Theory of autistic mind: A renewed relevance theoretic perspective on so-called autistic pragmatic 'impairment'

Abstract

Autism is typically characterised by impaired social communication, with pragmatic deficits commonly attributed to diminished theory of mind abilities. As such, autistic communicators have traditionally been used as a test case to evidence the explanatory power of relevance theory for ostensive-inferential communication. However, recent studies have begun to demonstrate the various difficulties that non-autistic people also have in understanding autistic people, such as problems in inferring autistic affective and mental states.[1] These findings support the *double empathy problem* (Milton, 2012)*,* which argues that intersubjective problems between autistic and non-autistic individuals are rooted not in one individual's deficient cognitive system but in a mutual failure to reach consensus. This paper challenges the way in which relevance theory has traditionally been applied to a so-called autistic pragmatic 'impairment' but argues that relevance theory—and in particular its central concept of mutual manifestness—may still offer crucial insights into these breakdowns of mutual understanding between autistic and non-autistic people.

Keywords: *autism, mutual manifestness, double empathy problem, theory of mind, relevance theory*

1. Introduction

Autism is a neurodevelopmental condition, present from birth in approximately one in every hundred people (The NHS Information Centre, Brugha et al., 2012), that is currently defined and diagnosed by its behavioural characteristics.[2] These characteristics, based on Wing and Gould's 'Triad of Impairments' (1979), include impairments in social interaction, in social imagination (such as demonstrating restricted interests and repeated or stereotyped behaviours) and in verbal and non-verbal features of communication (see DSM-5 criteria, APA, 2013).

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[1] The use of identity-first language (i.e. *autistic woman*) rather than person-first language (i.e. *a woman with autism*) is a considered one, and reflects the overall preferences expressed by autistic self-advocates and their allies (see Botha**, [redacted]** and Hanlon, 2021; Kenny et al., 2016).

[2] One in 100 is the still the most frequently quoted figure, but based now on aging (UK) data. Some more recent studies indicate the incidence may be even higher, such as Baio et al. (2018) who use the figure of one in 59.

Numerous language and communication atypicalities have been associated with autism (for overviews, see Bogdashina, 2005, or Tager-Flusberg, Paul and Lord, 2005). However, it is pragmatic impairment that is most consistently observed across the diverse spectrum of autistic presentation, as well as across age, gender and (what has historically been referred to as) 'functioning-ability' of individuals.[3] 'Problems understanding that communication is about intended rather than literal or surface meaning [and] failure to view conversations as a means of modifying and extending the cognitive environment of a conversational partner' (Tager-Flusberg, 1999: 331) is what is believed to be at the root of the difficulties observed in the realm of social language use.

These pragmatic deficits in autistic language use are commonly attributed to an impaired theory of mind (ToM), or 'mindblindness' (Baron Cohen, 1990): the inability to detect or make sense of the states of others. From this perspective the onus of failures in mutual understanding is placed within the brains/minds of the autistic individuals involved. However, recent studies have begun to provide a persuasive body of evidence highlighting the difficulties that non-autistic people also have in understanding autistic people, such as a difficulty in inferring autistic affective and mental states (Brewer et al., 2016; Edey et al., 2016; Heasman and Gillespie, 2017; Hubbard et al., 2017; Sheppard et al., 2016). Additional research has also shown the ways in which autistic people experience high levels of mutual understanding when interacting with other autistic individuals (Crompton, Fletcher-Watson and Ropar, 2019a, 2019b; Heasman and Gillespie, 2019; Morrison et al., 2019b). These recent findings support the *double empathy problem* (Milton, 2012) which argues that intersubjective problems between autistic and non-autistic individuals are rooted not in one individual's deficient cognitive system but, rather, represent 'a disjuncture in reciprocity between two differently disposed social actors' (Milton, 2012: 884). According to this approach, social subtext is seen not as a determinate set of a priori features, but something that is actively constructed by those involved. The cognitive context surrounding the communication is co-created. Misunderstanding, here, is not just a consequence of autistic 'impairment' but a mutual failure in reaching consensus through bilateral empathy.

In a discussion around how pragmatic research into the meaning of non-verbal behaviours and clinical research into the communicative strategies of people with aphasia may mutually inform the other, Jagoe and Wharton (this issue) argue the following:

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[3] Functioning labels in relation to autism are falling increasingly out of favour as they are seen to confuse intellectual ability with autistic features and not reflect the complexity of fluctuating abilities in a fluctuating world. For discussion, see: Kenny et al., 2016.

The potential for pragmatic insights to be enriched, and even generated, from investigation of people with communication disabilities has been vastly underutilised in theoretical pragmatics. An adequate pragmatic theory must account for the full range of human communication, including that of people with communication disabilities.

In a world where conceptualisations of disability are gradually moving away from a medical model—where any function or characteristic deviating from medical norm is pathologised—any robust theory of human communication ought to be able to account for the unarguably diverse ways in which human communication takes place. Yet to date, of the few studies and treatises that have applied a relevance theoretic lens to autistic communication (Happé, 1991, 1993, 1995; Leinonen and Kerbel, 1999; Leinonen and Ryder, 2008; Loukusa et al., 2007; Papp, 2006; and Wearing, 2010), all have approached the matter from the perspective that autistic people have significantly impaired ToM abilities (for detailed review, see: Leinonen and Ryder, 2008). From this perspective, autistic people are either considered unable to function as 'normal' people do, on account of their inability to 'recognize the speaker's thought behind the utterance' (Happé, 1993: 106), or thought of as working with 'impoverished inputs' (Sperber, 2004 in an online discussion, in Wharton 2014: 479).

Drawing on contemporary research from the social sciences and theoretical cognitive science that challenges a traditional ToM-deficit view of autism, this present paper offers an alternative perspective for how relevance theory might address autistic language use. Rather than seeing autistic language use as 'a natural testing ground for pragmatic hypotheses' (Reboul, Manificat and Foudon, 2012) based on autistic individuals' assumedly impaired mind-reading abilities, interactions between autistic and non-autistic interlocutors are reframed as mutually-mediated endeavours: the success of which are influenced by ease—or lack thereof—of achieving mutual manifestness.

Finally, this present paper deals primarily with those autistic people who use language to communicate almost all of the time—the 'almost' allowing for the moments of slippage that can occur during instances of overwhelm when it is not uncommon for some verbal autistic people to become temporarily mute (see: Shah, 2019; Steffenburg et al., 2018). How this reframing may be relevant for non-speaking autistic individuals is returned to, briefly, in the Conclusion.

2. Theory of mind and similar minds

Chimpanzees may have it (Premack and Woodruff, 1978), as may some corvids, rhesus macaques and dogs (Krupenye and Call, 2019) but autistic people, according to longstanding theories (e.g. Baron-Cohen, 1990; Baron-Cohen, Leslie and Frith, 1985; Leslie and Frith, 1988) do not. The ability known as *mentalising*, *mind-reading*, or having a ToM is widely accepted as a fundamental aspect of human social cognition, as well as a central feature of ostensive-inferential communication. Autism has been characterised principally as a condition in which this ability is absent or impaired, with autistic people often described as 'mindblind' (Baron-Cohen, 1990).

Yet we now find ourselves amid a sea change in autism studies. Over the past three decades, during which time interest in autism as a field of research has boomed (Interagency Autism Coordinating Committee, 2013; Pellicano, 2014), a huge shift has occurred in how autism is defined (Happé and Frith, 2020). Autism has evolved from being considered as a rare childhood disorder, more prevalent in males than females, associated with intellectual impairment and with one assumed cause to now being seen as lifelong, much more common, more equally distributed across the genders and with a potentially broad and blended aetiology (Happé and Frith, 2020).

Some of the criticism of the false-belief tests on which the ToM-deficit view of autism has been based (originated in Baron-Cohen, Leslie and Frith, 1985, and Leslie and Frith, 1988) is that they have almost always featured pre-school-aged participants. Just four percent of over six thousand published ToM studies identified through a Scopus search included school-aged children (Hughes, 2016, in Peterson and Wellman, 2019). This is possibly on account of the fact that by that age, typically-developing children already pass the false belief test. Crucially too, these studies have been cross-sectional, i.e. comparing age-matched (albeit rather loosely in the original Baron-Cohen, Leslie and Frith study) participant groups.

In response to this gap, Peterson and Wellman (2019) undertook a longitudinal, cross-sequential study of ToM, comparing typically-developing, autistic and Deaf children aged between 3 and 11 years across the duration of a year and a half. At several points throughout the test period, participants undertook a battery of ToM tests following an extended 6-step ToM scale, devised in order to mitigate the potential ceiling performance of some children[4]. The six discrete ToM concepts measured were; (1) diverse desires—different people want different things; (2) diverse beliefs—people's (possibly true) beliefs can differ; (3) knowledge access—seeing leads to knowing, not seeing to ignorance; (4) false belief—people can

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[4] The scale used was devised by Peterson, Wellman, and Slaughter (2012, in Peterson and Wellman, 2019) and the additional sixth measure was (6) an understanding of sarcasm.

believe things that are not true; (5) hidden emotion—people can conceal their true feelings behind false expressions; and (6) sarcasm—people can mean the opposite of what they say (Peterson and Wellman, 2019: 7).

What they discovered was that most of the autistic children, just like the typically-developing and Deaf participants, 'do continue to make substantial longitudinal ToM progress during the school years' (Peterson and Wellman, 2019 :15). Whilst they did not reach parity with their non-autistic peers by the same age (within the test time-frame), they did demonstrate steady progress. This finding starkly contrasts with earlier studies that had supposed little to no consistent development in the ToM abilities of autistic children. Possibly most significantly, they also found that autistic children follow an atypical sequence of ToM stage progression. The false belief concept (4) was seen to develop after that of hidden emotions (5); the opposite of the established pattern of typically-developing children. In other words, at the sequential stage when typically-developing children are acquiring the ability to represent another's representation of the world, and work out that the belief the other holds can be false, autistic children are instead developing the ability to understand that underlying emotions can be hidden and not match what is expressed outwardly. It is perhaps then, as the researchers themselves suggest, the over-reliance in the past on false belief test measures, and in early childhood, that has skewed our appreciation for the potential of ToM development in autism.

Dinishak and Akhtar (2013) have argued that 'mindblindness', as a metaphor, 'obscures the fact that both [parties] contribute to the social and communicative difficulties between them'. In characterising the autist as mindblind, the natural reciprocity of social interaction is masked. Moreover, it may also 'contribute to overlooking the ways in which autistic behaviours can be meaningful and/or adaptive' (Dinishak and Akhtar, 2013: 110). This has certainly been the case when interpreting some of the atypical characteristics of autistic language use. In their multidimensional reappraisal of language in autism, Sterponi and de Kirby (2016: 394) found that prototypical features of autistic speech—such as pronoun atypicality, echolalia and pragmatically atypical utterances—were routinely taken as 'direct manifestations of deficits' in mainstream autism research. Applying an ethnographic 'discourse analytic approach' that takes into account an utterance's interactional accomplishment as well as its propositional content to a small corpus of naturalistic communication between young autistic children and familiar, non-autistic adults, they found these seemingly meaningless utterances often had hidden communicative purposes. For example, reversal of first and third-person pronouns often reflected an adoption of the 'baby-talk' framework initiated by their interlocutor (i.e. "give mummy a cuddle…"), rather than a confusion of self and other (as is usually assumed). Echolalia—the repetition of words and sounds out of context—often involved a discreet functional purpose (in one case it served as a distraction tactic to divert a parent interlocutor

from a conversational direction that the child did not wish to engage with) and could also be interpreted as a form of perspective-taking: in repeating another's word's a speaker is, essentially, 'trying on' their perspective' (Sterponi and de Kirby, 2016: 401).

'Mindblindness', too, implies a black-and-white binary between the ability and the inability to mindread, where this clearly isn't the case. More recent research into ToM abilities has demonstrated that typically developed adults do not consistently perform at ceiling level in ToM tasks (see Samson and Apperly, 2010 for review). It also indicates strongly that ToM abilities rely not solely on the possession of ToM concepts, but on a suite of processes that exploit them a speed: processes that are cognitively demanding and may fluctuate in success (Samson and Apperly 2010). In short, it is not so simple to say that autistic people are always mindblind, whereas non-autistic people, always, are not.

Furthermore, some recent systematic reviews of ToM research have come to rather damning conclusions about its construct validity and the interpretation of results in relation to autistic people. For example, based on their close analyses of over 50 ToM studies, Gernsbacher and Yergeau (2019: 108) argue that 'the claim that autistic people lack a ToM fails empirically; it fails in its specificity, universality, replicability, convergent validity, and predictive validity', a criticism echoed in Quesque, and Rossetti's (2020) evaluation of classical ToM test measures. In short, it is not so simple to say that autistic people have impaired ToM.

This has been further supported by recent research in the social sciences that demonstrate the ways in which non-autistic people struggle to correctly infer autistic affective and mental states (e.g. Brewer et al., 2016; Edey et al., 2016; Heasman and Gillespie, 2017; Hubbard et al., 2017; Sheppard et al., 2016) and have a tendency to form negative thin-slice judgements about autistic people that can influence their desire to interact with them (Aransih, Edison and Penton, 2019; Morrison et al., 2019a; Sasson et al., 2017). Combined with research that has shown the ways in which autistic people experience high levels of mutual understanding and communicative effectiveness when interacting with other autistic individuals (e.g. Crompton, Fletcher-Watson and Ropar, 2019a, 2019b; Heasman and Gillespie, 2019; Morrison et al., 2019b; **[redacted]** forthcoming), a persuasive body of evidence emerges in support of the double empathy problem and its suggestion that lack of understanding between autistic and non-autistic people runs both ways.

This position accords with contemporary theories emanating from the cognitive sciences positing that we are most successful at inferring the mental and affective states of those others who are most cognitively similar to ourselves (Bolis et al., 2017; Chapman, 2019; Conway et al., 2019; Conway, Catmur and Bird, 2019; De Jaegher, 2013, 2020; Fein, 2018). For

example, in seeking to account for the individual differences exhibited in ToM proficiency, Conway and colleagues (2019) proposed a multidimensional mapping of how we represent other minds, that they termed 'Mind-space'. The hypothesis behind their model was that 'the accuracy of mental state inferences can be explained by the ability to characterise the mind giving rise to the mental state' (Conway et al., 2019: 2).

Mind-space draws on the concept of 'Face-space', which is a theoretical multidimensional cognitive space against which dimensions of individual faces are plotted and represented (Valentine, 1991). As such, Mind-space is seen as a set of vectors reflecting 'any characteristic of minds that allows them to be individuated' (Conway et al., 2019: 2). Mind-space thus represents the extent to which (one accounts for how) minds can vary. Conway and colleagues' (2019) hypothesis suggests that the more accurately one is able to plot another's mind within Mind-space, the more attuned one's inferences about said mind will be.

> Crucially, minds moderate the link between situational contexts and the mental states they evoke: two different target minds in the same situation may generate completely different mental states. The accuracy with which those target minds can be represented, therefore, is likely to contribute to accuracy in inferring the target's mental states (Conway et al., 2019: 2).

An example of how this might be so is given in a slightly earlier paper by Conway, Catmur and Bird (2019). The researchers first draw the important distinction between ToM ability, defined 'as the ability to *represent* mental states' and what it is that empirical ToM measures tend to test: namely 'the ability to make accurate mental state *inferences*' (Conway, Catmur and Bird, 2019: 800). What this distinction means is that a participant in a test may be able to represent the mental state of the other while still drawing incorrect inferences. Turning to the famous Sally-Anne false-belief test,[5] the researchers question how the results may be effected if Sally (the character returning to look for her ball / doll / bottle of champagne) is known to be highly suspicious. In this case, it is plausible that Sally would first check her hunch that Anne has hidden her treasured item. A participant engaged in this condition who 'has a dimension of suspiciousness in their Mind-space and who recognizes that Sally is at the extreme end of this dimension' (Conway, Catmur and Bird, 2019: 803) may fare better in correctly anticipating

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[5] The Sally-Anne false belief test was first used by Baron-Cohen, Leslie and Frith, 1985, and replicated in Leslie and Frith, 1988, and many times thereafter. A child observer is asked to watch a scene unfold featuring two doll protagonists, Sally and Anne. Sally places a marble in her basket and leaves the room. Rather mischievously (and somewhat inexplicably), Anne removes Sally's marble from her basket and stashes it in her own box. Sally returns to the room and the child is asked where Sally will look for her marble. The 'correct' answer is: in her basket where she left it.

Sally's actions, than a participant who either has a weak suspicion dimension or inaccurately places Sally along the continuum.

One further framework that offers a potentially helpful alternative view is *participatory sense-making,* put forward by de Jaegher and colleagues (Cuffari, Di Paolo and De Jaegher, 2015; De Jaegher, 2013; De Jaegher and Di Paolo, 2008; Di Paolo, Cuffari, and De Jaegher, 2018). Based on an enactive framework of social cognition (i.e. where cognition is seen to arise dynamically from the interaction between an organism and its environment: see sea sponges in Wharton and Cornell, this issue), 'sense-making' is seen as an engaged activity undertaken by a cognitive being towards (and with) its environment.

> Being a cognitive system means that exchanges with the world are inherently significant for the cogniser who engages in the creation and appreciation of meaning or *sense-making* (De Jaegher and Di Paolo, 2008: 36).

The theory of participatory sense-making seeks to challenge the individualistic view of (social) cognition that has long dominated the field and, as such, frames communication as taking place between two, coupled, embodied[6] agents, both assisting in the sense-making of the other. Communication, when it works, is seen (or felt) as an intersubjective engagement between agents, manifested in 'fluctuating feelings of connectedness with an other, including that of being in the flow of an interaction' (De Jaegher, 2013: 6).

Viewed from this perspective, the difficulty for two agents with dramatically different embodied experiences to easily achieve coordinated coupling in their participatory sense-making is more apparent, and mirrors similar difficulties posited by the Mind-space framework described above.

> Sensorimotor differences, especially those involving temporal aspects of perception and movement, will affect interaction and coordination in social encounters, and therefore introduce systematic differences in participatory sense-making. This is true the other way around as well (De Jaegher, 2013:11).

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[6] 'Embodied', here, emphasises the significance of the body and the embodied reality in cognition. De Jaegher (2013: 1) argues that for autistic individuals in particular, their 'autistic particularities of moving, perceiving, and emoting relate to how people with autism [sic] make sense of their world'.

Once again, whilst the autistic individual is usually identified as the source of the disruption to an ordinarily expected communicative flow, from the viewpoint of participatory sense-making, it may be either interlocutor who is struggling to couple with an embodied agent who, arguably, resides in a 'differently salient social world' (De Jaegher, 2013: 11).

3. Traditional applications of relevance theory to autistic language use

Intention recognition is a fundamental aspect of the relevance theoretic account of utterance interpretation. Roughly, understanding of an utterance occurs when a listener makes correct inferences about a speaker's intended meaning, having followed a relevance-seeking comprehension process. As such, relevance theory has largely been used to explain the cognitive mechanisms of (both successful and unsuccessful) utterance interpretation in typically functioning communicators with assumedly in-tact ToM abilities.

However, on occasion relevance theory has also been used as a means of exploring pragmatic impairment (e.g Happé, 1991, 1993, 1995; Leinonen and Kerbel, 1999; Leinonen and Ryder, 2008; Loukusa et al., 2007; Papp, 2006; Reboul, Manificat and Foudon, 2012; Wearing, 2010). Most notable among the handful of instances where relevance theory has been applied specifically to autistic language use, is the work of Happé (1991, 1993, 1995), who used relevance theory to make a number of predictions about the communicative (and specifically, the pragmatic) competence of autistic individuals.

Based on the then prevalent belief that autistic people had limited to no ToM, a relevance theoretic account would seem to predict that they would find non-literal use of language inaccessible:

> [The] inability to recognize the speaker's thought behind the utterance, and that thought's more or less loose relation to the utterance, has very severe implications. It means that such autistic people are *never* communicating like normal people (Happé, 1993: 106).

Relevance theory posits that a speaker engaging in ostensive-inferential communication will craft their utterances according to two simultaneous intentions: (1) the informative intention—to make set of assumptions {*I*} mutually manifest; and (2) the communicative intention—to make the hearer aware of the intention to make set of assumptions {*I*} mutually manifest.

Happé's (1993) hypothesis was that, for those autistic people lacking the ability to meta-represent a speaker's intention to inform, recognition of ostensive behaviour (among other, non-ostensive behaviours) should be impaired. For those autists who were able to pass first-order ToM tests but not second-order tests, the informative intention should be evident but the second-order communicative intention, not so. In particular, these autistic people should begin to struggle to correctly interpret communication in those cases where 'the speaker's attitude must be taken into account in modifying the literal meaning of the utterance' (Happé, 1993: 103).

In order to test this theory, comprehension tasks were devised to measure understanding of (1) similes, which are understandable on a purely literal level; (2) metaphor, the comprehension of which is contingent on a first order recognition of speaker intention; and (3) irony, which, according to a relevance theoretic echoic theory of irony requires second order meta-representation. Eighteen mostly teenage autistic participants were divided into three groups based on their performance in a prior battery of ToM tests: those considered to have no ToM, those with first order, and those with second order ToM. And the findings did indeed seem to support the predictions. The participants with no ToM were able to interpret similes but not metaphors, while those with second-order ToM skills outperformed the first-order group on the irony comprehension task. Both first and second-order ToM participant groups were able to interpret metaphor.

Whilst these results were supportive of a relevance theoretic account of ostensive-inferential language use and an echoic theory of irony, they could not really explain why some autistic people possess first or second-order ToM abilities and others might not. Furthermore, a subsequent, similar study by Norbury (2005) was not able to replicate the same results in terms of metaphor comprehension. In Norbury's study, although the first-order group did perform slightly better at the metaphor task than the no-ToM group, the difference was not statistically significant and 'both no- and first-order ToM groups were impaired relative to those with second-order ToM skills' (Norbury, 2005: 395) at metaphor interpretation. Moreover, whereas in Happé´s research only the no-ToM group had found metaphor more difficult than simile, in Norbury's, all participants—including controls—demonstrated a greater difficulty in interpreting metaphors than similes. One conclusion of this later study was that 'broad semantic knowledge […] predicted a significant amount of variance in metaphor comprehension, whereas ToM understanding and severity of autistic symptoms did not' (Norbury, 2005: 394).

A common theme among studies and treatises that address autistic communication from a relevance theoretic perspective is the use of autistic pragmatic impairments as case studies to validate relevance theory's claims on the mechanisms of utterance interpretation. Wearing (2010), for example, has argued that the pragmatic impairment associated with autism—specifically around the interpretation of metaphor—is explicable on account of autistic people not being able to know what the speaker knows (and therefore not being able to correctly exclude wrong interpretations of an ambiguous utterance). Additionally, Wearing (2010) argued, the very presence of such impairments demonstrates relevance theory's descriptive ability. The fact that autistic individuals are unable to perform cognitive linguistic tasks (such as understanding metaphor) that are contingent on the ToM abilities (that they have been assumed to be lacking) supports theoretical claims about ostensive-inferential communication. Yet this, as with Happé's (1991, 1993, 1995) similar arguments is somewhat circular and less than persuasive now that the ToM-deficit theory of autism has been significantly challenged.

4. Mismatched salience

Central to Sperber and Wilson's relevance theory (1986/1995) is the notion of an individual's 'cognitive environment': comprising all facts and assumptions both actually and *potentially* available to them. It is unlikely, for example, that a person would have it stored, representationally, that the Queen of England has never ridden a whale; this is a thought that most people would never need entertain. However, should the topic arise (over dinner, perhaps after a glass of wine, or two) they may well be able to generate this assumption based on their available knowledge and assumptions about the typical activities of British royalty and the wieldiness of whales. Within relevance theory, facts and assumptions that are within potential reach—reliant as they are on the combination of individual knowledge, cognitive abilities and physical environment—are, considered to be 'manifest'.

It is clearly not possible for the cognitive environments of two individuals to map completely snugly onto one another. The facts and assumptions that are available at any given moment to even two of the closest twin siblings, who share DNA and matching physical environments, will differ on account of their fluctuating cognitive abilities and different subjective experiences of the world. As Sperber and Wilson (1995: 38) put it:

> …perceptual abilities vary in effectiveness from one individual to another. Inferential abilities also vary, and not just in effectiveness. People speak different languages, they

have mastered different concepts; as a result, they can construct different representations and make different inferences.

However, some *portions* of two cognitive environments will, at times, most certainly overlap. Shared physical environments, shared autobiographical knowledge and shared worldly knowledge all contribute to what can be termed a 'mutual cognitive environment' (Sperber and Wilson, 1986/1955). Where it is evident to both parties that certain facts or assumptions are shared, these facts and assumptions—forming the mutual cognitive environment—are said to be 'mutually manifest'.

In order for something to be mutually manifest, it must meet two criteria. Firstly, it must be manifest within the cognitive environment of both individuals and secondly, both interlocutors must recognise that the fact or assumption is manifest to both themselves and the other. For a fact or assumption to be manifest within two minds, they need both to have shared some similar input (be that perceptual or cognitive):

> Clearly, if two people share cognitive environments it is because they share physical environments and have similar cognitive abilities (Sperber and Wilson,1986: 41).

And here is where the problem may lie. In communication between autistic and non-autistic people, cognitive abilities clearly aren't similar. Autistic people have been recognised as possessing unusual sensory and motor responses from as far back as Kanner's (1943) early descriptions of autism. These complex, individual patterns of hyper or hypo-sensitivity to various sensory-perceptual stimuli are present from birth (Baum et al., 2015; Bogdashina, 2010; DSM 5, American Psychiatric Association, 213), and research is beginning to show the ways in which they may cascade towards social difficulties (for example, see Beardon 2017; de Jaegher, 2013; Garfinkel et al. 2016; Hannant, Tavassoli and Cassidy, 2016; Proff et al., forthcoming; Smith and Sharp, 2013).

Moreover, attentional differences are also present in autism (see Central Coherence Theory, Frith and Happé, 1994, and the large literature on joint attention in autism, e.g. Gernsbacher et al., 2008). One compelling, though under-recognised, theory of autism is the monotropic account (Murray, 2018, 2020; Murray, Lesser and Lawson, 2005). Monotropism theory begins with the idea that the mind is, essentially, an interest system—a starting place not at all dissimilar to that of relevance theory—and that 'atypical strategies for the allocation of

attention' (2005: 139) are the central cause of the various autistic social and behavioural manifestations. According to this account, the degree or breadth of attention allocation in humans is considered to be 'normally distributed' and, (largely) 'genetically determined' (2005: 140), with some people possessing a greater tendency towards multiply focused attention (polytropism), and others a tendency towards more narrowly focused attention (monotropism). Those diagnosed as autistic will find themselves at the far end of this distribution with a highly narrow 'attention tunnel'. Where non-autistic minds will comfortably entertain many simultaneous interests, each moderately aroused, the autistic mind will maintain only very few simultaneous interests, with each one highly aroused and intensely focused upon. This account, in itself, may help explain some of the difficulties autistic people have with communication; a phenomenon—requiring the fast processing of information from a variety of simultaneous channels (audio, visual, culturo-social encyclopaedic knowledge, etc…)— perhaps better suited to polytropic individuals with less narrowly and intensely focused attention.

It seems to follow that autistic individuals, with their divergent sensory and perpetual experiences, shaped by markedly different patterns of attention, will create maps of cognitive salience that differ significantly from those of non-autistic people. Which facts and assumptions are manifest at any given time, and the way in which representations are organised and accessible, may not be in any way similar to those of their non-autistic interlocutor. The degree of cognitive effort required to generate certain cognitive effects will also, therefore, be different. The recipe may be the same, but the values different. Both speakers may communicate according to the principles of relevance theory, but where assumptions of mutual manifestness are erroneously made, mutual understanding will break down.

This shift in perspective to a focus on how mutual manifestness is achieved, not achieved, or mistakenly assumed may help us to interpret data and approach problem areas in new ways. For example, from the traditional perspective, the often delayed and potentially slower language acquisition of autistic children (Reboul, Manificat and Foudon, 2012; Tager-Flasburg et al., 1990) has been linked to intrinsically impaired socio-pragmatic abilities in infancy: such as reduced ability to engage in joint-attention (Reboul, Manificat and Foudon, 2012). From this proposed, alternative perspective we might first suppose that divergent attention allocation and sensory processing differences may make it harder to identify linguistic sounds from other auditory stimuli and to parse speech at the various stages of early linguistic development (as has been identified: see, for example, Klin,1991). Furthermore, if infant attributions of relevance are already diverging from typical patterns, due to atypical attention and perceptual

processing, care-giver assumptions about stimuli that might attract joint-attention—an essential component of early language acquisition—may not match the child's phenomenological experiences. When viewed from this angle, alternative approaches to support the language acquisition of autistic children that better engage them on their terms, might be developed.

The discussion around how metaphor and non-literal language can or cannot be processed by autistic individuals also looks different under this new light. The standard relevance theoretic account makes different predictions in accordance with the level of ToM mind abilities a speaker possesses (as outlined above). From this alternative perspective, informed by the double empathy problem and the emergent yet substantial body of empirical evidence to support it, difficulties in inferring metal states and intended meaning are attributed not to an individual functional deficit, but to the significant difference in cognitive environments and how this difference is identified and managed. Crucially then, interpretation of non-literal language and metaphor will potentially vary not only by individual (according to their unique suite of cognitive abilities and resources available in any given moment), but also by communicative context: heavily influenced by interlocutor. This is perhaps borne out by the fact that poor performance on communicative tasks involving the interpretation of non-literal meaning is by no means consistent among autistic individuals (see above), and by the prolific use of figurative and metaphorical language use in the public domain by the growing number of autistic novelists and autobiographers (e.g. McMorran, 2020; May, 2020; Prahlad, 2017; among many, many others). Finally, it has been argued (e.g. Kissine, 2021; Wearing, 2010) that those autistic individuals who are able to understand non-literal language and metaphor are achieving this through some alternative means to the usual route of engaging one's ToM abilities. Impaired individual ToM abilities are not the basis of this present, proposed account. However, it may be possible that when interpersonal or 'dialectical misattunement' (to borrow the phrase from Bolis et al., 2017) consistently reduces opportunities for an autistic individual to easily mindread non-autistic others, they learn or develop work-arounds. This should be seen as an accomplishment, and evidence of what might, in other contexts, be thought of as intercultural communicative competence.[7]

5. Conclusion

Breakdowns in understanding on pragmatic level in communication between autistic and non-autistic people have traditionally been attributed to the impaired ToM abilities of autistic

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[7] That, of course, is not to suggest that there is one monolithic autistic culture; rather that in this circumstance an autistic speaker has developed ways to communicate with speakers using cultural norms that they do not necessarily share.

individuals. However, research is now demonstrating that ToM may not be so black and white for any individual—not least autistic people—and that it might be more accurate to say that mutual understanding is less effortful when minds (and the organisation of the concepts that populate them) are more similar. The lack of mutual understanding that can often occur between autistic and non-autistic people may represent a larger, two-way double empathy problem.

This paper challenges the way in which relevance theory has typically been applied to the study of autistic language. The traditional view begins from the premise that autistic individuals tend to have inherently 'impaired' pragmatic abilities, and that many of these can be traced back to an autistic ToM deficit. Instead, this paper offers an alternative perspective, whereby relevance theory can still explain the pragmatic breakdowns seen between autistic and non-autistic people, but here framed in the context of mutual cognitive environments, mutual manifestness and mismatched salience. Autistic and non-autistic minds are more likely to diverge, and less is likely to be immediately mutually manifest. This perspective shifts responsibility for mutual understanding back into the shared space between two interlocutors rather than on the shoulders of one 'impaired' individual. This matters not only for how we—as linguists—think about autistic language use, but also for how we approach its study. Milton (2014), for example, has argued that the concept of 'interactional expertise' (Colins and Evans, 2007) is highly pertinent to autism research. Interactional expertise describes a researcher's proficient, detailed knowledge of another's practice, skill or way of being—without needing to possess that specific practice, skill or way of being themselves—that is usually acquired by means of interacting with the studied, skilled experts. In the case of the study of autistic language use, reduced opportunities for researchers to interact on equal terms with autistic individuals, and the possibility that mutual understanding is more effortful when minds are less similar, can mean that important knowledge is lost *in translation*. Participatory methodologies (see: Fletcher-Watson et al., 2019) that involve and draw on lived autistic expertise throughout the various stages of research, may help to prevent this.

This reframing has potential implications for how the communicative competence of autistic people is assessed: particularly if assessing interlocutors are non-autistic. Furthermore, difficulties in social communication are also known to negatively impact on how autistic individuals access health and social care, creating health inequalities (Departments of Health and Social Care – DoHSC – March 2019). In the UK, the need to improve communication in these settings has been identified in the *Think Autism* (2014) strategy and outlined as a strategic goal within the *Core Capabilities Framework for Supporting Autistic People* report (DoHSC, October 2019). A recent policy paper by Gréaux, Katsos, and Gibson (2020) also

highlights the risk for autistic children to experience violations of their communication rights: particularly so for autistic children from minority backgrounds. Rather than viewing autistic individuals as inherently impaired speakers and placing an emphasis on behavioural interventions that train autistic people to communicate typically, a shift towards recognising a divergence in cognitive environments and attributions of relevance may help to support mutually rewarding communication.

One important additional consideration is how an autistic identity may intersect with other marginalized identities along dimensions such as race, gender and sexuality. For example, autism frequently coincides with gender variance: including trans, non-binary and gender non-conforming identities (see Davidson and Tamas, 2016; Kourti and MacLeod, 2018). Autistic Black, Asian and minority ethnic individuals experience diagnostic biases against them in the first instance, and remain poorly represented in autism research (Beger et al., 2009; Cascio, Weiss and Racine, 2020; Fein and Rios, 2018; Gréaux, Katsos, and Gibson, 2020; Jones and Mandal, 2020). As such, we have very little information available about this 'double minority status' (Cascio, Weiss and Racine, 2020). However, it certainly has relevance to a study of autistic language use. The effects of multidimensionally marginalised identities on interaction deserve further attention and research as they will surely influence the ease with which interlocutors are able to establish common ground and mutual manifestness.

Further areas for future research should also prioritise investigating communication involving non-speaking or minimally verbal autistic individuals, and those autistic speakers with additional learning disabilities. There is no reason to think that the double empathy problem and a model of mismatched salience, as viewed from a relevance theoretic perspective, should not apply in these circumstances. The more dissimilar the minds of the interlocutors, the harder it should be to be achieve mutual manifestness without extra efforts. Developing ways to best bridge these cognitive differences to support mutual understanding—perhaps through alternative means of establishing shared mental states and common ground, or encouraging mindful extra efforts on the part of the non-autistic interlocutors—should be a research priority.

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