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Pragmatics is not a monolithic phenomenon, and neither is theory of mind

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Published in:
Language

DOI:
[10.1353/lan.2021.0039](https://doi.org/10.1353/lan.2021.0039)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2021

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Mognon, I., Scholten, I., Hukker, V., & Hendriks, P. (2021). Pragmatics is not a monolithic phenomenon, and neither is theory of mind: Response to Kissine. *Language*, 97(3), e218-e227.
<https://doi.org/10.1353/lan.2021.0039>

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Pragmatics is not a monolithic phenomenon, and neither is
theory of mind: Response to Kissine

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Language, Volume 97, Number 3, September 2021, pp. e218-e227 (Article)

Published by Linguistic Society of America

DOI: <https://doi.org/10.1353/lan.2021.0039>

LANGUAGE
A JOURNAL OF THE LINGUISTIC
SOCIETY OF AMERICA

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PERSPECTIVES

Pragmatics is not a monolithic phenomenon, and neither is theory of mind: Response to Kissine

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In this commentary, we emphasize the importance of the observations presented by Kissine (2021) in his target article for our understanding of the nonmonolithic nature of pragmatics. Our first aim is to complement Kissine's argument, discussing some critical cases of linguistic processes that demonstrate the need for a finer-grained characterization of pragmatic phenomena. In addition, we report some findings that suggest that perspective taking may emerge as atypical even in autistic individuals who appear to be able to pass the standard theory-of-mind tasks. Our second aim is thus to argue that, albeit difficult to spot in experimental settings, the atypical theory-of-mind profile of low- and high-functioning autistic individuals is mirrored in their difficulties in everyday socio-communicative interactions. Moreover, we claim that subtle differences in perspective-taking abilities may explain the highly heterogeneous linguistic profile of autistic individuals. Ultimately, with this commentary we wish to highlight the need for an increased appreciation of the role of perspective taking in typical and atypical language acquisition. This is crucial to our understanding of the nature of language acquisition, and can shed more light on the interaction between language and other aspects of human cognition.

Keywords: autistic individuals, autism spectrum disorder, theory of mind, perspective taking, pragmatics, language acquisition, mind reading

1. INTRODUCTION. Kissine's (2021) target article is an important and thought-provoking work highlighting the language abilities of individuals with AUTISM SPECTRUM DISORDER (ASD; American Psychiatric Association 2013) and underscoring the importance of research on autism for our understanding of the essential principles guiding language acquisition. Kissine argues that the unique linguistic profile of autistic individuals challenges constructionist theories of language acquisition and can shed light on the debates between nativist and constructionist linguistic theories. As our own research focuses on linguistic abilities of autistic children, we enthusiastically welcome Kissine's distinction between pragmatic phenomena that require perspective taking and those that do not. We believe it is essential to move away from the view of pragmatics as the 'wastebasket of linguistics' (Bar-Hillel 1971), as this will broaden our understanding of the pragmatic abilities of autistic individuals and their language abilities in general.

In our opinion, though, irrespective of the contribution it can offer to the debate between nativist and constructionist theories, the importance of studying language in autism lies in the opportunities it provides to broaden our understanding of how language is typically acquired, and what other routes of acquisition are available in special circumstances.

Kissine (2021) argues that 'when autistic individuals use and interpret language in context, they do so without projecting themselves in the minds of their conversational partners' (p. e143), as, he claims, experimental studies have shown that several pragmatic processes can unfold in the language system of autistic individuals, even if these individuals do not consider the perspective of others. Moreover, Kissine states that 'the entire autism spectrum is robustly characterized by ... persistent difficulties in adopting the perspective of other people' (p. e139). We think, however, that the complex picture

emerging from the experimental data currently available should prompt researchers to be extremely cautious and to make more nuanced claims. On the one hand, as Kissine acknowledges, some pragmatic processes do require language users to consider their interlocutors' perspective. On the other hand, to complicate matters, performance on tests assessing mind-reading abilities (i.e. theory of mind, or ToM) is not uniform in verbal autistic individuals (e.g. Rosello et al. 2020). Importantly, as we discuss in §3, some high-functioning individuals with autism have been reported to succeed in ToM tasks (e.g. Barendse et al. 2018, Bowler 1992). These findings suggest that the general claim that autistic individuals can use language only from an egocentric perspective is not warranted; the profiles of ToM abilities in autistic individuals are extremely heterogeneous and resist reduction to a single characterization.

2. PERSPECTIVE TAKING AS A CLASSIFIER OF PRAGMATIC PHENOMENA. As mentioned in §1, one of the major contributions of Kissine's target article is its critical discussion of several pragmatic phenomena. According to Kissine, some pragmatic phenomena appear to require perspective taking, while others, despite being traditionally considered pragmatic, may not (Kissine 2021:§2; see also Kissine 2016). Specifically, Kissine (2021) argues that in the latter case these linguistic processes can unfold from an egocentric perspective: language users may employ compensatory strategies (such as the use of linguistic context to resolve ambiguities) or learning strategies that do not involve mind reading. While this egocentric processing might not always be the most optimal in all contexts, the very possibility of it shows that even with impaired perspective-taking abilities, some pragmatic processing can take place. Notably, this is at odds with the overly simplistic view that problems in autism stem from a general difficulty with the whole class of pragmatic phenomena (e.g. Baltaxe 1977). Moreover, it contradicts the standard view of Gricean pragmatics as requiring interlocutors to systematically take each other's perspective in language use and interpretation (Sperber & Wilson 1986, 2002).

In this sense, Kissine's (2021) discussion appears relevant also to the effort of dismantling the view of pragmatics as the 'wastebasket of linguistics'. In line with Kissine, we endorse a nonmonolithic view of pragmatics and believe that much more attention should be given to the fine-grained distinction between pragmatic phenomena that require an understanding of speakers' mental states and those that require an understanding of the context and do not strictly depend on mind-reading capacities (see also Andrés-Roqueta & Katsos 2017 for the similar claim that 'social pragmatics' should be distinguished from 'linguistic pragmatics' because only the former requires perspective taking). In this section, we aim to complement Kissine's argumentation by discussing some critical cases. We show that, on the one hand, there are phenomena for which perspective-taking skills have been broadly argued to be important (irony), yet evidence to the contrary has been found. We also show that there are, on the other hand, some processes for which, at first sight, perspective-taking skills do not seem to be important (the interpretation of temporal conjunctions, the mastery of pronominal binding), yet in particular contexts perspective-taking skills seem, in fact, necessary. In doing so, we aim to show that the role of perspective taking in language is far from straightforward and still not fully understood.

One of the pragmatic phenomena that autistic individuals are assumed to have difficulties with, as was also argued by Kissine (2021), is irony (e.g. Deliens et al. 2018, Happé 1993, Martin & McDonald 2004). In fact, even though in some studies using forced-choice tasks autistic individuals proved to be able to discriminate ironic statements from nonironic statements (e.g. Colich et al. 2012, Pexman et al. 2011), autistic in-

dividuals might still experience difficulties in interpreting irony in daily interactions: Deliens et al. (2018) noted that, whereas experimental tasks systematically expose participants to cues that can guide their comprehension, such as contextual incongruence and ironic intonation, those cues are not necessarily always explicitly available in real life. Furthermore, whereas forced-choice tasks require only choosing between two meanings, in real life more complex reasoning about the speaker's intention is required (Kissine 2016). This complex reasoning involves monitoring of social relations and an integration of cues from multiple sources (Deliens et al. 2018). Saban-Bezalel et al. (2019) brought empirical support to this idea by showing that understanding people's intentions in everyday life situations is a determining factor in autistic individuals' competence to understand irony. When studies on irony comprehension show accurate performance by autistic individuals, an examination of these individuals' processing might be useful to inform us about possible subtle differences between autistic individuals and their typically developing peers, since these subtle differences can have implications for irony understanding in real life. For example, in a study by Pexman et al. (2011), high-functioning autistic children who successfully participated in an irony-comprehension task started moving toward one of two answer options faster than typically developing children did. The authors argued that this might be an indication of a less elaborate simulation of the speaker's mind. Notably, the same children looked more often at the incorrect answer option than their typically developing peers did before they started moving, suggesting that they gave more consideration to this option (Pexman et al. 2011).

In sum, although the picture emerging from studies on irony understanding in autism may still be incomplete and autistic individuals' ability to understand irony is still a matter of debate (see e.g. Saban-Bezalel et al. 2019), what emerges clearly is that accurate performance on experimental tasks does not necessarily guarantee good performance in real life.

Perspective-taking skills are generally associated with linguistic phenomena (such as irony) for which it appears intuitive to assume that speakers need to consider other people's intentions. Therefore, it is surprising to see that the interpretation of temporal conjunctions seems to benefit from mind-reading abilities as well. Overweg et al. (2018) investigated the interpretation of the Dutch counterparts of the temporal conjunctions *before* and *after* in typically developing and autistic children from six to twelve years old. The children heard sentences such as *Before he read the book, he climbed the tree* and had to indicate which of the two events happened first by choosing the picture representing the first event. For items in which the temporal order of events did not correspond to the linear order in which they were mentioned in the sentence (e.g. in the sentence above, the climbing event takes place before the reading event), second-order ToM predicted children's accuracy, even when IQ and verbal abilities were taken into account. By contrast, for sentences in which events were presented in their temporal order, no correlation between second-order ToM and accuracy was found. These findings suggest that, when events are presented out of order, perspective-taking skills are required to correctly infer the intended sequence of events. Overweg et al. (2018) propose two possible explanations for the role of ToM: either it helps children in shifting their perspective from one moment in time to the other and to understand the relationship between these temporal perspectives, or it enables them to adopt the speaker's perspective in order to reason about why the speaker presented the events out of order (e.g. to foreground particular information). These data on the interpretation of temporal conjunctions suggest that the distinction between linguistic phenomena that require ToM skills and linguistic phenomena that do not is not as straightforward as one would expect.

This claim is also supported by studies on children's acquisition of pronominal binding. Until around the age of six, children acquiring a language such as Dutch or English experience difficulties in interpreting nonreflexive object pronouns (i.e. the well-known DELAY OF PRINCIPLE B EFFECT; e.g. Chien & Wexler 1990, Grimshaw & Rosen 1990, McKee 1992, Philip & Coopmans 1996, Wexler & Chien 1985). Interestingly, however, these children's production of the same object pronouns is adult-like already at the age of 4;6 (de Villiers et al. 2006, Spenader et al. 2009). This production-comprehension asymmetry was accounted for by Hendriks and Spenader (2006), who hypothesized that object-pronoun comprehension, but not object-pronoun production, requires perspective taking. Testing typically developing children, children with attention-deficit/hyperactivity disorder, and high-functioning autistic children, Kuijper et al. (2021) brought experimental support to this claim: second-order ToM was associated with object-pronoun interpretation in syntactic binding environments, but no such effect was reported for object-pronoun production.

Together, the findings on temporal conjunctions and pronouns demonstrate that the involvement of perspective taking in the processing of pragmatic phenomena is not as clear-cut as it may seem. First, ToM skills can be important for the mastery of certain linguistic expressions, like temporal conjunctions, that at first sight do not seem to require perspective taking. Moreover, the need for perspective taking for the processing of these linguistic expressions and consequently also the potential difficulties experienced by children emerge only in particular contexts.

In §2, Kissine (2021) argues that the processing of certain metaphors, indirect requests, certain quantity implicatures, and strategic deception is possible without perspective taking. Specifically, the studies he reviews show that autistic individuals are equally able to pass certain tasks as their typically developing peers (e.g. an indirect request task; Deliens et al. 2018) and that other factors, besides perspective taking, are better predictors of processing (e.g. lexical knowledge in the case of metaphors; Norbury 2005). The importance of these studies is clear: autistic individuals do not show impairments in their mastering of certain phenomena that are clearly pragmatic in nature. However, we should be careful not to draw too strong conclusions from this. Let us consider, for instance, the case of scalar implicatures. Studies assessing scalar implicature generation in autism indicate that adult and adolescent autistic individuals perform as well as IQ-matched neurotypical individuals in the derivation of these pragmatic inferences (Chevallier et al. 2010, Pijnacker et al. 2009). This finding may suggest that perspective-taking abilities are not involved in the process of implicature generation. This is surely an intriguing possibility that requires serious consideration. However, in the aforementioned studies, the perspective-taking skills of participants were not examined. Hence, we cannot exclude the (deceptively simple) hypothesis that scalar implicature generation does require perspective taking (in order for hearers to understand speakers' informative intentions), but at a level that is within the reach of autistic individuals (see Pijnacker et al. 2009 for a similar but often overlooked explanation). To test this hypothesis, the predictive effect of individuals' perspective-taking abilities on their performance on the inferential task needs to be assessed (see Mazzag-gio et al. 2021 for an illustration of this fruitful approach).

The point that we want to make here is that when autistic individuals are able to pass a linguistic task, it is important to establish whether the task inherently requires perspective taking. If it does, individuals passing the task must be able to take someone else's perspective. If perspective taking can be circumvented, autistic individuals passing the task may be using an alternative strategy. In this case, accurate performance on

the task does not tell us whether these individuals are able to take someone else's perspective. Importantly, as we will see in §3.1, current experimental evidence indicates that some autistic individuals may possess a certain level or certain type of perspective-taking abilities.

3. FINE-TUNING LANGUAGE: HETEROGENEITY IN ToM AND ITS IMPACT ON LANGUAGE ACQUISITION. In the past decades, research in experimental pragmatics has not only demonstrated the feasibility of rigorous scientific investigations in the very field of pragmatics, but also highlighted the paramount importance of this type of research for our understanding of the linguistic and cognitive development in typical and atypical populations (Gibbs & Colston 2020). Even more importantly for our purposes here, as discussed by Kissine (2021) and illustrated in the previous section, a growing body of literature now shows that certain processes, once generically labeled as 'pragmatic', do not involve or do not necessarily require perspective taking (Kissine 2016).

In this section, we further delve into the issue of perspective-taking skills in autism. First, we briefly illustrate the striking heterogeneity that characterizes the ToM profile of autistic individuals and suggest that this may be one of the principal sources of the linguistic heterogeneity attested within the autism spectrum. Second, we discuss the contribution that studies on language learning in autism can (and cannot) bring to the debate concerning the nature of language acquisition.

3.1. ON THE NEED FOR A NONMONOLITHIC CHARACTERIZATION OF ToM IN AUTISM. According to the latest version of the *Diagnostic and statistical manual of mental disorders (DSM-5)*; American Psychiatric Association 2013), deficits in social communication and social interaction are fundamental diagnostic criteria for autism spectrum disorder. In line with this, starting with the seminal work of Baron-Cohen et al. (1985), a large body of literature has demonstrated that autistic children show delays in ToM development (e.g. Happé 1995). However, recent data support the hypothesis that, rather than having ToM deficits, autistic individuals possess atypical ToM skills, possibly as a result of atypical ToM development. For instance, Peterson et al. (2009) showed that, contrary to what happens in typical development, difficulties with everyday mind-reading situations, as reported by caregivers, persist even in children who are able to pass first-order ToM tasks. For example, high-functioning autistic children appear to differ from their peers in expecting the caregiver to know facts that happened when the caregiver was not present (Peterson et al. 2009). A pronounced discrepancy between success on experimental tasks and experienced difficulties in social interactions has indeed been found across various studies. It emerges particularly clearly in high-functioning autistic individuals.

On the one hand, adolescents and young adults with Asperger's syndrome have been shown not to differ from neurotypicals when tested with the classical tasks of first- and second-order ToM (Bowler 1992). Similarly, when tested with a battery of advanced ToM tasks (second-order ToM, but also double bluff and sarcasm understanding, among other tasks), six- to twenty-year-old high-functioning autistic participants performed as well as neurotypicals (Scheeren et al. 2013). At the same time, however, even if differences do not emerge at the behavioral level, autistic participants seem to solve ToM problems in an atypical way. Specifically, some high-functioning autistic individuals, despite being able to pass a standard verbal ToM task, have been shown to lack SPONTANEOUS ToM. In the eye-tracking study of Senju et al. (2009), individuals with Asperger's syndrome watched movies in which two characters, two boxes, and a ball were present in the scene. In the experimental phase, one of the characters moved the ball from box A to box B while the other character was not watching. Being unaware of

the displacement, the second character would hold a false belief concerning the position of the ball, and hence try to reach for it in box A (where the ball had been previously placed), rather than in box B (where the first character had moved it to). Eye-movement analysis showed that, while the neurotypicals (matched for age and IQ with the autistic participants) were able to anticipate the movements of the ignorant character on the basis of the character's false belief, the autistic individuals were not. In other words, despite the ability to pass a standard verbal false-belief task, hence to EXPLICITLY reason about other people's mental states, autistic individuals appeared unable to reason about other people's false beliefs IMPLICITLY, in a spontaneous fashion, during sentence processing (see Zhou et al. 2019 for similar data on autistic preschoolers).

Further evidence for the hypothesis that autistic individuals differ from neurotypicals in the automaticity of their mind-reading abilities comes from van Tiel et al.'s (2020) study on strategic deception. In this study, autistic individuals were found to be able to understand their opponents' perspective and predict their actions in order to deceive them. Importantly, however, differences were found between neurotypicals and autistic individuals in their reaction times. Moreover, autistic individuals appeared to have learned throughout the experiment to consider the opponent's perspective, in order to successfully engage in deception. These learned deception strategies could be seen as ways to mimic perspective taking (van Tiel et al. 2020) or perhaps as instances of atypical ToM. In any case, what emerges clearly is that the perspective-taking problem represented by strategic deception is solved by autistic individuals via less spontaneous and more effortful reasoning processes.

Importantly, a high degree of automaticity in perspective taking is arguably required in everyday social interactions: a huge amount of information is continuously provided in the social world, and it needs to be processed quickly in the same context (Senju et al. 2011). Failure to do so, as the case of high-functioning autism appears to suggest, may result in social and communicative difficulties. Baron-Cohen (1997) draws an enlightening parallel between this atypical mind-reading capacity and second language learning: 'The difference between a native speaker of English and a person who learned English as a second language ... might remain very conspicuous' or it 'might be remarkably subtle' (Baron-Cohen 1997:137). Likewise, depending on the context, the difficulties of autistic individuals in mind-reading situations may emerge either in subtle ways or more clearly, for instance when spontaneous mind-reading skills are required. In this sense, it seems reasonable to speculate that if language acquisition depends on mind-reading skills, these skills need to be used in a rather automatic and spontaneous way. If this is the case, the atypicalities in ToM that we have discussed can arguably account for findings on language development in autistic children: as reported by Wodka et al. (2013), in spite of their language delay, a considerable proportion of autistic children (70% of their large sample) attain phrase speech (i.e. two- or three-word utterances). Importantly, however, fluent speech, defined as the 'ability to use complex utterances to talk about topics outside of the immediate physical context' (Wodka et al. 2013:1129), is not so widespread: in the study of Wodka et al. (2013), 50% of autistic children reached this linguistic level (see also Anderson et al. 2007 for comparable results).

By illustrating the extraordinary variation emerging from studies on autistic individuals' ToM skills, we aimed to highlight the need for a deeper understanding of the difficulties experienced by autistic individuals in real-life social interactions as opposed to experimental settings. Additionally, our discussion suggests the need for a more fine-grained characterization of mind-reading abilities in autism spectrum disorder and a better understanding of the profound impact that atypical ToM can have on language

acquisition and processing. In the next section, we turn back to one of Kissine's (2021) central issues: the mastery of functional language in autism despite the well-recognized difficulties with intersubjective communication.

3.2. NONINTERACTIVE LEARNING OF A SECOND LANGUAGE CANNOT INFORM THEORIES OF FIRST LANGUAGE ACQUISITION. One of the central points of Kissine's (2021) discussion is the observation that 70% of autistic individuals end up developing functional/structural language and, importantly, appear to do so 'IN SPITE OF the persisting interactional, sociopragmatic difficulties' (Kissine 2021:e145). From this observation, and from data concerning language learning in noninteractive contexts (§3.2 in Kissine 2021; see also discussion below), Kissine concludes: 'Autism thus appears to falsify the assumption that the acquisition of linguistic knowledge is a priori impossible without intersubjective communicative interaction' (p. e141). Admittedly, this could represent a serious challenge for constructionist models of language acquisition. As we will see in this section, however, Kissine's conclusion is, arguably, too strong.

Let us consider the cases of noninteractive language learning in autism presented by Kissine (2021). Five verbal autistic boys, native speakers of Tunisian Arabic, were shown to be able to 'spontaneously and productively' use Standard Arabic having learned it in a noninteractional context, namely exposure to television programs (Kissine et al. 2019). A similar case of noninteractional language learning is the case of B, a twelve-year-old autistic boy who 'insists on speaking only English with his parents, siblings, and schoolmates' (Kissine 2021:e146) despite living in an exclusively French-speaking environment. A formal assessment of B's language skills revealed that '[w]hile delayed for his chronological age, B's scores are identical in French and English' (Kissine 2021:e146).

A crucial observation concerning these studies is that, in both cases, the autistic children were, in fact, learning a second language and not acquiring their first language. The differences between first language acquisition and second language learning are undisputed (see Ipek 2009 for a discussion) and recognized by constructionists and nativists alike. Importantly, the constructionism-nativism debate is centered around the nature of first language acquisition (Ambridge & Lieven 2011) and concerns the role of socio-communicative interactions, joint attention, and, more broadly, mind reading in the first years of life. In particular, according to the constructionist view, the first phase of language acquisition is heavily dependent on ToM skills. In the cases reported by Kissine (2021), the first steps into language (Tunisian Arabic or French) had already been made by these children at the time when they started learning the second language (Standard Arabic or English, respectively). This means that some crucial processes that unfold in early language acquisition, such as the identification (if one adopts a nativist view) or construction (if one prefers the constructionist perspective) of syntactic categories, had already taken place. Arguably, this happened in interactive exchanges with caregivers—in fact, it is quite implausible to assume that these children had not been exposed to their first language in social settings. Consequently, the cases reported by Kissine (2021) do not seem relevant for a discussion of the challenges faced by constructionism in accounting for the success of autistic individuals in acquiring functional language. Thus, despite recognizing the remarkable finding that autistic children can (and perhaps prefer to) learn a second language in a noninteractive way, we believe that this fact is hardly informative of first language acquisition. Albeit intriguing, the hypothesis that language acquisition in autism can unfold in a purely noninteractive way, as proposed and discussed by Kissine (2021), cannot find support in the aforementioned studies.

4. CONCLUSIONS. With this paper, we aimed to complement Kissine's (2021) discussion, arguing that a finer-grained characterization of pragmatics is of paramount importance. Moreover, we showed that more attention should be paid to the extraordinary heterogeneity of the ToM profile of autistic individuals: as the case of autism shows, ToM skills are likely to have a substantial impact on the development of both language and socio-communicative abilities. Thus, irrespective of its contributions to the constructionist-nativist debate, we believe that investigating language acquisition in autism is essential and can illuminate our understanding of the startling diversity of human cognition.

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[Received 15 January 2021;
 accepted pending revisions 6 March 2021;
 revision received 26 March 2021;
 accepted 7 April 2021]