Pragmatics and mind reading: The puzzle of autism (Response to Kissine)

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Mikhail Kissine's (2021) target article examines autism to mine questions about language use and its cognitive underpinnings. Among these, we focus on the question concerning the role of mind reading in language interpretation. Kissine claims that the selective pragmatic profile of highly verbal autistic individuals undermines the existence of an 'intrinsic link' between language interpretation and mind reading. We advocate for a more cautious approach based on both theoretical and empirical arguments. Theoretically speaking, data from autism are compatible with the view that language interpretation is the result of a special-purpose form of mind reading, dedicated to the domain of intentional communication. Empirically speaking, the data are neither clear nor consistent enough for making strong claims about what exactly are the communicative challenges of highly verbal autistic individuals.

Keywords: Autism Spectrum Disorder, experimental pragmatics, modularity, Theory of Mind, scalar inference

1. HOW DID WE GET HERE? From the moment it was first reported as a 'psychiatric condition' and given a name in 1943, scientific understanding of autism has increased exponentially. Central to that growth are researchers' views on language and communication among autistic individuals, which together play a role in describing the condition and in diagnosing it. Independently, Grice — from the 1950's and onward — was developing an original approach to language that put intentions at the center of communication. He argued that decoding linguistic input is just part of our human effort to communicate, whose ultimate goal is to access a speaker's intended meaning. These two currents converged in the 1970's when the first study to investigate pragmatic abilities in autism (Baltaxe 1977) noted that autistic individuals violated 'conversational postulates' of acceptability and politeness. In the meantime, other linguistic abilities such as phonological and syntactic development appeared unaffected in autistic language development (Tager-Flusberg 1981). With an increasing number of documented 'oddities' in mostly the pragmatic domain (Frith 1989), researchers sought an all-encompassing account for them and Grice's approach, being entirely philosophical, had its limits. Relevance Theory (Sperber & Wilson 1986), a more cognitive Grice-inspired account that gave a prominent place to metarepresentations and processing, fit the bill and was quickly adopted by investigators of autism. This could be seen in Baron-Cohen et al. 1988: 393: 'The [metarepresentation] theory predicts that only those social skills requiring a metarepresentational capacity should be impaired'.

Soon, researchers began to map specific linguistic phenomena onto levels of metarepresentation. The most prominent example of this came from Happé (1993), who argued that similes, metaphors and irony mapped onto zero-, first- and second-level Theory of Mind, respectively. The data from that seminal study largely (though not completely) supported the idea that autistic participants' documented Theory-of-Mind levels corresponded well with performance on the three sorts of phenomena. This also led, ultimately, to claims that behavior among autistic individuals was tantamount to 'mindblindness' (Baron-Cohen 1995), a categorical incapacity to do mind reading. Since about 2010, however, investigations into other pragmatic phenomena have not fallen into such neat categories. Most notably, tasks investigating the much-studied scalar inference reveals that performance among autistic individuals is comparable to that of neurotypical controls (Pijnacker et al. 2009a; Chevallier et al. 2010); likewise, Kissine and colleagues (2015) showed that indirect requests, which presumably require

heavy doses of mind reading, prompt all participants - individuals with and without autism diagnoses - to accede to the request.

It is in this context that Kissine (2021: 3-4) is making the claim that 'data from autism warrant neither the assumption that language use is intrinsically linked with mind reading nor that language acquisition is grounded in language use'. But what does it mean for language use, and language interpretation in particular, to be INTRINSICALLY LINKED with mind reading? How is the link (or the links) between language interpretation and mind reading to be conceptualised? Without an answer to these questions, we are left with no clear framework to interpret the data at issue and to assess their broader implications.

In this contribution, we first examine two alternative ways of spelling out the link between language interpretation and mind reading (Section 2). Then, we argue that the pragmatic profile of autistic individuals challenges (at best) one way of articulating this link, but not both of them (Section 3). Furthermore, we take a closer look at the complexity of the empirical data, which are arguably not amenable to any straightforward interpretation (Section 4). Based on these theoretical and methodological considerations, we advocate for a more cautious approach when using data from autism to settle foundational questions in pragmatic theory (Conclusion).

2. ARTICULATING KISSINE'S CHALLENGE TO MONOLITHIC APPROACHES TO PRAGMATICS

There are at least two different ways to think about the existence of an intrinsic link between language interpretation and mind reading (for an in-depth discussion see Sperber & Wilson 2002). The first is to argue that language interpretation is the output of a general-purpose mind reading capacity. This amounts to claiming that the cognitive mechanisms responsible for mind reading in non-communicative situations are the very same mechanisms which are invoked for mind reading in communicative ones (see, e.g. Bloom 2002). According to this view, explaining or predicting a non-communicative behaviour based on the agent's mental states (e.g. Sally will look in the basket because that is where she falsely believes her marble is) is an exercise in mind reading comparable to that of explaining a communicative behaviour based on the speaker's intentions (e.g. Sally said 'I ate some of the cookies' because she intended to communicate that she ate some but not all of the cookies). A single, general-purpose, mind reading capacity applies across the board, and language interpretation is nothing but one of its instanciations.

A second way of thinking about the link between language interpretation and mind reading is to conceive of language interpretation as the result of a dedicated, task-specific, form of mind reading, whose principles and mechanisms are attuned to the domain of communication. This view has been advocated by Relevance Theory since the beginning of the 2000s (Sperber 2000; Sperber & Wilson 2002; Wilson 2005): '[p]ragmatic interpretation is not simply a matter of applying Fodorian central systems or general mind-reading abilities to a particular (communicative) domain' (Sperber & Wilson 2002: 5). From this standpoint, language interpretation involves a specialized inferential procedure that is automatically applied to any communicative stimulus (such as an utterance). Relevance Theorists call it a COMPREHENSION MODULE or a METACOMMUNICATIVE MODULE, where the notion of 'module' advocated here is to be taken in a looser sense than Fodorian modularity, and corresponds to an autonomous and special-purpose mechanism attuned to the regularities of a specific domain. The kind of mind reading that is involved in language interpretation is in principle independent from the kind(s) of mind reading that is involved in non-communicative domains, for instance, for predicting the behaviour of an agent based on mental states' attribution. As Bloom (2002: 49) aptly puts it, this view sees language interpretation as requiring '[n]ot a "theory of mind" in general, but a theory of communication'.

Which of these two alternative views does Kissine (2021) have in mind? Which one is seen as being undermined by data from autistic individuals? Clearly, Kissine's discussion targets the first one. As he explicitly points out, '[i]n constructionist theories, joint attention, mind reading and early drive towards inter-subjective communication are viewed as DOMAIN-GENERAL SKILLS, whose role is posited to be essential for language development' (Kissine 2021:16, our emphasis).

Kissine's argument goes as follows. Experimental studies on language interpretation targeting specific aspects of pragmatic inference reveal that autistic children and adults perform in the same way as neurotypicals do in some (albeit not all) pragmatic tasks. That is, at least within a subpopulation of highly verbal autistic individuals, some areas of pragmatic competence (e.g. the understanding of indirect requests or the derivation of scalar inferences) appear to be preserved. Across the spectrum, though, autistic individuals display atypical mental state attributions and experience some degree of difficulty with mind reading, including in non-communicative settings. For instance, even high-functioning individuals on the spectrum display

lower performances in more subtle non-communicative mind reading tasks, such as the Awkward Moments Test (Heavey et al. 2000) in which participants are required to infer actors' intentions and motives (among other mental states) based on the behaviours displayed in short videoclips. By combining these two pieces of evidence, Kissine suggests that language interpretation cannot be 'intrinsically linked' with mind reading. To put it more explicitly, the existence of preserved pragmatic skills in autistic individuals is incompatible with the assumption that language interpretation necessarily involves a general-purpose capacity for mind reading and that this capacity is compromised all across the autistic spectrum. In sum, the first view presented here - and directly targeted by Kissine (2021) - should predict a more generalized impairment in language interpretation, with poor performance across all pragmatic tasks. However, this empirical prediction is disconfirmed by the data (see also Andrés-Roqueta & Katsos 2017 for a similar conclusion). This conclusion appears to be further supported by studies revealing that the performance of autistic individuals in certain pragmatic tasks is not predicted by their performance in non-communicative mind reading tests. For instance, as Norbury (2005) shows, once the contribution of semantic knowledge is taken into account, performance in standard first- and second-order false belief tasks is not a significant predictor of accuracy scores for metaphor comprehension. In a similar vein, findings from Andrés-Roqueta & Katsos (2020) indicate that, once the contribution of structural language (receptive and expressive grammar and vocabulary) is accounted for, performance in standard first-order false belief tasks does not predict the performance in a scalar inference task.

The question that arises, then, is whether these data from autism similarly challenge the view that language interpretation is an exercise in mind reading carried out by a specialized inferential procedure, dedicated to the processing of communicative inputs. While Kissine (2021) does not address the issue here, he does so in previous work (Kissine 2016), pointing to a general skepticism about ANY attempt to articulate the existence of an intrinsic link between language interpretation and mind reading. For instance, when discussing data from autism, he suggested that '[s]uch a selective pragmatic profile is difficult to explain on a modular theory of pragmatics' (Kissine 2016:5). That argument appears to go as follows: Assume that language interpretation is the result of a comprehension module, whose operations allow the addressee to recover the speaker's intended meaning. The preserved islets of pragmatic competence displayed by autistic individuals should thus be accounted for by the functioning of such a dedicated

mechanism. An operative comprehension module, though, would be incompatible with the broader pragmatic deficits that characterize the socio-communicative skills of individuals on the spectrum. For instance, it would be incompatible with findings suggesting that the very same autistic individuals who are capable of deriving scalar inferences struggle with the Strange Stories task which includes measures of irony, lies, white lies and jokes (Andrés-Roqueta & Katsos 2020). Similarly, results in van Tiel & Kissine (2018) indicate that participants with a higher autism spectrum quotient were as likely as participants with lower quotients to derive distinct kinds of quantitative implicature, but not the quantitative implicature called 'free choice inference' or 'distributivity implicature'. How could the very same comprehension module be responsible for the successful derivation of some pragmatic inferences and for the failure of others?

According to Kissine (2016, 2021), then, whether one thinks of language interpretation as depending on a general-purpose mind reading capacity or a dedicated one, specialized for the domain of intentional communication, data from autism challenge the very existence of an intrinsic link between language interpretation and mind reading and call for a more nuanced picture with respect to the role of mind reading in communication. Crucially, according to Kissine, this challenge concerns any 'monolithic' Gricean and post-Gricean approach account of pragmatics (see Kissine 2016:2). In the same spirit, Andrés-Roqueta and Katsos emphasize the need to overcome the 'unitary construct of pragmatics' (2020:1505) which has characterized much research in the field. We endorse these authors' plea for a thoughtful consideration of the relationship between language interpretation and mind reading, one which is able to, not only address findings with respect to autistic profiles but to, capture the flourishing experimental evidence that has been produced in the last two and a half decades of research in experimental pragmatics in general. However, while we take on this challenge, we will argue that it falls short of undermining a post-Gricean, modular account of pragmatics, such as the one proposed by Relevance Theory.

3. PRAGMATICS IS MONOLITHIC BUT MIND READING IS NOT Kissine's main argument against a modular account of language interpretation concerns its incompatibility with any SELECTIVE pragmatic profile, as the one evidenced by the subpopulation of highly verbal autistic individuals under discussion. If language interpretation is carried out by a special-purpose mechanism that

has its operations intact, language interpretation should be successful across the board, independently of the particular type of pragmatic phenomenon at issue (reference assignment, disambiguation, lexical adjustment, implicature derivation, irony, etc.) or of any other contextual factor. This argument, though, rests on the tacit assumption that the special-purpose inferential procedure dedicated to language interpretation should always function independently of any other mind reading mechanism. For instance, Kissine relies on this assumption when stating:

> Note that on Sperber and Wilson's idea of a pragmatic module, whose functioning and maturation are independent from Theory of Mind, it is unclear why reaching the developmental stage required for understanding irony should be concomitant with the development of second-order Theory of Mind. (Kissine 2016:5)

We question this assumption and illustrate that it is not only dispensable, but also at odds with the modular account of pragmatics proposed by Relevance Theory.

To begin with, it is worth outlining the general view of the mind which represents the framework for this modular account of pragmatics. This view, also known under the name of MASSIVE MODULARITY, conceives of the mind as modular through and through (for an in-depth presentation, see Sperber 2005). According to this view, the mind is composed of a constellation of dedicated, special-purpose, cognitive mechanisms, which have evolved as biological adaptations to answer specific problems pertaining to their domain of specialization. Within this perspective, the comprehension module would have evolved as a human adaptation to solve the recurrent task of identifying a speaker's meaning from her communicative behaviour (e.g. her utterance).

For the purpose of our discussion, we wish to emphasize two aspects of this framework whose importance - when taken together - has been arguably neglected in the pragmatic literature. The first, obvious, one is that the comprehension module is one of multiple special-purpose mind reading mechanisms: 'given the complexity of mind-reading, the variety of tasks it has to perform, and the particular regularities exhibited by some of these tasks, it is quite plausible to assume that it involves a variety of sub-modules' (Sperber & Wilson 2002:12). This claim is very much in line with the work of psychologists that strive for a finer-grained understanding of the composite nature of mind reading in humans. For instance, in his seminal

work, Baron-Cohen (1995) proposed the distinction between at least four submodules for mind reading, which gradually develop over the years: the 'Intentionality Detector', the 'Eye-Direction Detector', the 'Shared-Attention Mechanism' and the 'Theory-of-Mind Mechanism'.[1] The second, less obvious, aspect is that modules are highly interconnected. This represents an important departure from the Fodorian conception of modularity, but one which becomes crucial in a massively modular framework:

> we have to rethink the concept of module and allow for a kind of continuum, from peripheral perceptual systems, which are rigidly encapsulated (not diverted from registering what is out there), through a hierarchy of conceptual modules, with the property of encapsulation diminishing progressively at each level as the interconnections among domain-specific processors increase. (Carston 1997:20)

This picture suggests the possibility that chains of inferences integrate the contributions of distinct specialized mechanisms: the output of perceptual or conceptual modules can be fed into further conceptual modules, whose output in turn functions as input for further modularized processing (for a discussion, see Mazzarella 2016).

Bringing together these two aspects of the massive modularity view naturally opens up several questions on the relationship between the comprehension module and other specialized mechanisms, including those devoted to further mind reading components. What are the interconnections among these different special-purpose mechanisms? Does successful communication rely on these interconnections? Do they develop over the years? What is the direction of the flow of information they make possible?

All these foundational questions are still very much open and represent important directions of research for theoretical and experimental pragmatics. We believe, though, that Relevance Theory has already laid some essential stepping stones to start addressing them. An essential contribution dates back to Sperber's (1994) proposal to distinguish among three different interpretative strategies, which he calls NAÏVE OPTIMISM, CAUTIOUS OPTIMISM and SOPHISTICATED UNDERSTANDING, that would rely on the use of increasingly sophisticated metarepresentational premises in the inferential process of deriving the speaker's intended meaning. As discussed by Wilson (2005), all three of these strategies are essentially based on the same comprehension procedure:

a. Follow a path of least effort in computing cognitive effects. Consider interpretations (disambiguations, contextual assumptions, implicatures, etc.) in order of accessibility.
b. Stop when your expectation of relevance is satisfied.

According to Relevance Theory, this procedure is grounded on the regularity that characterizes the domain of intentional communication: any communicator intends the addressee to pay attention to the communicator's utterance and to invest cognitive resources in processing it, to the detriment of other competing stimuli in the environment. Crucially, since humans would only pay attention to stimuli that are potentially RELEVANT to them (i.e. that are expected to produce worthwhile cognitive effects given the processing effort they require), each act of communication communicates a presumption of its own optimal relevance. In other terms, by asking for the addressee's attention, the speaker invites the addressee to presume that the utterance will satisfy the addressee's expectations of relevance.[2]

Sperber's (1994) crucial insight is that the degree of sophistication of the expectation of relevance that guides language interpretation varies as a function of the addressee's metarepresentational abilities. A naïvely optimistic interpreter simply looks for an optimally relevant interpretation: 'a Naively Optimistic hearer NEED NOT REPRESENT THE SPEAKER'S MENTAL STATES AT ALL in identifying the speaker's meaning: he simply takes the first interpretation that seems relevant enough and treats it as the intended one' (Wilson 2005:1143, our emphasis). In contrast with this, a cautiously optimistic interpreter expects ATTEMPTED OPTIMAL RELEVANCE, and thus looks for an interpretation that the speaker MIGHT HAVE THOUGHT would be relevant to him (whether or not the interpretation is indeed optimally relevant). Finally, a sophisticated interpreter may expect PURPORTED OPTIMAL RELEVANCE and thus look for an interpretation that the speaker MIGHT HAVE THOUGHT THE INTERPRETER WOULD THINK relevant to him. Importantly for our purposes, Sperber's suggestion is that these increasingly sophisticated interpretative strategies are made possible by the employment of assumptions about the speaker's mental states (such as what the speaker believes, or what the speaker believes that the addressee believes) as premises in the inferential derivation of the utterance's interpretation. Thanks to this, the addressee can take into consideration the speaker's competence and benevolence (is the speaker trying to mislead me?) and adjust the interpretation accordingly.[3]

There is one important conclusion that we would like to draw based on Sperber's (1994) seminal ideas: the availability of premises concerning the speaker's mental states, such as epistemic states like first- or second-order beliefs, modulates the richness of the input to the process of language interpretation. While language interpretation always relies on the same, core, inferential procedure, its operations can be affected by the quality of the information that is fed into the comprehension module: '[i]nformation about mental states is assumed in this framework to be the output by a dedicated mind-reading module, which can provide input to both comprehension and epistemic vigilance mechanisms (and can be called on by either)' (Mazzarella 2013:33).[4] We want to suggest that the flow of information between different mind reading modules can play a crucial role in the achievement of a successful interpretation of the speaker's utterance, and that this role may be quintessential in the explanation of some 'pragmatic impairments'. The interplay among the different components of mind reading, and their underlying mechanisms, is a key aspect of the successful integration of relevant contextual information in language processing. Indeed, assumptions about the speaker's beliefs and desires are typically potential parts of the context of interpretation. When context is taken as a psychological construct, it emcompasses a variety of information that can all have a bear on language interpretation:

> A context in this sense is not limited to information about the immediate physical environment or the immediately preceding utterances: expectations about the future, scientific hypotheses or religious beliefs, anecdotal memories, general cultural assumptions, BELIEFS ABOUT THE MENTAL STATES OF THE SPEAKER, may all play a role in interpretation. (Sperber & Wilson 1986/1995:15-16, our emphasis).

The extent to which beliefs about the mental states of the speaker play an actual role in the understanding of distinct pragmatic phenomena (scalar implicatures, metaphor, irony, etc.) is still the object of much discussion. Irony understanding is probably the one example in which this controversy is settled, with a growing consensus around the idea that the interpretation of ironical uses of language requires higher-order metarepresentational capacities. The addressee of an utterance that is meant to be ironic (e.g. 'Sally is such a good friend!' said of a common acquaintance who backstabbed the speaker in some way) needs to rely on his attribution of first-

and second-order mental states to the speaker (*The speaker does not believe that Sally is a good friend*, as well as *The speaker does not intend me to believe that Sally is a good friend*) in order to recognize that a seemingly false statement has been intentionally produced with no deceptive end. This consensus is built on a variety of experimental data from the neuropsychological and developmental literature, which provide converging evidence (see, for instance, Adachi et al. 2004; Filippova & Astington 2008; Spotorno et al. 2012; Spotorno & Noveck 2014; *inter alia*).[5] In sum, irony represents a relatively uncontroversial example of language interpretation in which the exploitation of premises about the speaker's mental states appears to be crucial for the derivation of the speaker's intended meaning. Drawing on Sperber's (1994) insights, irony understanding would require a sophisticated interpretative strategy, in which the working of the comprehension module is enriched by metarepresentational premises from other components of mind reading (see Mazzarella & Pouscoulous 2020 for an account of irony along these lines). In contrast with the argument put forth by Kissine, then, we believe that this view can reconcile a modular approach to pragmatics with the existence of an established correlation between irony understanding and performance in second-order Theory of Mind tasks.

Beyond irony understanding, though, the role of premises about the speaker's mental states in language interpretation is highly controversial. To illustrate this with an example, let us consider metaphorical uses of language. While the initial correlation between metaphor understanding and success in first-order false belief tests found by Happé (1993) was questioned by later findings, such as Norbury (2005), recent work in experimental pragmatics has highlighted the importance of taking a finer-grained approach to the question of the role of mind reading in metaphor interpretation. For example, Lecce and colleagues (2019) show how interpretation is modulated by whether the intended interpretation targets physical aspects of the metaphor's topic (e.g. 'Dancers are butterflies'), or psychological ones (e.g. 'Daddy is a volcano'). In line with this, Andrés-Roqueta and Katsos (2018:3) have argued for the necessity to reorient research in this field towards a more careful examination of the 'communicative situation' in which language interpretation takes place above and beyond the 'pragmatic phenomena *per se*'. This recommendation, which we fully endorse, seems particularly relevant to the examination of the data from autism, to which we now turn.

4. TO WHAT EXTENT DO STUDIES INVESTIGATING INDIVIDUALS WITH AUTISM INFORM US ABOUT THE ROLE OF MIND READING IN LANGUAGE? Regardless of one's position, any evaluation of the experimental literature on language interpretation among autistic individuals calls for caution because currently one would be hard pressed to come up with straightforward conclusions from the extant data, such as the claim that language interpretation does not rely on mental states' attribution. The best one can conclude from the current state of the art is that there is indeed a certain lack of pragmatic stability among autistic individuals regarding each investigated phenomenon, especially when increased mind reading is called for. Here, we turn to three areas outside of metaphor and irony, which were briefly covered above, to underline how these topics do not lead to any obvious consensus about the role of mind reading among individuals with autism.

Let us start with scalar implicature and specifically with Pijnacker et al. (2009a) and Chevallier et al. (2010) who both reported scalar implicature rates that were comparable for individuals with and without autism. These were important studies when they came out because they were the first to indicate that it was not the case that autism is tantamount to a general pragmatic inability. Once that lesson is integrated, it is important to point out how both of these investigations relied on items that presented underinformative statements, concerning presented pictorial evidence or world knowledge, that allowed for a certain omniscience when answering. However, as suggested by Andrés-Roqueta and Katsos (2017), these results may not generalize to conversational situations in which sensitivity to informativeness is typically modulated by a more global appreciation of the speaker's epistemic states (e.g. in contexts of partial knowledge, as in Breheny, Ferguson & Katsos 2013). Indeed, in more recent work, Hochstein and colleagues (2018) presented a paradigm that included conditions that more carefully vary the speakers' epistemic state before the presentation of an underinformative statement. As the use of a scalar utterance ('Some of the boxes have strawberries') should not license the derivation of the scalar implicature (*Not all of the boxes have strawberries*) in contexts of partial knowledge (in which the speaker does not know whether all the boxes contain strawberries), Hochstein et al. 2018 looked at the effect of manipulating the speaker's epistemic state (e.g. full knowledge vs. partial knowledge) on the derivation of the scalar implicature. In an experimental setting in which the experimental puppet and the participant had visual access to the content of only two of three boxes, upon hearing the puppet say 'Some of the boxes have strawberries', participants were

asked whether they thought there were strawberries in the third box. The results showed that autistic individuals were much less likely than their neurotypical cohorts to say 'I don't know'. Interestingly, the autistic participants mostly provided a negative answer instead (consistent with the derivation of the scalar implicature). Surprisingly few of all participants provided the minimally informative 'Yes'. It appears that once epistemic concerns are considered, one finds important differences between autistic individuals and their neurotypical cohorts even on scalar tasks, and that autistic individuals may be inclined to ignore the speaker's epistemic states when drawing pragmatic inferences.

Pijnacker and colleagues (2009b) also investigated conditional reasoning. They reported that autistic participants perform comparably to neurotypical controls (importantly, though, they report that autistic individuals tend NOT to endorse fallacies, such as 'Affirmation of the Consequent': If P then Q; Q//P, to the same extent as neurotypical controls). More importantly, much like with the case for scalars, there are no real differences across the two groups in simple cases, i.e. when a simple *modus ponens* argument is presented (see the premises 1 and 2 below and the question-conclusion to be evaluated in 3).

(1) If Mary has an exam, she will study in the library.
(2) Mary has an exam.
(3) Will she study in the library?

Participants in both groups perform comparably by agreeing that Mary would study in the library. However, when another premise is added between 1 and 2 (e.g. 'If the library is open, Mary will study in the library'), autistic individuals continue to endorse the modus ponens argument by saying 'Yes' to 3 at significantly higher rates than neurotypical controls (the latter are more likely to answer 'Maybe'). Again, one finds that additional doubt-inducing epistemic information distinctively affects autistic individuals, who tend to be more prone to disregarding it.

Let's now consider the area that Kissine and colleagues have brought to the fore of autism studies — indirect requests (Kissine et al. 2012, 2015; Deliens et al. 2018b). Kissine's (2021) summary leaves the impression that there are no evident difficulties among highly verbal autistic individuals. But the investigations do reveal intriguing findings that point to particular

reactions among autistic individuals. Consider the Deliens et al. 2018b study, which provides participants - with and without diagnoses of Autism Spectrum Disorder - a test item about shapes on a screen that could be understood either as a question to be answered literally (with a 'Yes'/'No') or as a means to accede to an indirect request. For example, participants hear an idiomatic *Can you* as in 'Can you move the red circle to the left of the yellow rectangle?' about a situation in which a slot is open to the (non-immediate) left of the yellow rectangle. One revealing result is that this question prompts a similar mix of reactions across both groups (roughly half of all participants say 'Yes' and the other half accede by moving the red circle to the open slot); interestingly, however, among those autistic individuals who answer 'Yes', the authors report extraordinary slowdowns as if they alone were aware of the ambiguity of the question/request. Another finding that Deliens et al. report is that NON-CONVENTIONAL requests ('Is it possible to move the red circle to the left of yellow rectangle?') do prompt differences in behavior among the two groups (autistic individuals are less likely to simply answer 'Yes' than neurotypical individuals). So it is not immediately clear that one could view performance with indirect requests as equivalent across the two groups.

Once one aims to generalize these results to other investigations, including those that do not involve individuals with autism, one is hard pressed to find consistencies. When one considers neuroimagery studies of pragmatic phenomena that include neurotypicals only, it would be fair to conclude, as authors in this area do, that indirect requests (see Bašnáková et al. 2014; Van Ackeren et al. 2012) ought to be categorized with irony (Spotorno et al. 2012) since both have been found to generate activity in the Theory of Mind network (e.g. the medial prefrontal cortex and the right TPJ). As noted earlier, the data on autism summarized in Kissine (2021) paint quite a different picture.

To summarize this section, we think (much) caution is called for about claims concerning the role of mental states attribution in language interpretation as progress is made because the empirical literature concerning the pragmatic profile of autistic individuals is hardly cut and dried.

5. CONCLUSION In this paper, we have argued that a 'monolithic', modular approach to pragmatics, such as the one put forth by post-Gricean accounts of language interpretation, is not undermined by the available empirical evidence on language use in individuals on the autistic

spectrum. In contrast with Kissine (2016, 2021), we maintain that the selective pragmatic profile of a subpopulation of highly verbal autistic individuals is compatible with the existence of a comprehension module, dedicated to mind reading in the domain of intentional communication. We have stressed, though, the importance of acknowledging the interplay between this comprehension module and further components of mind reading, which may play a crucial role in language interpretation, at least with respect to specific pragmatic phenomena (such as irony) or communicative situations. The seminal work of Sperber (1994) represents an important step in this direction: a single, relevance-guided, comprehension procedure can, but need not always, exploit metarepresentational premises about the speaker's mental states to deliver a suitable interpretation of the speaker's utterance. Language interpretation can thus come at different degrees of sophistication, depending on the richness of the input to the comprehension module and the level of individual metarepresentational abilities. The broader implications of this crucial insight have already been explored and developed with respect to the question of the developmental of pragmatic competence in childhood (Köder & Falkum 2020; Mazzarella & Pouscoulous 2020), but have arguably been neglected in the field of clinical pragmatics. Some theorists have speculated about the possibility of thinking of the pragmatic abilities of individuals on the spectrum as limited to a 'naively optimistic' interpretative strategy (Wilson 2000; Reboul 2005), but these suggestions have not yet been the object of any systematic empirical investigation. Indeed, at this stage, it is only possible to speculate that some pragmatic impairments could be better explained in terms of the limited degree of sophistication of the available interpretative strategies (due to deficits in other components of mind reading). For this reason, while we claim that Kissine's argument based on data from autism falls short of undermining post-Gricean pragmatic theories, like Relevance Theory, we also believe that there is still a long way to go before one could claim the existence of a full-fledged account of the significance of Autism Spectrum Disorder for pragmatic theory. This caution is needed even more when considering the nature of the empirical evidence at our disposal, which is far from being amenable to any straightforward interpretation. It follows that it is arguably premature to draw any bold conclusion on the role for mind reading in language interpretation. Most excitingly, the debate is open.

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[1] According to Baron-Cohen (1995), the mind reading impairment of individuals on the autism spectrum would involve, with important individual differences, the Shared-Attention Mechanism and the Theory-of-Mind Mechanism.

[2] For a more detailed presentation of Relevance Theory, we refer to Wilson & Sperber 2004.

[3] For an attempt to integrate some of Sperber's (1994) insights in a non-modular account of pragmatics, see Kissine (2016).

[4] Epistemic vigilance is the cognitive capacity that allows addressee to assess the reliability of the source of the information and its compatibility with the system of beliefs held by the addressee (Sperber et al. 2010). Interestingly, Sperber (2000) already suggested that this capacity, or at least some aspects of it, could be realized by a further metarepresentational module (or set of modules), separate from the 'comprehension module' and the standard metapsychological ability ('Theory of Mind').

[5] See, though, Chevallier et al. 2012 for seemingly contradictory results. For an attempt to reconcile these findings based on the distinction between 'irony discrimination' and 'irony comprehension', see Deliens et al. 2018a.