the subjective reports of autistic autobiographers—may sit well with existing ways of thinking about autism; it represents a natural extension of the TOM-deficit line. But it is procedurally questionable in so far as it raises substantial methodological worries, and it is philosophically questionable in so far as it invokes a dubious, neoperceptualist philosophy of introspection. You cannot beat something with nothing, however, and that is why it is important to show that the approach they take is not the only one available. The expressivist model of introspection is more economical and less troublesome than the neoperceptual and it shows us a way to think more constructively about how

the experiential condition of autistic individuals may be developmentally related to (later acquired) social-cognitive disabilities.

#### NOTES

1. In DSM-IV and ICD-10, Asperger's disorder is now listed as a distinct nosological entity from Autistic disorder. However, researchers and clinicians are still divided about whether this distinction is valid (Baron-Cohen, Tager-Flusberg, and Cohen 2000). This issue does not affect the main argument of this paper because, even under current diagnostic criteria, there are high-functioning individuals with autism that show similar traits to those with Asperger's syndrome.

2. In an earlier work, Frith (1989) argued that weak central coherence (WCC) might explain the perceptual abnormalities found in autism, as well as abnormalities in certain cognitive tasks. WCC is a proposed inability to process information (either perceptually or cognitively) in light of the surrounding context. Thus, for instance, Frith proposed that autistics show above average performance on embedded figures tasks (e.g., seeing a triangle in the line drawing of a baby-carriage) because of a relatively inability just to see the overall figure (the baby carriage). Although Frith still endorses some version of WCC, she now thinks theory of mind abnormalities cannot be accounted for solely in terms of WCC. For a review of WCC in relation to other theories of autistic cognitive abnormalities, see (Happé, 1999).

3. This possibility is elaborated in (McGeer 2001). For a more complete discussion of some of the issues raised in the three following sections, see (McGeer 2004).

4. An independent elaboration of this model can be found in (Bar-On 2000; Bar-On and Long 2001).

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