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A PROBLEM OF ACCESS: AUTISM, OTHER MINDS, AND INTERPERSONAL RELATIONS

by

RYAN BORN

Under the Direction of George Graham

ABSTRACT

Autism Spectrum Conditions (ASCs) are marked by social-communicative difficulties and unusually fixed or repetitive interests, activities, and behaviors (American Psychiatric Association, 2000). In this thesis, I review empirically and conceptually based philosophic proposals that maintain the social-communicative difficulties exhibited by persons on the autism spectrum result from a lack of capacity to understand other persons as minded. I will argue that the social-communicative difficulties that characterize ASCs may instead result from a lack of ability to access other minds, and that this lack of ability is due to a contingent lack of external resources.

INDEX WORDS: Autism, Asperger's syndrome, Folk psychology, Theory of mind, Theory theory, Simulation theory, Enactivism, Embodied cognition, Developmental disability, Accessibility

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2011

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For my wife, Rebecca, who has long served as teacher, companion, and advocate for persons on the autism spectrum.

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INTRODUCTION

Autism Spectrum Conditions (ASCs), the most prevalent subtypes being classic (or 'Kanner's') autism and Asperger's syndrome, are a heterogeneous set of conditions characterized by social-communicative difficulties and unusually fixed or repetitive interests, activities, and behaviors (American Psychiatric Association, 2000).[1] Because of the profound and selective effect ASCs can have on autistics' facility with social interaction, scientific work on ASCs has received critical attention from contemporary philosophers of mind who theorize about interpersonal understanding, the assumed epistemic core of human social understanding. The theorists I will address in this thesis endorse what I will call the *internalist conception of autistics' social-communicative difficulties* (hereafter 'internalist conception'). On this conception, autistics social-communicative difficulties result from endogenous psychological deficits common to ASCs. Central to the internalist conception is the claim that autistics lack sufficient internal epistemic resources (*e.g.* mental mechanisms, conceptual repertoires) to gain interpersonal understanding. The basic argument for this claim goes as follows.

(1) Interpersonal understanding requires accessing other minds.
(2) Autistics lack sufficient internal epistemic resources to access other minds. Therefore,
(3) Autistics lack sufficient internal epistemic resources to gain interpersonal understanding.

The internalist conception assumes that persons are minded creatures: each person has her own thoughts, feelings, desires, intentions, or sense-perceptions. Premise (1) indicates that understanding other persons requires knowing they have minds and taking account of their

[1] Other subtypes of ASCs include childhood disintegrative disorder and pervasive developmental disorder not otherwise specified. For convenience, I will use the term 'autistic' and its cognates to refer to a person who has an ASC. When referring to persons who exhibit typical social-communicative development, I will use the term 'nonautistic' and its cognates.

mental states. Premise (2) indicates that autistics, due to their psychological traits, remain wholly ignorant of the existence of other minds or at best prove markedly inept at determining other people's mental states. Supposing (1) and (2) are true, (3) follows necessarily and the internalist conception stands.

The internalist conception need not be understood as a categorical thesis; that is, (2) and hence (3) need not apply to all autistics. However, if the internalist conception is correct, (2) and hence (3) will apply to most autistics. Further, the internalist conception acknowledges that accessing other minds requires both sufficient internal and sufficient external epistemic resources (*e.g.* behavioral cues, situational characteristics). In fact, this conception affirms what I will call an *external access requirement* (EAR) for other minds: to access others' mental states, a person must rely on external epistemic resources that convey those states. Autistics can struggle to employ and, in that sense, can be said to "lack" external epistemic resources that inform persons about others' mental states, such as another's eye gaze or other typical forms of nonverbal communication. But according to the internalist conception, even if autistics face significant problems at the level of external epistemic resources, meaning that they fail to access other minds even when given an external means of doing so that ordinarily satisfies EAR, these problems originate at the level of autistics' insufficient internal epistemic resources. Put another way, to access other minds, autistics do not require a change in the external epistemic resources generally presented to them; rather, autistics require a change in the internal epistemic resources they generally possess.

Contrary to the internalist conception, I will argue that autistics may in fact require a change in external, not internal, epistemic resources. My approach will be to use (1) and EAR as a basis for challenging (2) and hence (3). Premise (1) highlights *what* persons must access to

gain interpersonal understanding; namely, persons must access the minds of other persons. EAR highlights *how* persons must access the minds of other persons; namely, they must do so in part by an appropriate external means. Granting (1) and EAR, interpersonal understanding requires two distinct types of what I will call *interpersonal access*, *i.e.* epistemic access to other minds. These two types are *positional interpersonal access* (PI-access) and *renditional interpersonal access* (RI-access). PI-access refers to a person's being in a position to know of other minds and entertain an account of their content. The operative sense of 'position' applies to a person's external circumstances, where these circumstances will either permit or not permit a person to meet EAR. RI-access refers to a person's arriving at a 'rendition' or interpretive account of another person's mental life that is based in part on the former's gaining PI-access. RI-access, then, is constitutive of interpersonal understanding; PI-access is not. Importantly, both PI-access and RI-access are non-factive. Although the external evidence that support PI-access and the interpretation that signals RI-access are both about or directed at another person's mental states, neither will represent the content of those states with infallible accuracy.[2] Most important, if a person fails to gain PI-access, she will fail to gain interpersonal understanding (hence RI-access), regardless of whether she has sufficient internal epistemic resources to gain the latter. My aim in this thesis is to support the possibility that autistics suffer from a contingent lack of external epistemic resources that prevents them from gaining PI-access. In meeting that aim, I seek to

[2] For instance, imagine two persons, Amy and Bob. Bob knows he like apples, but he says to Amy that he dislikes apples. Nevertheless, Amy construes Bob's utterance as an indication of his mental state. Moreover, based on Bob's utterance, Amy comes to believe that Bob dislikes apples. Thus, Amy gains both PI-access and RI-access to Bob. Granted, Bob's utterance is false, and Amy's belief about Bob's attitude toward apples is mistaken. But intentionality (*i.e.* 'aboutness' or 'directedness') permits a lack of veridicality. (For instance, I can believe in unicorns even though unicorns do not exist.) So the intentionality of Bob's utterance and that of Amy's belief about Bob's attitude remains intact, despite their being contrary to fact. Further, although Amy does not know Bob's attitude, given that she entertains a false belief about it, Amy presumably still knows that Bob has a mind. Also, Amy's belief about Bob's attitude, though false, is still apt if we allow that Amy is justified in taking Bob at his word.

support the further possibility that, more often than the internalist conception allows, autistics have sufficient internal epistemic resources to gain interpersonal understanding.

The body of this thesis has two main sections. In §1, I will survey both the philosophic work that endorses the internalist conception and the empirical work on ASCs to which philosophers tend to appeal. In §1.1, I will present clinical and scientific literature that maintains autistics exhibit an array of behavioral and associated psychological atypicalities. My presentation of this body of work will by no means be exhaustive; rather, it will only highlight some of the evidence philosophic theorists can and often do cite in their characterizations of ASCs. In §1.2, I will present accounts of interpersonal understanding offered by theorists who endorse the internalist conception. These accounts fall into three distinct types. The two dominant types are *theory theory* and *simulation theory*. The third type I will call *phenomenological theory*. Theory theory and simulation theory emphasize the role of cognitive resources in interpersonal understanding, though the two theories describe those resources differently. Phenomenological theory emphasizes the role of conative, affective, and sensory-motor resources. Despite these three theories' differences, each of their proponents often treat ASCs as a contrastive means of determining the internal epistemic resources that are sufficient—if not required—for interpersonal understanding.

In §2, I will develop my argument against the internalist conception. In §2.1, I will demonstrate that theory theory, simulation theory, and phenomenological theory each entail that interpersonal understanding requires PI-access. In §2.2, I will argue that autistics may often lack sufficient external epistemic resources to gain PI-access; consequently, they may often stand 'out of position' to understand others interpersonally. Nevertheless, it remains possible that autistics could gain PI-access given the right sorts of external epistemic resources, of which I will suggest

some candidates. Lastly, in §2.3, I will propose a distinction between *abilities* and *capacities*. On the internalist conception, autistics lack the capacity to gain interpersonal understanding. I will argue that so long as external contingencies possibly impede autistics' ability to gain interpersonal understanding, the internalist conception remains in doubt. On my view, autistics' social communicative difficulties could, to a significant extent, reflect a *problem of access* like that faced by persons with sensory or physical impairments. Despite their impairments, these individuals sometimes have sufficient internal resources to perform an activity, but they are prevented from doing so by a contingent lack of external resources. The same, I will contend, may hold true of autistics and their gaining interpersonal understanding.

1 AUTISM, INTERNAL EPISTEMIC DEFICITS, AND INTERPERSONAL UNDERSTANDING

The consensus among mental health clinicians, psychologists, and other scientific experts is that ASCs are mental disorders. Roughly put, according to this consensus autistics' defining psychological traits constitute a clinically significant harm to them that calls for therapeutic (*e.g.* behavioral, pharmacological) intervention aimed at correcting or removing those traits. To guide such intervention, researchers have sought explanations for ASCs at both the psychological and biological level. Although many empirical details remain unsettled, neurodevelopmentally based psychological atypicalities, which likely in many cases reflect genetic atypicalities, are widely believed to cause autistics' characteristic behavioral difficulties.

Although some philosophers (*e.g*. Goldman, 2006) pay special attention to the proposed neurobiological features of ASCs, I will focus on their proposed psychological features. Below I will first summarize the diagnostic criteria for ASCs and introduce four theories offered to

explain ASCs: the Theory of Mind Deficit account; the Weak Central Coherence account; the Executive Dysfunction account; and the Enactive Mind Deficit account. Because the Theory of Mind Deficit account is the most prevalent, I will then focus on key experimental evidence that appears to favor it. But I will also present further details on the Enactive Mind Deficit account, as its basic tenets, being rooted in 'embodied cognitive science', contrast sharply with the theoretical approach shared by the other three accounts just named. Finally, I will discuss how theory theorists, simulation theorists, and phenomenological theorists each conceptualize the internal epistemic resources interpersonal understanding centrally involves, as well as why each of these theorists believes empirical work on ASCs supports their conception of those resources.

1.1 Autistics as Mentally Disordered

Clinically, ASCs vary widely both within and across cases. As Hill and Frith (2004: 2) remark, ASCs affect "individuals at all levels of intelligence and language ability and [span] all degrees of severity." Nevertheless, current diagnostic criteria for ASCs, all of which are behavioral, state that autistics commonly exhibit marked difficulty in three areas (American Psychiatric Association, 2000; Frith, 2003):

(a) engaging in reciprocal social interactions and developing and maintaining peer relationships (*e.g*. relationships with classmates);

(b) using nonverbal and verbal communication, with speech development ranging from absent to only limited regarding pragmatic, non-literal (*e.g.* sarcastic, metaphorical), or other context-sensitive uses of oral and written speech (*e.g.* homophones);

(c) engaging in creative or imaginative activities (*e.g.* spontaneous pretend play), adopting patterns of interests that evince typical (as opposed to unusually strong) degrees of intensity or focus, adapting to changes in favored routines, inhibiting stereotyped or repetitive motor behaviors (*e.g.* rocking, hand flapping), and resisting a preoccupation with parts of objects.

There is also a fourth area of difficulty for many autistics not included in the current diagnostic criteria (DSM-IV-TR), but nonetheless acknowledged in the clinical literature (Baranek *et al.*,

2008) and often highlighted in autistics' first-person accounts of their condition (*e.g.* Grandin, 1995; Summers, 1994):

(d) processing various forms of sensory input (*e.g.* reacting sufficiently to pain, cold, or heat, or tolerating specific aural, visual, or tactile stimuli, sometimes including human touch), inhibiting a fascination with sensory aspects of the environment (*e.g.* avoiding smelling or touching objects repeatedly, shifting attention from lights or spinning objects), or performing tasks that require fine or gross motor coordination or motor imitation (*e.g.* buttoning clothes, using standard writing utensils, playing sports).

Together, (a), (b), and (c) form what is called a 'triad of impairments' that are classified as social, communicative, and imaginative (Wing & Gould, 1979; Frith, 2003). Area (d) may be classified as sensory-motor.

Most contemporary attempts to explain ASCs' clinical profile claim that autistics exhibit either deficient theory of mind; weak central coherence; executive dysfunction; or else disruptions in 'enactive', *i.e.* perception-action based, developmental processes. The Theory of Mind Deficit or 'mindblindness' account maintains that autistics suffer a domain-specific cognitive failure in 'mindreading', *i.e.* attributing mental states, particularly beliefs, to others and even themselves. The Weak Central Coherence account states that a domain-general cognitive process known as 'central coherence', *i.e.* a tendency to contextualize information and extract its overall meaning, is disrupted in ASCs (Hill & Frith, 2004). The Executive Dysfunction account holds that ASCs arise from the failure of a different domain-general cognitive process, namely 'executive function'. Broadly, executive function supports behaviors such as "planning, impulse control, inhibition of prepotent but irrelevant responses, set maintenance, organized search, and flexibility of thought and action" (Ozonoff *et al.*, 1991: 1083). Lastly, the Enactive Mind Deficit account argues that the attentional differences autistics exhibit, apparently from infancy, interfere with their developing the perceptual expertise that nonautistics develop for picking out,

interpreting, and acting on surrounding social stimuli—namely, the embodied and situationally embedded expressions of another's mental states.

1.1.1 Mindblindness

The Theory of Mind Deficit account tends to dominate the psychological literature on ASCs (Rajendran & Mitchell, 2007; Baron-Cohen, 2001). Support for this account comes primarily from autistics' difficulty with various experimental mindreading tasks. These tasks include the much used and often cited 'false belief test', which requires a subject attribute a belief to another individual that conflicts with the subject's knowledge of a given state of affairs. These tasks also include more advanced tests that diverge from the false belief paradigm. Generally, autistics perform significantly worse on these tasks than nonautistic peers whose mental age is equal to or even less than their own, including peers who exhibit a developmental delay other than an ASC.

Regarding the false belief test, in the simplest case this test requires making a first-order mental state attribution of the form '*S* (some other) believes that *p*'. Baron-Cohen *et al.* (1985) conducted a first-order false belief test known as the 'Sally-Anne' test with autistic children, nonautistic children with Down syndrome, and nonautistic children with no developmental delay. Average verbal mental age for the autistic children was about 5 years, and for the Down syndrome children it was about 3 years. Verbal mental age for the nonautistic children was not reported; however, their average calendar age was about 4 years. Subjects watched a skit in which two puppets, Sally and Anne, share a scene involving a basket, a box, and a marble. Sally places the marble in the basket and then exits. Anne subsequently removes the marble from the basket and places it in the box. Sally then returns to play with the marble. After witnessing this display, subjects are asked where Sally will look for the marble. Most of the nonautistic children

answered correctly: Sally will look in the basket. Most of the autistic children answered incorrectly: Sally will look in the box. Thus, it appears the latter failed to understand Sally as believing (falsely) that the marble is in the basket. Since most of the Down syndrome children passed the Sally-Anne test, Baron-Cohen *et al.* concluded that a general intellectual delay does not explain the failure of the autistic children. Instead, specific difficulty with mindreading, Baron-Cohen *et al*. believe, may be the best explanation.[3]

In later developmental stages—on average, at a verbal mental age of 9—many autistics who failed the Sally-Anne test will pass it (Happé, 1995). By their teens, some autistics who exhibit at least normal general intelligence, *i.e.* 'high-functioning' autistics and those with Asperger's syndrome (where the latter, unlike other autistics, exhibit no early language delay), even pass second-order false belief tests, which require attributions of the form '*S* (some other) believes that *T* (some other) believes that *p*' (Baron-Cohen, 2001; Rajendran & Mitchell, 2007). Still, insofar as autistics' succeed on first- and higher-order false belief tests, researchers suggest most do so by using "compensatory" modes of understanding (Frith 2003: 94). These modes of understanding can appear patently behavioristic, meaning that they make no reference to others' mental states (Baron-Cohen 1995: 25, 141). Alternatively, they may involve a weak "in principle" knowledge of inner states as causes of outer behavior (Frith 2003: 95). In either case, well-compensated autistics are believed to rely on the comparatively slow, deliberate, and often

[3] Baron-Cohen *et al*. (1985) also ruled out other explanations, such as a failure on the part of the autistic children to correctly identify the names of the dolls, the starting location of the marble (*i.e.* the basket), and the actual location of the marble when Sally returns (*i.e.* the box). Other studies on autistic children further suggest their poor performance on systematic tests of theory of mind does not stem from various internal factors that could incidentally impede interpersonal understanding. These factors include: an unwillingness to attribute mental states to inanimate objects (*e.g.* dolls) but not people; an unwillingness to attribute *false* beliefs (but not beliefs *simpliciter*) to other persons; a difficulty comprehending sequences of events in any terms (including strictly behavioral or mechanistic-causal terms), rather than in terms of mental states specifically; a difficulty distinguishing a false representation of reality (*e.g.* a photograph of a scene that no longer captures that scene accurately) from the current state of affairs with which that representation conflicts; and a failure, in general, to understand and participate properly in the activities researchers have devised to test autistic children's (lack of) theory of mind (Frith 2003).

fragile use of explicit inferential rules. On this view, the use of such rules does not permit autistics to gain genuine interpersonal understanding, which, as exemplified by nonautistics, is achieved intuitively. Instead, it at most permits some autistics to circumvent their mindblindness, with varying degrees of success, in order to navigate what remains for them a deeply perplexing social world (Frith 2003: 94, 95; Baron-Cohen 1995: 139-143).

In support of the view that even the most intellectually and verbally adept autistics remain significantly mindblind, proponents of the Theory of Mind Deficit account cite these autistics' difficulties with advanced mindreading tasks. Frith (2003: 95) notes that "[w]ell-compensated [autistics]…can fall to pieces under the stressful demands of real-life social situations." Advanced mindreading tasks seek to pose a "more naturalistic challenge" than typical laboratory assessments of mindreading such as the false belief test (Rajendran & Mitchell, 2007: 227). For instance, the Strange Stories test, conducted by Happé (1994) and Jolliffe & Baron-Cohen (1999) presents subjects with vignettes that depict everyday social uses of nonliteral language (*e.g.* complimenting someone's appearance despite disapproving of how she looks). Autistics who pass second-order false belief tests still struggle to explain the nonliteral speaker's motivations in these vignettes, even though they recognize that what the speaker says is not literally true. The Strange Stories test and several others like it suggest that pragmatic language inferences (*e.g.* understanding jokes or sarcasm) can prove daunting for autistics whose cognitive and language faculties appear otherwise intact (Loukusa and Moilanen, 2009). Such inferences often appear to require sensitivity to the mental states of speaker and listener; moreover, they often play a crucial (albeit easily taken for granted) role in typical social situations (Baron-Cohen 2001). Other tests that require reading another's mental states from her eyes (Baron-Cohen *et al.*, 1997) or the prosody of her speech (Rutherford *et al.*, 2002) indicate

autistics may also have significant problems with these common nonverbal components of social interaction.

The Theory of Mind Deficit account offers essentially the same explanation for autistics' poor performance on any of the above mindreading tasks. Namely, autistics' difficulties result from a deficit that specifically interferes with theory of mind, a cognitive mechanism or set of such mechanisms needed for conceptualizing, inferring (in a quasi-theoretical fashion), and metarepresenting mental states. I will expand on this description of theory of mind when I present the theory theory of interpersonal understanding in §1.2.1. Keep in mind, however, that the simulation theory of interpersonal understanding, which I will present in §1.2.2, also endorses the notion that autistics are mindblind, though it offers a competing explanation for autistics' failure of mindreading tasks, particularly the Sally-Anne test.

1.1.2 A Disembodied Mind

The Enactive Mind Deficit account has emerged as an alternative to the Theory of Mind Deficit account and other cognitivist accounts, all of which take a 'Computational Mind' approach to interpersonal understanding. The Computational Mind approach aims to describe input-output mechanisms a person uses to gain interpersonal understanding, where these mechanisms are primarily cognitive, and their algorithmic operations (*e.g.* the schemas I will present in §1.2.1 and §1.2.2) can be abstracted away from an agent's embodied interaction with the environment. In contrast, the Enactive Mind approach to interpersonal understanding seeks to highlight the sensory-motor predispositions and non-algorithmic procedures that guide an agent's embodied environmental interaction, and that prove critical to her being both intrinsically motivated and deftly equipped to identify, engage, and solve problems in the interpersonal domain (Klin *et al.*, 2004).

A key advantage of the Enactive Mind Deficit account, according to Klin *et al*. (2004), is that it helps explain the discrepancy between some autistics' success completing false belief tests, which exemplify the Computational Mind approach, and their lack of success adapting to everyday social situations. Klin *et al*. claim that the relevant laboratory tests simplify "the social world…into a 'closed domain task' in which all the essential elements can be fully represented and defined" (135). When tackling a closed domain task, an explicit, narrowly applicable rule-based method can be effective. However, that method is ineffective for handling the 'open domain task' one confronts in the naturally occurring social environment. As Klin *et al.* explain, navigating the natural social world is like driving on the open road. Successfully performing either activity requires being prepared to apply a complex array of frequently context-dependent rules in circumstances that can vary unexpectedly. Being thus prepared in turn requires being attuned to what is often only implicitly relevant in a given situation and making moment-by-moment adjustments to ensure one responds appropriately to current conditions. According to Klin *et al.*, in ASCs "the acquisition of embodied social cognition is derailed early on, as a result of reduced salience of social stimuli and concomitant enactment of socially irrelevant aspects of the environment" (127).[4] Consequently, later in development, even the brightest autistics will lack the interpersonally attuned perceptual expertise that underlies nonautistics' fluid engagement with the natural social world.

[4] Two early emerging differences between autistics and nonautistics are in the areas of 'social orienting' and 'joint attention'. Regarding social orienting, from birth nonautistics spontaneously and preferentially attend to social stimuli, such as people's facial expressions, eye movements, and utterances. Within 6 months of age, the social stimuli to which nonautistics attend markedly influence their preverbal behavior (*e.g.* how much they smile or look at other persons), with certain stimuli (*e.g.* facial movements) eliciting imitative responses. Regarding joint attention, by 12 months of age nonautistics readily initiate and respond to verbal or non-verbal cues that serve to coordinate their and another person's attention on surrounding entities (*e.g.* toys, food). A growing body of evidence (mostly non-experimental) suggests that during the first year of life autistics exhibit a lack of social orienting and joint attention; meanwhile, their responsiveness to non-social stimuli remains intact (Chawarska *et al.*, 2008; Bruinsma *et al.*, 2004; Charman and Baird, 2002; Dawson *et al.* 2004: 271-273). For further discussion of this evidence and its applicability to the Enactive Mind Deficit account, see Jones and Klin (2008: 62-64)

To investigate early disruptions in sociability in ASCs, Jones and Klin (2008) used eye tracking technology to record a 15-month-old autistic's visual engagement with audio-accompanied eight-point-light animations depicting various social activities, such as an adult playing 'peek-a-boo' or singing a nursery rhyme. Stimuli appeared in a split screen format. On one side, an animation was presented upright; on the other, that same animation was inverted. Whereas nonautistic controls tended to look at the upright figures, the autistic child 'Helen' spent roughly equal time looking at each figure. One notable exception was an animation of an adult playing 'pat-a-cake', the upright version of which drew Helen's gaze more than 90% of the time. This animation, however, differed from the others. The other animations required subjects to match primarily speech sounds with an appropriate (albeit minimal) visual representation of their social context—namely, the upright figure. But the 'pat-a-cake' animation allowed Helen to fixate on the audiovisual synchrony between a clapping sound and point-light collisions that represented the clapping of hands. Although Helen's sensitivity to this synchrony suggested she excels at identifying cross-modal physical-causal relationships, it also appeared to highlight Helen's insensitivity to the social contingencies the animations were intended to depict.

Eye tracking studies have also examined the visual attention patterns of high-functioning autistic adolescents and adults (Klin *et al.*, 2004; Jones and Klin, 2008). In these experiments, subjects watched feature film clips that portray complex social interactions. Autistics' visual fixations contrasted sharply with those of nonautistics. The most striking difference was this: nonautistics looked far more often at the actors' eyes, seemingly drawn to the wealth of social information eyes often convey; meanwhile, autistics looked far more often at the actors' mouths, seemingly drawn to the synchrony between vocal sounds and lip movements. Furthermore, when presented with two competing visual cues, one physical (the camera's panning to the

viewer's left) and the other social (an actor's facial expressions), autistics followed the physical cue. But nonautistics remained focused on the social cue. Thus, like the much younger Helen, the older autistics attended to the given stimuli in a way that suggests they emphasized its physical-causal features over its social features.

Klin *et al.* (2004) claim this pattern of attentional emphasis indicates that the non-social features have greater visual salience for autistics. Attentional resources, including those that pertain to vision, are finite. So moment-to-moment one can attend only to select parts of one's surroundings. Klin *et al.* hold that one's attentional predispositions will influence which parts 'stick out', *i.e.* are salient, and thus draw one's attention. While nonautistics appear predisposed to engage features of their environment that typically have interpersonal relevance, autistics seem to lack this predisposition. The consequences for autistics, Klin *et al.* argue, are not merely that they tend to look past what nonautistics look for. Autistics tend not to perceive what nonautistics perceive. For instance, although Helen and her nonautistic counterparts were given the same visual and auditory stimuli, she appeared not to impose social meaning on those sounds and images. Indeed, Jones and Klin (2008: 69) suggest that when Helen looks at a human face, she may not be "seeing a person"; instead, she is seeing only the face's physical-causal properties. In a Social Attribution task Klin (2000) conducted with older autistics and nonautistics, subjects viewed the classic Heider and Simmel (1944) animation, which depicts a set of geometric figures that (silently) move and interact as though imbued with agency. Nonautistics spontaneously imposed metaphorical, interpersonal narratives on the animation. Autistics, however, tended to describe the figures' activities in literal, impersonal terms (*e.g.* mathematical concepts and physical forces). According to Klin *et al.*, the autistic viewers' spontaneous preference for and greater facility with the literal interpretation suggests they

perceived the animation very differently from nonautistics, who in effect saw mindedness even among mindless entities.

When I present the phenomenological theory of interpersonal understanding in §1.2.3, the themes of embodiment and perception-action based understanding that characterize the Enactive Mind Deficit account will reappear and receive further conceptual (and empirical) development. Part of this development will include discussion of the complementary roles that conation, affect, and shared norms for social interaction each play in interpersonal understanding.

1.2 In a Right Mind to Understand Interpersonally

Theory theory (TT) and simulation theory (ST) use the term 'folk psychology' to describe the internal epistemic resources people typically require to gain interpersonal understanding in their everyday social interactions. For convenience, I will adopt that terminology throughout this section, even though phenomenological theory (PT) sometimes reserves 'folk psychology' as a label for the particular sorts of internal epistemic resources TT and ST propose. Historically, TT has dominated the philosophic literature on folk psychology, with ST serving as its principal competitor (Davies & Stone, 1995). PT challenges both TT and ST (Hutto & Ratcliffe, 2007).

TT and most versions of ST assume the following (Hutto & Ratcliffe, 2007).

(i) Folk psychology comprises primarily cognitive resources that support concept-dependent, inferential mental state attributions, including (at minimum) the core propositional attitudes of belief and desire, where these attributions serve foremost to explain and predict behavior.[5]

[5] Bear in mind, however, that TT and ST often take folk psychology to include internal epistemic resources used for *intra*personal access and understanding, *i.e.* access to and understanding of one's own mind. While TT and ST generally hold that interpersonal and intrapersonal operations employ the same cognitive resources (see, *e.g.*, Carruthers, 1996), some theorists (Nichols and Stich, 2003) propose a distinct cognitive mechanism for mental self-monitoring, while yet others (Goldman, 2006) defend a quasi-perceptual, non-inferential Cartesian account of self-attribution. Lastly, Gordon (1996), a simulation theorist, claims that even other-directed mental state attributions are often non-conceptual and non-inferential in a manner reminiscent of what PT proposes.

(ii) The attributive, explanatory, and predictive activities identified in (i) are fundamental to understanding others interpersonally and hence socially.

However, TT and ST disagree regarding the internal workings of folk psychology. TT proposes an 'information-rich' account of folk psychology, whereas ST proposes an 'information-poor' account (Nichols & Stich, 2003).[6] On TT, folk psychology crucially involves an at least partly tacit theory or body of principles about minds and behavior generally. On ST, folk psychology crucially involves an imaginative simulation of another person's mental states and associated behavior that is modeled on oneself specifically, *i.e.* what one would think, feel, or do in the other's place. Put another way, theory theorists claim that gaining interpersonal understanding is chiefly a matter of deploying the requisite set of generically formulated, propositionally explicable information; simulation theorists claim it is chiefly a matter of using the right sort of practical skill (Gordon & Barker, 1994).

PT rejects (i) and (ii). Contrary to (i), PT maintains that the resources TT and ST propose are at best secondary to conative, affective, and sensory-motor resources that support perception-based, non-inferential apprehension of another person's 'embodied subjectivity'. Contrary to both (i) and (ii), these theorists also claim that interpersonal understanding well exceeds mere explanation and prediction. According to PT, experiencing a sense of relatedness to others and participating in and regulating one's interactions with them based on shared norms importantly contribute to why and how an individual understand others interpersonally.

[6] Some philosophers (*e.g.* Nichols & Stitch, 2003) defend a hybrid account of folk psychology that accommodates both the information-rich operations proposed by TT and the information-poor operations proposed by ST. However, hybrid accounts also tend to assume (i) and (ii); moreover, like theory theorists and simulation theorists, hybrid theorists maintain that autistics tend to lack folk psychology. Thus, regarding whether autistics lack sufficient internal epistemic resources to gain interpersonal understanding and what those resources are, discussion of hybrid accounts generally offers little different from what discussion of TT and ST, taken separately, can provide.

1.2.1 Theorizing about Other Minds

According to TT, folk psychological attributions, explanations, and predictions reflect the operation of an internally represented, but not wholly introspectable, theory of mind (as assumed by the Theory of Mind Deficit account). According to theory theorists, interpersonal understanding requires taking others to have propositional attitudes, at minimum (if not primarily) the core propositional attitudes of belief and desire. Attributing these attitudes to others means metarepresenting their mental (hence representational) states such that one forms beliefs that have (at minimum) the form '*S* believes/desires that *p*', where *S* is identified third-personally. All versions of TT hold that making mental state attributions requires possessing the relevant mental state concepts (*e.g.* BELIEF and DESIRE). An individual grasps these concepts based on their relation to the general principles that use mental state attributions in the explanation and prediction of behavior. Broadly, folk psychological explanation of another's behavior requires inferring another's mental states using folk psychological principles; folk psychological prediction of another's behavior requires inferring another's (presumably) possible behavior using folk psychological principles as well as previously formulated mental state attributions. In either case, the mental states being ascribed are intended to capture an unobservable, internal impetus for another's observable behavior.

To illustrate, TT proposes that a folk psychological solution to the Sally-Anne test (presented in §1.1.1) requires something like the following series of observations and subsequent inferences, where the latter are executed intuitively, though may involve some conscious reflection or control.[7]

[7] What follows is modeled after Stueber's (2006) account of how a theory theorist would explain the use of theory of mind in an earlier version of the false belief test (Wimmer & Perner, 1983) that is parallel to the version used by Baron-Cohen *et al.* (1985). Specifically, I borrow but state more formally the theoretic principles that Steuber proposes. For a similar schema, see Gordon and Barker (1994).

Step 1: Observe that Sally observes that the marble is in the basket.

Step 2: Using the *principle of perceptually-based belief formation—i.e.* if *S* observes that *p*, then *S* (usually) forms a belief that *p*—infer the mental state attribution 'Sally believes that the marble is in the basket'.

Step 3: Observe that Sally, who exits the scene, does not observe Anne's placing the marble in the box.

Step 4: Observe that Sally returns seeking her marble.

Step 5: Using the *principle of perceptually-based belief change—i.e. S* (usually) changes *S*'s perceptually-based belief that *p* just in case *S* later observes or receives reliable testimony that not-*p*—infer that Sally, upon her return, still believes the marble is in the basket.

Step 6: Using the *central action principle—i.e.* if *S* desires *x* and believes that *A*-ing is a means to *x*, then (all else being equal) *S* will *A*—predict that Sally will look for the marble in the basket.

The above reasoning, being based on behavioral observation and tacitly driven by general principles that entail the use of mental state concepts, represents the sort of internal epistemic operations, and concomitant internal epistemic resources, that theory theorists say drive interpersonal understanding. Although the compensatory modes of reasoning some autistics use involve observational-inferential operations that yield responses like those afforded by theory of mind (*e.g.* correct responses on false belief tests), theory theorists maintain that the explicit, effortful, and friable nature of these operations importantly distinguishes them from theory of mind. What also sets these operations apart from theory of mind, according to TT, is that they do not employ mental state concepts (Baron-Cohen, 1995). Given this conceptual deficiency, theory theorists say, an autistic will suffer an endogenous deficiency in interpersonal understanding.

1.2.2 Simulating Other Minds

According to ST, folk psychological attributions, explanations, and predictions are 'process-driven', not 'theory-driven' (Goldman, 1995). Instead of centrally relying on a general

body of information about mental states and their role in behavior, an individual uses the same mechanisms that produce her own mental states and behavior to imaginatively simulate the mental states and behavior of others. Although most simulation theorists say this process requires mental state concepts, they also say that having these concepts does not require having a theory of mind. For instance, as Goldman (2006) states in his defense of ST, mental states can be defined according to their introspectable (*e.g.* phenomenal) properties rather than, as TT assumes, solely by their causal-functional roles. Moreover, unlike TT, ST does not clearly commit to characterizing third-personal mental state attributions as sententially encoded metarepresentations, *i.e.* representational states of the form '*S* (some other) has mental state *m*' (Davies & Stone, 1995). Regardless, most versions of ST still assume interpersonal understanding requires ascribing mental states to others third-personally, and that these states constitute a hidden internal impetus for a person's behavior.

On all versions of ST, attributing mental states to others, along with explaining or predicting others' behavior in terms of those states, signals the culmination of a three-phased approach to interpersonal understanding. Here is a schema describing that approach.[8]

Phase 1 *Matching*:	Adopt mental states that, by supposition, reflect those belonging to some other person.
Phase 2	Engage in the formation of further mental states, which may include plans

[8] Steuber (2006) argues that this schema captures the processes that are essential to both personal-level conceptions of ST and subpersonal-level conceptions of ST. As Steuber explains, according to personal-level theorists, conceptual considerations about rational agency and its role in interpersonal understanding are paramount to a defense of ST. But according to subpersonal-level theorists, empirical considerations about neurobiological mechanisms and their role in interpersonal understanding are paramount. Whereas Steuber presents two instances of this schema, one describing each phase using first-personal pronouns that reflect the first version of ST, and another describing each phase using impersonal terms like 'simulator' and 'target' that reflect the second version, my adaptation condenses those two instances by using version neutral language. However, note that Goldman (2006) would point out that this schema's reference to 'supposition' in Phase 1 indicates 'high-level mindreading', which employs the high-level cognitive faculty of imagination. On his view, a comparatively primitive, fully automatic process called 'low-level mindreading' that is used for recognizing others' emotions—often (though not exclusively) based on their facial expressions—does not involve imagination. Further, in low-level mindreading, matching another's emotions minimally counts as simulation.

Simulation:	of action, taking those states adopted in Phase 1 as a starting point.
Phase 3 *Attribution*:	End simulation, discharging the mental states from Phases 1 and 2, attributing to the other person those states formed in the simulation phase, and explaining or predicting the other person's behavior in light of what occurred during simulation.

During the matching phase, adopting another's mental states does not require the abandonment of one's own. At most, it requires the temporary suspension or inhibition of one's own so that another's may be entertained in pretense. Likewise, although the simulation phase involves reproducing another's mental states, it does not require replicating another's behavior. Mere imagination will suffice. During the attribution phase, whatever pretense the preceding two phases involved is terminated. Then, based on the assumption that self and other are psychologically similar, an analogical inference is made (Goldman, 2006; *cf.* Stueber, 2006). Alternatively, the attribution(s) in Phase 3 may be based on an imaginative 'identification' of self with other (as an actor might identify with a character he plays), with no analogical inference being necessary (Gordon, 1996). In either case, the (putative) knowledge gained from Phase 3 is retained and is constitutive of interpersonal understanding.

Consider how ST's three-phased approach would provide a folk psychological solution to the Sally-Anne test.[9] Just like with the series of steps proposed by TT, the sequence described below may involve some intermittent conscious reflection or control; however, in large part its execution may be described as intuitive.

Phase 1: Adopt the belief that, contrary to fact, the marble is in the basket, and adopt the desire to obtain the marble.

Phase 2: Maintain the false belief that the marble is in the basket and arrive at the desire to look for the marble in the basket.

[9] For simplicity's sake, I assume that the test subject has already witnessed Sally's placing the marble in the basket, Anne's transferring the marble to the box, and Sally's returning to retrieve the marble. All that remains is for the subject to determine where Sally will look for the marble.

Phase 3: End simulation, discharging the beliefs and desires from Phases 1 and 2, attributing to Sally those mental states formed during simulation, and predicting that Sally will look in the basket.

In the above illustration, the crucial mental maneuver is made by the imagination, the faculty ST takes to underwrite the counterfactual thinking in Phase 1 and the subsequent simulative process in Phase 2. Given deficits in imagination, deficits in matching and simulation will occur. Further, deficits that make it difficult or impossible to monitor and inhibit one's mental states and behavior could in turn make it difficult to complete Phases 1 and 2 (Goldman, 2006). But then, according to simulation theorists, the difficulties autistics exhibit in imagination and behavioral and cognitive flexibility suggest that they suffer just these sorts of deficits. As a result, they will lack the internal epistemic resources to gain interpersonal understanding.

1.2.3 Experiencing Other Minds

According to PT, the attributive, explanatory, and predictive activities that TT and ST propose fail to capture the fundamental character and purpose of folk psychology. Although these activities, say some versions of PT, can and sometimes will play a role in interpersonal understanding, they are nonetheless grounded in perceptually, affectively, and normatively guided intersubjective relations with other people. To illustrate this view, I will briefly present the work of two authors—Peter Hobson and Victoria McGeer—whose accounts of interpersonal understanding not only exemplify common features of PT, but also take special care to address autistics' social-communicative difficulties.

Hobson (2007), a developmental psychologist, argues that interpersonal understanding rests on a foundation of experiential and emotional relatedness to other persons as embodied subjects. Central to his account is a process called 'identification' (which, as he admits, may count as a sort of simulation). This process works as follows.

> [A person is moved, conatively and affectively, to] relate to the actions and attitudes of someone else from the other's perspective or stance, in a such a way that a person assimilates the other's orientation towards the world, including towards the self, so that this orientation becomes a feature of the person's own psychological repertoire. (51)

In infancy, identification begins to manifest as a sensitivity to the embodied behaviors and expressions (*e.g.* facial expressions, eye gaze, gestures) of other persons, as well as the acts of imitation and joint attention (see n.4 in §1.1.2) that sensitivity supports. At this stage of development, persons, minds, and perspectives of self and other are not yet conceptualized and thus are not yet understood in the proper sense of 'understood', according to Hobson. Nevertheless, persons and objects are implicitly distinguished; indeed, a "feeling perception" of the subjectivity of other persons is present, and "new psychological orientations [are assumed] *through* other people" (45, 52, emphasis in the original). As development continues beyond infancy, "mutually coordinated, affectively-patterned" engagement with other persons gives rise to the concept of a person as an embodied mind whose individual perspective on both self and world is distinct from yet inter-relatable with the perspectives of others (48). This crystallized, conceptual interpersonal understanding allows a person to "knowingly" identify (rather than, as infants do, unknowingly identify) with another's mental states (57). However, it does not require that she infer that persons—or, as TT and often ST suggest, that bodies—have minds. The subjective states of other persons, Hobson claims, remain both directly perceived in their embodiment and acutely felt during interpersonal interaction.

The attentional and perceptual differences autistics exhibit in the studies associated with the Enactive Mind Deficit account appear to complement Hobson's view. Further, as Hobson (2007) points out, autistics' early developmental difficulties with imitation and joint attention fit with his view as well. But Hobson also has his own studies on ASCs and identification, all comparing autistics with nonautistic (and, in most of the studies, intellectually challenged)

controls.[10] In an observational Hello-Goodbye study, raters judged most of 24 autistic adolescents as 'hardly, if at all engaged' with a stranger during a controlled videotaped interaction. The autistic subjects exhibited a comparative lack of spontaneous and well-coordinated reciprocal eye contact, smiling, and verbal or gestural greetings and farewells. A few waved goodbye, but they did so using "strangely limp and often ill-directed flaps of the hand that were not coordinated with eye contact" (46). An experimental 'emotion recognition' task revealed that most of 15 autistic children successfully sorted photographs of people according to sex, age, or hat type. But most did not do so based on a fourth available category—namely, whether the people's facial expressions appeared happy or sad. Lastly, in an experimental identification task, autistic children were prompted ('Now you') to reproduce simple actions by an experimenter (*e.g.* repositioning one of two boxes, either one in front of the subject, or another in front of the experimenter). Autistics tended to repeat these actions exactly as performed (*e.g.* moving a box from experimenter's position to subject's position), rather than transpose them in a way that suggested identification (*e.g.* moving a box from self's, as first portrayed by experimenter's, position to other's position).

Overall, Hobson concludes that most autistics "have a weak propensity to identify with others" (50). They do not experience the strong distinction between persons and non-persons that nonautistics do. And they are unmoved to "the emotional stance" of other persons in the way nonautistics are (50). Nonautistics, Hobson says, can understandably feel as though autistics treat them not as persons but as "pieces of furniture" (47).

McGeer (2001; *cf.* McGeer, 2007) argues that folk psychology is best described as 'psycho-practical expertise'. In contrast to what she considers the detached, third-person expertise of a spectatorial observer emphasized by TT and often ST (*cf.* Stueber, 2006), psycho-

[10] See Hobson (2007) for citations and further descriptions of the relevant studies.

practical expertise, McGeer says, is the engaged, first-person expertise of an 'insider'. McGeer offers a summary description of the psycho-practical expert.

> [She is] a normatively invested skilled participant who is attuned to others because she knows the nuances of minded behavior in two distinct but deeply related ways: she knows how to read the thoughts and actions of others by understanding these in accord with shared folk-psychological norms; and she knows how to make her own thoughts and actions meaningful to others by operating in accord with these same norms. (2001: 116)

On McGeer's view, folk psychology as psycho-practical expertise has three key dimensions, only the first of which typically occupies TT and ST: understanding (including mentalistically explaining and predicting) others; facilitating others' understanding of oneself; and norms of rationality and social convention. This third dimension helps govern the former two, promoting frequent and fluent mentalistic explanation and prediction within a common normative framework for social interaction. As a person continually participates in the relevant norms, regulating herself in accord with them as others do the same, she internalizes those norms and immerses herself in their shared practice; she becomes skilled at understanding and interacting with others well. The expertise she develops, McGeer (2001: 118) says, manifests as "a kind of practical awareness-in-action and –reaction" that is "second nature…[and] below the level of regulation by conscious awareness." As McGeer (2007) notes, using this expertise becomes so habitual that it even influences perception of mindless entities, as Klin (2000) illustrated using the Heider and Simmel (1944) animation (see §1.1.2).

According to McGeer (2001), bringing focus to people's typical aptitude not just for gaining understanding of others but also for making themselves more understandable *to* others brings with it distinct advantages. First, the mutual promotion of understanding between persons through their adherence to shared norms explains the ease with which people ordinarily interact. They distribute the "burden of understanding" between them, reducing the interpretive work

each must do by behaving in ways that are easily explained and predicted (2001: 119). In fact, the social world in which people are embedded, not so much the people themselves, makes them more easily understood by one another. For whether a person conforms to or knowingly breaks from common norms for acting and interacting, the meanings embedded in those norms—especially the semantics and pragmatics of a common language—provide a predetermined guide for folk psychological interpretation. Second, the 'insider' nature of psycho-practical expertise explains how persons can often have a first-person, phenomenal sense of what it is or would be like from another's perspective: when ways of thinking and behaving are shaped by common norms, people acquire common ways of "*being minded*" (2001: 121, emphasis in the original). Third, typical human social development, which involves an early and ongoing special sensitivity to social stimuli, and which progresses through interaction with (including, as first manifest in infancy, imitation of) other people, predicts the emergence of psycho-practical expertise; indeed, it illuminates the centrality of that expertise to interpersonal understanding.

A further advantage of construing folk psychology as psycho-practical expertise, McGeer (2001) claims, is this: it explains nonautistics' failure to understand autistics as well as the reverse. Each fails to become 'attuned' to the other. More precisely, autistics and nonautistics fail to become similarly minded and, further, fail to comport themselves in similar, inter-relatable ways. Their lack of attunement results from nonautistics' minds and behaviors being shaped by the regulative influence of common folk psychological norms that do not equally affect autistics. Some autistics may devise explicit, third-personal interpretive methods for improving their social functioning. But autistics' success with these methods, she says, does not make nonautistics' social practices more 'familiar' to them in the way those practices are familiar to nonautistics (2001: 115). Like high-functioning autistic Temple Grandin, similarly well-compensated

autistics may continue to feel “like an anthropologist on Mars” (Sacks, 1995, as cited in McGeer, 2001: 115).

In accord with Hobson, McGeer thinks that the gulf between autistics and nonautistics opens early in their respective social development. Nonautistic infants’ preferential engagement with other persons, which, McGeer believes, is driven by the sense of affective and experiential relatedness Hobson describes, connects them to an interactive means of exploring typical modes of embodied expression. It also offers them a “critical source of sensory-affective regulation” that autistics, who appear disengaged and disconnected as infants, go without (2001: 128). In fact, McGeer claims that sensory-motor issues common to ASCs (see the introduction to §1.1, area (d)) may lie at the core of autistics’ poor attunement with nonautistics. Citing numerous high-functioning autistics’ reports of their sensory experiences during childhood (and adulthood), McGeer suggests that from early in life autistics’ sensory world, including other people and even their own sense of embodiment (*i.e.* proprioception), can feel disorganized and often cause them distress. Such sensory disturbance, she suggests, interferes with autistics’ experiencing the sensorially-mediated, regulative influence of other persons. Speaking about both autistics and nonautistics, McGeer ultimately proposes the following:

> [B]ecoming minded as others are minded, and sharing thereby in the advantages of normal psychological knowing [of other persons], may finally depend on something as basic as having sensory access to others in a way that makes possible their regulative influence on us as developing children. (2001: 129)

Going a step further than the Enactive Mind Deficit account, which says autistics lack the sort of selective attention that nonautistics instinctively use to structure the world around social stimuli, McGeer seems to say autistics may lack the sort of sensory integration needed to structure the world in a way that gives them a chance to attend to social stimuli at all.

2 AUTISM, EXTERNAL EPISTEMIC DEFICITS, AND INTERPERSONAL ACCESS

How the world is structured by autistic minds matters. How the world is structured *for* autistic minds matters as well. For the internalist conception to stand, factors exogenous to ASCs must be adequately ruled out as an explanation for autistics' social-communicative difficulties. I will contend that such factors may impede autistics' access to other minds and, consequently, their understanding of other persons. Here is a summary of my counterargument to the internalist conception.

(1) Interpersonal understanding requires positional interpersonal access.
(2) Autistics possibly lack sufficient external epistemic resources to gain positional interpersonal access.

Therefore,

(3) Autistics possibly lack sufficient external epistemic resources to gain interpersonal understanding.
(4) If autistics possibly lack sufficient external epistemic resources to gain interpersonal understanding, then autistics possibly have sufficient internal epistemic resources to gain interpersonal understanding.

Therefore,

(5) Autistics possibly have sufficient internal epistemic resources to gain interpersonal understanding.

This argument is valid. I will attempt to show it is also sound. In §2.1 and §2.2, I will defend (1) and (2), respectively. In §2.3, I will defend (4).

As way of preview, both (1) and (2) derive partly from the internalist conception's commitment to TT, ST, or PT as accounts of interpersonal understanding. I will first show how these three accounts each entail (1). In support of (2), I will then suggest that, given its reliance on TT, ST, or PT, the internalist conception faces a dilemma. Either (a) assessments that fit the false belief paradigm provide a litmus test for interpersonal understanding; or (b) fluent participation in social interactions that assume species-typical, *i.e.* 'natural', conditions for

positional interpersonal access (or else experimental procedures approximating them) provide such a litmus test. If (a) is true, the internalist conception must contend with empirical evidence that suggests autistics perform significantly better on false belief tests when given additional stimuli tailored to their psychological strengths. If (b) is true, the internalist conception overemphasizes species-typical conditions for positional interpersonal access, leaving alternative conditions that accommodate autistics underexplored. In either case, I will argue that the latter conditions appear possible.

Following my demonstration of (1) and (2) and hence (3), I will support (4) using a distinction between abilities and capacities. On this distinction, abilities are defined in terms of both external and internal resources; capacities are defined in terms of only internal resources. The internalist conception maintains that autistics' lack of social-communicative ability originates from a lack of internal epistemic resources and thus a lack of capacity. But if autistics' external epistemic resources are possibly deficient, then their internal epistemic resources are possibly sufficient. More precisely, external epistemic deficits could be blocking autistics from using their capacity to gain interpersonal understanding. If I am correct, autistics' social-communicative difficulties could resemble the sorts of difficulties persons with sensory or physical impairments (*e.g.* blindness, deafness, paraplegia) sometimes face. Although these individuals have the capacity to perform many of the same tasks unimpaired individuals can, they lack the ability to do so if their available external resources fail to match their available internal resources. Such mismatches of external and internal resources result in a problem of access: sufficient internal resources are present, but complementary external resources are unavailable, rendering the gains of using either inaccessible. As I will discuss, autistics may face just such a problem of access to other minds.

Lastly, my main conclusion at (5) may seem quite modest—too modest, in fact, to stir much if any controversy. After all, theorists who endorse the internalist conception can concede that it stands or falls in part with empirical work on ASCs. Just as existing work, they might say, supports the view that autistics lack sufficient internal epistemic resources to understand others interpersonally, future work may defeat it. First, however, this concession overlooks how entrenched the internalist conception has become in the TT, ST, and PT literature. Theorists from all three camps consider autistics an exemplary human case of folk psychological deficiency that they can appeal to advance their debate. Consequently, by pressing the possibility that the internalist conception is wrong, I challenge a clear and conspicuous point of agreement that has notable methodological significance to the relevant theorists. Second, merely allowing that the internalist conception is in principle empirically vulnerable does not acknowledge the serious implications that conception has for autistics. The social-communicative difficulties autistics face can severely affect the quality of life both they and those who care for them enjoy. If the internalist conception is correct, then (all else being equal) those difficulties are best redressed internally. Clinically speaking, autistics need to be cured. Some ethicists who endorse the internalist conception (*e.g.* Barnbaum, 2008) even argue that, genetic technologies permitting, prospective parents should prevent themselves from having an autistic child, for such a child *qua* autistic will be precluded from living a good life. However, an emerging autism rights movement, led in part by autistic self-advocates, argues ASCs social-communicative features should not be cast as internal deficits and targeted for elimination. Autistics should be accommodated as different, meaning they should receive the support they need to realize their individual potential and enjoy inclusion in a predominantly nonautistic world (Dekker, 2006; Harmon, 2004; Silberman, 2010; Solomon, 2008). If, contrary to the

internalist conception, this movement's message is correct, then preventing or otherwise eliminating ASCs becomes, at best, unnecessary and, at worst, tragically misguided.

2.1 In a Position to Understand Interpersonally

Earlier I proposed that the internalist conception assumes that, when accessing other minds, a person must satisfy an external access requirement (EAR). Based on this proposal, plus the assumption that interpersonal understanding requires accessing other minds, I distinguished between positional interpersonal access (PI-access)—being in a 'position' to understand another person as minded—and renditional interpersonal access (RI-access)—arriving at a 'rendition' or interpretation of another person's mental states. Here now are formal definitions of EAR, PI-access, and RI-access.

EAR:	For any non-identical persons *S* and *T*, *S* must access the mental states of *T* using external epistemic resources that inform *S* about the mental states of *T*.
PI-access:	A person *S* gains PI-access if and only if *S* is externally situated such that *S*'s surroundings evince interpersonally relevant features that are detectable by *S*.
RI-access:	A person *S* gains RI-access if and only if (i) *S* gains PI-access and (ii) *S* deploys sufficient internal epistemic resources to detect interpersonally relevant features of *S*'s surroundings and interpret those features as representations, expressions, or indications of another person's mental states.

The 'interpersonally relevant features' involved in PI-access refer to features of a person's surroundings that provide evidence of or information about other minds, thus serving as resources that satisfy EAR. PI-access is impeded just in case no such features are detectable by a person, because such features are either absent, obscured, or otherwise resistant to detection (*e.g.* as another person's gaze would be resistant to detection by a blind person). Regarding RI-access, satisfying (ii) means using (hence having) whatever psychological resources suffice for construing another person in terms of her mental states. RI-access is constitutive of interpersonal

understanding. Meanwhile, PI-access is distinct from but required for interpersonal understanding. This latter claim, I contend, comports with TT, ST, and PT.

TT and (with few exceptions) ST draw a clear line between another person's mental states and external representations or indications of them. The former are internal and unobservable; the latter are observable. The latter are also, as I call them, interpersonally relevant features of an individual's surroundings that, according to TT and ST, she uses to infer, rather than directly perceive, others' mental states. Generally, these features include the following sorts of behavioral cues and situational characteristics.

> Let F*n* stand for an interpersonally relevant feature, and let *T* stand for some person other than oneself:
>
> (F1) *T*'s verbal communication (be it written, spoken, or manually signed);
>
> (F2) *T*'s nonverbal communication (*e.g.* eye gaze, facial expression, body posture, gestures, prosody);
>
> (F3) *T*'s behaviors that are not clearly subsumed by (F1) and (F2) (*e.g.* seeking or manipulating objects in the environment, as exemplified in the Sally-Anne Test);
>
> (F4) *T*'s location relative to her surroundings and the various external stimuli (*i.e.* objects, events, or persons other than *T*, such as the marble's being moved by Anne) by which *T* is, has been, or will be affected.

(F1) through (F3) describe basic ways in which a person may interact with or else present herself to others and her environment. (F4) describes basic ways in which others and the environment may affect a person. Observation of these sorts of features, either separately or jointly, followed by application of theory of mind or simulation is said to yield a mental state attribution. These two steps, *i.e*. observation and application, could correspond to the detection and interpretation I include in condition (ii) for gaining RI-access. But they would still leave out—indeed, presuppose—condition (i), *i.e.* gaining PI-access. In order to observe and make inferences based on interpersonally relevant features, those features must be present and detectable.

PT draws at best a very fuzzy line between a person's mental states and their embodied, environmentally embedded significations. Further, PT rejects the separation TT and ST propose between observing other persons and apprehending their mental states. But my distinction between PI-access and interpersonal understanding (hence RI-access) commits to neither (a) a sharp internal-external distinction between a person's mental states and her body/behavior/environment, nor (b) an observation-application distinction between 'inputting' interpersonally relevant features and interpreting them using internal epistemic resources. Although my distinction between internal and external epistemic resources may appear to assume (a), this distinction could be equally described as one between something like 'first-personal agentic resources' and 'second-personal, cultural, and environmental resources', where the embodied cognitive processes included in the former are firmly embedded in the agent's interaction with the latter. Still, my definition of RI-access may appear to assume (b). After all, it lists detecting interpersonally relevant features separately from and prior to interpreting them. But this separation and sequencing may be taken as merely verbal. The detection and interpretation required for RI-access could be united into the sort of direct perception proposed by PT. However, this gloss of RI-access, which targets condition (ii), does not fold PI-access into interpersonal understanding. Instead, the requirement for PI-access can remain as a distinct acknowledgement that an embodied agent's environment must integrate with her interpretive faculties, not that the latter can be abstracted away from the former in the way TT and ST might suggest. So despite its differences with TT and ST, PT also entails that interpersonal understanding requires PI-access.

2.2 Autistics as Out of Position

Wellman *et al.* (2002) trained autistics for the Sally-Anne test using pictorial materials—namely, thought bubbles—intended to depict others' mental states. Motivated in part by previous research that suggested a 'picture-in-the-head' teaching strategy improved autistics' performance on the Sally-Anne test, Wellman *et al.* conducted two studies with a total of 17 autistics whose average verbal mental age was about 5 years—the same average reported in Baron-Cohen *et al.* (1985).[11] Pre-tests omitting thought bubbles were given using the Sally-Anne test and one or more other false belief tests. Pre-tests in the second study also included a Seeing-Knowing task, which required subjects to identify which of two dolls knows the contents of a box—namely, a doll that looks in the box or a second doll that touches but does not look in the box. Following the pre-tests, subjects were trained to interpret thought bubbles (cut from cardboard) as depictions of what Sally is thinking. Post-tests were then given in which thought bubbles were again omitted.

In the first study, during pre-testing subjects averaged 14% correct on questions about what Sally thinks and where Sally will look. But during post-testing, subjects averaged 87% correct on equivalent questions in a false belief test using stuffed bears that parallels the Sally-Anne test. However, subjects' performance did not improve on a second false belief test repeated from the pre-test phase. In the second study, all pre-test tasks were repeated during post-testing. Average performance on the Sally-Anne test again improved significantly, rising from 30% correct to 80% correct. Across all tasks, including the Seeing-Knowing task as well as a false belief test that, unlike the Sally-Anne test, did not involve an object's changing location, average performance on just thought questions (*e.g.* 'Where does Sally think the marble is?')

[11] The 'picture-in-the-head' strategy involved inserting photographs' representing mental states in the heads of manikins or dolls (Swettenham *et al.*, 1996; McGregor *et al.*, 1998).

rose from 37% correct to 87% correct among all subjects, and from 13% correct to 93% correct among half the subjects. Importantly, the training used only Sally-Anne materials (plus thought bubbles) and featured only change-of-location situations like that in the Sally-Anne test. Yet in both studies most subjects succeeded at generalizing their training to experimental tasks that involved different materials and, particularly in the second study, different situations.

Wellman *et al.* (2002: 362) suggest thought bubbles may act as a "prosthetic device" that helps autistics complete basic mindreading tasks like the Sally-Anne test. Construed as such a device, thought bubbles do not activate a nonautistic cognitive mechanism (*e.g.* theory of mind or simulation) latent in autistics, nor do they lead autistics to develop that exact same mechanism. Instead, thought bubbles take advantage of autistics' demonstrated facility with photographic and pictorial representations (Charman & Baron-Cohen, 1992; 1995; Leekam & Perner, 1991). Experimental (Hulbert *et al.*, 1995) and anecdotal (Grandin, 1995) accounts of introspection in high-functioning and Asperger's syndrome autistics indicate imagistic thinking may be intact and even enhanced in ASCs.[12] Further, intervention strategies that employ visually oriented activity schedules, 'social stories', and other means of behavioral management and special instruction can help autistics meet the social and organizational demands of classroom settings (Delano & Snell, 2006; Detmer *et al.*, 2000; Schmit *et al.*, 2000; Schneider & Goldstein, 2009), as well as help them—even low-functioning autistics—develop self-help and daily living skills (Peirce & Schreibman, 1994). Given the effectiveness of these interventions, plus the character of some autistics' introspective reports, visuo-cognitive strengths may accompany ASCs and, further, may have beneficial social and non-social applications for autistics. Indeed, given the success of (an albeit limited sample of) autistics on false belief tests following thought

[12] For a cognitive account of ASCs that proposes autistics often use visual mental representations and processes in place of the verbal ones nonautistics typically employ, see Kunda and Goel (2008).

bubble training, these strengths, when partnered with the right external epistemic resources, appear to permit autistics to pass—at an earlier verbal mental age than usual for them—basic tests of mindreading that TT and ST cite as providing important evidence of autistics' insufficient internal epistemic resources.

Still, advanced mindreading tests, which intend to model natural social conditions, remain challenging for autistics, including more intellectually and verbally gifted persons on the autism spectrum. However, the limited external epistemic resources these tests offer autistics may help explain their difficulties. Recall that the Strange Stories test involves pragmatic conventions that employ non-literal language. As both Happé (1994) and Jolliffe and Baron-Cohen (1999) concede, autistics' difficulty with such conventions could be explained by their apparent tendency toward weak central coherence. Rather than just failing to make mental state attributions, autistics who do poorly on the Strange Stories test may be failing firstly to appreciate the highly context-dependent social rules that would support their making the appropriate attributions. Were these rules made more explicit through coaching, perhaps autistics could better grasp the intentions of the actors in the stories. At the very least, they might learn to better navigate the sorts of situations those stories intend to model. Two high-functioning autistics, Grandin and Barron (2005), have chronicled their lifelong struggle to uncover, codify, and apply the 'unwritten social rules' that so often characterize pragmatics and that nonautistics so often take for granted. For instance, the very first rule Grandin and Barron propose is that "rules are not absolute; they are situation-based and people-based" (2005: 120). Although social guidelines like this one require both appreciating context and remaining flexible in thought and action, two areas of difficulty for autistics, Grandin and Barron suggest that autistics, if given instruction that draws on their potential strengths (*e.g.* concrete, literal, or

visually oriented thinking), can in time succeed at learning them. Both of these autistics, largely by their own lights, have succeeded to a significant extent themselves, and their social-communicative difficulties have been greatly reduced.

Of course, as McGeer (2001) points out, Grandin does state that she feels like an anthropologist on Mars. According to McGeer, this statement reveals that the rules Grandin has painstakingly derived from systematic observation of nonautistics' social behaviors are not 'familiar' to Grandin as they are to nonautistics, whatever gains in social functioning she might exhibit. Granted, the ways of being minded that those rules reflect may remain alien-seeming to Grandin. Further, Grandin's methods for grasping those rules may seem oddly detached to McGeer and other nonautistics. But it does not follow that nonautistics remain wholly unfamiliar to Grandin. Nor does it follow that she feels utterly detached from them. Consider how Grandin (1995) describes her social encounters with people who, like her, enjoy construction.

> Some of the best times of my life have been working on construction projects. **I can relate to people** who produce tangible results. Seeing my drawings turn into steel and concrete turns me on. Construction workers love to complain about stupid people in the front office, and **I fit right in** when they bitch about the "suits and ties" in the front office who don't understand equipment or construction. Over the years I have worked with many crews and many different contractors. They all like to complain and tell war stories. **I have no trouble being with them,** and **I become one of the guys**. Another reason **I fit in** with construction workers and technical people is that we are mostly visual thinkers. (1995: 139, 140, emphasis added)

This passage illustrates that Grandin and nonautistics can share common ways of being minded and, more broadly, of being in the world—namely, by sharing common interests as well as common (albeit not essentially social) ways of thinking. Becoming fluent or else, as autistics may often be, just passably competent in "the norms and routines that structure social interaction" is not an end in itself (McGeer, 2001: 119). It is a means for building (and

sometimes breaking) bonds with other people. Put another way, shared folk psychological norms are not so much the 'glue' that unites people as they are the 'dispenser' that applies it. Or, to piggyback on McGeer's notion of 'attunement', they are not, as McGeer seems to suggest, the 'notes' people play in harmony; they are the 'instruments' people play together. And the music people make when they play together well is defined in part by the common style, *i.e.* common interests or mental methods, that that music reflects. By learning—even if through effortful, rote methods—to become better social 'instrumentalists', autistics stand a better chance of appreciating the ways in which they and nonautistics can be similarly minded. Likewise, by allowing that most autistics may never become expert players, but instead will have persistent difficulty with the social nuances that comparative virtuosos, *i.e.* nonautistics, handle with ease, nonautistics stand a better chance of accommodating autistics' social-communicative difficulties and finding common ground with them.

Some social nuances that challenge autistics are brought out by other advanced mindreading tests that target the mentalistic interpretation of the eyes or voice (*i.e.* the prosodic quality of the voice). Like the eye tracking studies Klin performed with high-functioning autistic adolescents and adults, as well as the Hello-Goodbye study and facial-expressions-based emotion recognition test conducted by Hobson, these advanced mindreading tasks attest to autistics' difficulties with nonverbal communication. TT, ST, and PT all assume such communication is a common component of typical social interaction and, ultimately, interpersonal understanding. On PT in particular, nonverbal cues figure prominently among the 'embodied expressions' of others' mental states that are central to interpersonal understanding. In my terms, these cues figure prominently among the external epistemic resources nonautistics so often and easily rely on to gain PI-access. I grant that PI-access may ineluctably involve sending and receiving

embodied nonverbal signals that express or represent mental states. Under species-typical conditions for social interaction, an array of such signals is regularly and rapidly employed by nonautistics in ways that reflect and reinforce the sorts of norms McGeer (2001) highlights. However, while these conditions are 'natural' ones for gaining PI-access, they are not *a priori* necessary ones. Specifically, the pace and volume (if not also the types) of nonverbal exchanges assumed by typical social interaction need not be an unavoidable obstacle to autistics' gaining PI-access.

To help frame this point, I will borrow an analogy from Digby Tantam (2009), a psychiatrist and psychologist (who, incidentally, takes inspiration from the Phenomenological tradition that informs PT). Just as computers connect wirelessly to the internet, sending and receiving information in a way that, compared to wired transmission, is unmediated, people connect nonverbally to an 'interbrain', sending and receiving information about themselves and others in a way that, compared to verbal communication, is unmediated and implicit (*i.e.* communicates a person's attitudes, feelings, intentions, *etc.* without her having to share them through explicit verbal expression). Further, like the various software that computers often download automatically during unmonitored background processes, keeping system components current or even infecting them with viruses, nonverbal communication often operates automatically and subliminally, keeping people up to date on and regulating (helpfully or harmfully) each other's minds and behaviors. Finally, just as an internet connection's bandwidth, *i.e.* how much information it can carry and how fast, can vary in quality from computer to computer, an interbrain connection's bandwidth can vary from person to person. Nonautistics tend to have a high bandwidth interbrain connection. Autistics, Tantam says, tend to have a low bandwidth interbrain connection that is "weak or easily interrupted" (2009: 16).

Now, to build on the internet-interbrain analogy Tantam offers, imagine a dial-up (low bandwidth) user who is trying to access the modern internet. Because broadband (high bandwidth) access has become far more common than dial-up, websites now tend to feature far more content tailored to broadband users. If a dial-up user succeeds at accessing this content at all, he does so very slowly and likely suffers a browser crash or two. Like the modern internet, the natural social world is replete with content that assumes a high bandwidth connection—namely, a high volume of rapid nonverbal cues. As Klin *et al.* (2004) suggest, this content is often 'downloaded' (my usage, not theirs) subliminally by attentional processes that automatically and selectively target social stimuli, especially nonverbal cues like eye gaze. With this content in hand (or, better, in mind), the broadband interbrain user is well-positioned to nimbly navigate the open domain task presented by the natural social world and, all along the way, understand others interpersonally. Meanwhile, autistics, who are dial-up interbrain users, are not similarly well-positioned.

However, here are two possible ways to improve autistics' position—or, more precisely, their likelihood of gaining PI-access—despite their low bandwidth interbrain connection.

(a) Minimize interruptions to an autistic's interbrain connection caused by sensory stimuli that she may find distracting or otherwise disruptive.
(b) Reduce the use of nonverbal communication, thereby reducing the demands made on an autistic's interbrain connection.

Regarding (a), McGeer (2001) aptly suggests that sensory-motor issues often observed in as well as described by autistics may prevent them from gaining basic sensory access to other persons. On my view, these issues prevent them from gaining PI-access by impeding their detection of interpersonally relevant features of their surroundings. For instance, sensory stimuli that may easily bleed into the background of many nonautistics' sensory experience (*e.g.* the rapid on-off cycling of fluorescent lights, the persistent humming of electrical appliances) can often be

intolerable to autistics, making it all the more difficult for them to concentrate on other persons (Davidson, 2010). Carefully structuring an autistic's sensory environment to accommodate their sensory differences may help them better connect with other persons, both verbally and nonverbally. Regarding (b), although some research (*e.g.* Golan *et al.*, 2009) suggests autistics can learn to better recognize nonverbal cues such as facial expressions, explicit exchange of thoughts, feelings, or intentions may be an effective substitute when implicit exchange fails. For instance, either a verbal prompt (Odom & Strain, 1986) or a tactile one (Taylor & Levin, 1998) offered by a trained social facilitator or the person(s) with whom autistics directly interact can improve autistics' engagement with others. Scripts outlining steps for initiating and maintaining social interaction could also be provided to autistics and then gradually faded out of use (Krantz & McClannahan, 1993). An objection may arise that prompts, scripts, and similar methods of facilitation and training artificially 'close' the natural social domain, stripping away complexities that importantly define it. However, nothing about an open domain task requires *a priori* that it be solved or navigated without explicit instruction or mediation. Sometimes, perhaps quite often for autistics, explicit external support is needed to help people cut a path and find their way forward.

Although reducing nonverbal communication and offering other forms of accommodation I have described could improve high-functioning and Asperger's syndrome autistics' chances of gaining PI-access and, by extension, interpersonal understanding, a common concern remains that low-functioning autistics, whose verbal and general intellectual limits can appear quite severe, will inevitably lack sufficient internal epistemic resources to understand others interpersonally. Tantam (2009) describes an encounter with 'Tim', a low-functioning autistic, during an initial clinical assessment. His remarks capture some of the very

challenging—indeed, troubling—behaviors low-functioning autistics can exhibit. But his remarks also suggest that with due patience a sense of connection with low-functioning autistics can begin to emerge.

> Tim was 14, with limited understanding of speech and no use of words. He…quickly developed everyday activities into routines. When a routine was interrupted he would scream, rock, and sometimes bite. I met him for an assessment. He sat next to me at a table while I talked to his grandparents…I did not take much notice of him and when I did glance at him his eyes were always staring into the forward distance. There would be an occasional slight grimace on his face, but no acknowledgement of my glance. After 30 minutes, I asked him to hold my hand, to test his grip, and he was reluctant to let it go. About ten minutes after that, Tim turned round and began to look searchingly at my face. When I looked back, I saw a person in his eyes for the first time. He grunted, as if trying to speak, and then touched the lapel of my jacket. I began to speak to him for the first time. (2009: 198)

As Tantam discusses, initial contact with Tim moves slowly and involves little communication. Attempting to move at a typical, nonverbally rich pace of introduction and interaction would easily exceed the bandwidth of Tim's interbrain connection, causing him fear and anxiety. Verbal demands, too, must be carefully proportioned to Tim's facility with speech. When Tim starts to explore Tantam's presence, he appears to treat Tantam as just a curious source of sensory stimulation, seemingly showing no interest in Tantam's identity or feelings nor in Tantam's purpose as a clinician. Abruptly touching and even closely sniffing other persons is not uncommon among autistics, particularly the low-functioning, and can make others uncomfortable, though autistics will not readily discern this discomfort given their low bandwidth interbrain connection. Given more time with Tim and continued sensitivity to the reduced bandwidth of Tim's interbrain connection, Tantam says he could establish boundaries for physical contact as well as overcome boundaries to personal contact.

But what sort of person would Tantam be making contact with? When witnessing the hand flapping, body rocking, spinning, humming, grimacing and other tics, fleeting eye contact,

limited or absent speech, limited self-help and daily living skills, self-injurious behavior, rigid and even aggressive insistence on routine, unusual sensory (in)sensitivities and fascinations, and myriad other characteristics observed in low-functioning autistics, nonautistics may get the sense that exhibiting these sorts of characteristics precludes having the sort of mind that they could relate to, or that could relate to them, in anything but a very thin and fragile sense. Yet individuals like author 'Tito' Rajarshi Mukhopadhyay (2011) and other autistics who exhibit many of those characteristics—including a lack of expressive (but not receptive) speech—also manifest, through independent typing, substantial intellectual and linguistic gifts, which they use to express their keen awareness of themselves, other persons, and an often unaccommodating world.[13] Of course, just as not every high-functioning or Asperger's Syndrome autistic will be a Grandin, not every 'low-functioning' autistic will be a Mukhopadhyay. Nevertheless, individuals like Mukhopadhyay demonstrate that severe autistic impairments can exist alongside a rich and coherent perspective on self, other, and world. And, again, while not all low functioning autistics will have a similarly well-formed perspective, nonautistics who feel, as Hobson (2007) says, like 'pieces of furniture' in their presence should be cautious about dismissing them as near unreachable interpersonally. Along with less impaired autistics like Grandin, more impaired autistics like Mukhopadhyay and Baggs provide a source of 'insider' expertise that can help improve nonautistics' understanding of the challenges shared by persons throughout the autism spectrum. To use McGeer's (2001) terms, they can help nonautistics better share with autistics the burden of interpersonal understanding.

[13] For other examples, see Larry Bissonnette, Lucy Blackman, and Jamie Burke in Biklen (2005).

2.3 Abilities, Capacities, and a Problem of Access to Other Minds

The internalist conception holds that autistics cannot bear that burden at all. They lack the capacity to lift it, much like a person too weak to carry a weight. But if, as I have sought to demonstrate, autistics possibly lack sufficient external resources to heft the weight of other minds, then the weakness may lie not so much in them as outside them, denying them the ability to understand others interpersonally. Here is a formal statement of the distinction I am proposing between abilities and capacities.

> A person *S* has the capacity to *A* if and only if *S* has sufficient internal resources for *A*-ing; in contrast, *S* has the ability to *A* if and only if (i) *S* has the capacity to *A* and, in at least some cases, (ii) *S* has sufficient external resources for *A*-ing.

Because the internalist conception attributes autistics' social-communicative difficulties to an internal deficit that impairs interpersonal understanding, it maintains (i) is false: autistics lack the capacity to gain interpersonal understanding. However, if it is possible (ii) is false—that is, it is possible autistics lack sufficient external epistemic resource to gain PI-access and, consequently, interpersonal understanding—then it is possible (i) is true: autistics possibly have the capacity to gain interpersonal understanding.

Here are two cases involving sensory or physical impairments that I believe may be analogous to the impairments autistics have.

Case 1: Xavier is completely blind but is otherwise unimpaired. He lacks the capacity to see. Yet he retains the capacity to gain sensory access to the content of visually encoded text. To be able to do so, however, he requires an aural or tactile encoding of such text. Further, if he lacks the external resources he needs, then as far as he or others know it remains possible that he has the capacity to understand the content of visually encoded text.

Case 2: Yinka has severe paraplegia, *i.e.* no sensory-motoric use of her legs, but is otherwise unimpaired. She lacks the capacity to walk. Yet she retains the capacity to be mobile. To be able to be mobile, however, she requires a wheelchair or equivalent external resources.

Suppose that autistics do in fact lack sufficient external epistemic resources to gain PI-access. Then the plight they face in gaining interpersonal understanding parallels Case 1. The external resources available to autistics fail to complement the kinds, both the quality (*e.g.* visual, concrete) and the quantity (*i.e.* low bandwidth), of internal resources they use to gain PI-access. Thus, they lack the ability to gain PI-access. Further, for all nonautistics know, it remains possible that autistics have the capacity to gain interpersonal understanding. Now suppose that autistics do in fact have sufficient internal epistemic resources to gain interpersonal understanding. Then autistics' plight also parallels Case 2. The capacity to understand others interpersonally is sufficiently constituted by autistics' available internal resources, where these resources do not include all those on which nonautistics rely. Yet without sufficient external epistemic resources to gain PI-access, autistics will lack the ability to gain interpersonal understanding, just as Yinka will lack the ability to be mobile without a wheelchair or equivalent external aid. So, setting aside suppositions of actuality and returning to claims of possibility, the capacity to understand others interpersonally may be analogous to the capacity to be mobile. That is, instead of being a capacity that belongs only to persons who have a species-typical, nonautistic psychology, much the way the capacity to walk belongs only to persons (or other creatures) who have a species-typical physiology, the capacity to understand others interpersonally may be one that belongs to autistics, too. But to use it they would need external resources that complement their internal resources.

Proponents of the internalist conception could reply that ASCs are best compared to other cases of psychological impairment. Here is one case they might suggest.

> Case 3: Zoe has impairments in memory related to the onset of dementia but is otherwise unimpaired. She lacks the capacity to remember recent events. Yet she retains the capacity to keep recently set doctor appointments and complete once familiar routines like shopping at a local market and preparing her own

> meals. To be able to do so, however, she requires written notes or sets of instructions, as well as prompts provided by unimpaired family, care givers, and others who know of her condition.

Even though Zoe may be able to complete the same tasks she would were her memory intact, she nonetheless lacks the capacity to remember the recent events that led her to those tasks. She cannot remember setting an appointment, initiating a shopping trip, or making previous steps toward preparing a meal. Based on her written aids and prompts from other people, she may believe that those events occurred. She may also reason that her current circumstances (*e.g.* seeing a prescription in the medicine cabinet that requires renewal, riding a public bus while carrying a grocery list, noticing cookware and ingredients set out in the kitchen) would fit with those events' occurrence. But, again, she cannot recall their having happened. Likewise, even though autistics may be able to complete the same tasks they would if they had the capacity to understand others interpersonally, they nonetheless lack that capacity, according to the internalist conception. They cannot understand the rules or scripts they follow, nor can they understand the nonverbal signals they have been trained or prompted to exchange with others.

However, this construal of Case 3 and concomitant analogy to autistics both focus on the means employed while overlooking the ends achieved. Even if Zoe cannot recall the recent events that brought her to where she now is or what she now does, it does not follow that she cannot value the ends toward which she now aims, such as receiving professional medical care, keeping her kitchen stocked, or ensuring she does not potentially endanger herself or others by leaving her stove on and unattended. Similarly, even if autistics cannot, in the 'familiar' sense proposed by McGeer (2001) or in the 'intuitive' sense suggested by TT and ST, understand all the social norms and routines in which they participate when given sufficient external support, it again does not follow (as I argued in §2.2) that they cannot value the bonds they are then able to

build with other people. Perhaps in either Zoe's case or autistics' case there is a sense in which it would be better if the ends could be achieved more independently. But it would clearly be worse were these ends not achieved at all due to a lack of external support.

When external resources are lacking but internal resources are sufficient, a problem of access arises. For instance, despite Xavier's visual impairment, he has sufficient internal resources to use non-visual equivalents of texts and images when browsing the web, studying for exams, or finding a classroom. But if external resources that complement his internal resources are unavailable, the goods those resources would afford him become less accessible, if not inaccessible. Autistics may face a similar problem of access to other minds. And the goods they would be missing out on would be those that come from understanding other persons and having other persons understand them.

CONCLUSION

Contrary to the view often held among scientists and philosophers that autistics lack the capacity to understand other persons, I have argued that autistics may instead lack the ability to access the other minds due to a contingent lack of external epistemic resources. If I am correct, then there is a live possibility that autistics have the capacity to understand other persons. While the nature and extent of autistics' potential to gain interpersonal understanding remains unclear, certain psychological strengths found among autistics, such as a facility with visual thinking, could help them overcome impairments that set them apart from nonautistics psychologically. However, for autistics available internal epistemic resources to bring them and nonautistics together personally, they may require certain external epistemic resources that put them in position to access other minds. These resources could include concrete visual props or

‘prostheses’, social coaching or facilitation, carefully structured sensory environments, and other forms of interpersonal mediation and accommodation.

Nonautistics’ patient support of autistics’ weaknesses and further insight into their strengths may be the most valuable external resource of all. Rather than treating autistics primarily as a puzzling object of scientific study or a useful prop in philosophic debate, perhaps nonautistics could increase their efforts to make autistics a subject of potential inclusion in a social world often thought incomprehensible to them—a world that, if I am correct, may be best described as reversibly inaccessible to them. My hope is that I have offered at least a framework for better exploring what autistics are capable of and what they are able to do interpersonally when given enough external support. Like with other impaired persons, the ends autistics can achieve can be limited by the means the unimpaired provide them. Interpersonal understanding between autistics and nonutistics may not be easy or instinctive. But it may nonetheless be possible.

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