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Theory of Mind: Social Maneuvers and Theory of Mind

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SOCIAL MANEUVERS AND THEORY OF MIND

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Our social lives are distinguished by specific maneuvers—the white lie, the bluff, the fantasy, the hint, the apology, the outburst, the ironic remark, the faux pas. Most adults perform, interpret, and anticipate these interpersonal maneuvers with such ease that we are rarely cognizant of the underlying, enabling mental capacity, a capacity that has been named *Theory of Mind (ToM)*. Those of us with children know, however, that we must be wary of sarcasm for fear of misinterpretation, must be explicit because indirect commands are often ineffectual, must decipher playground episodes or cinematic dramas that seem senseless to young minds, and must muffle the honesty of a toddler when a friend and host who burned the meat and overcooked the vegetables asks, "How's your dinner?" Parental experience coincides with scientific research on ToM that has discovered that this capability normally is innate and develops throughout childhood, and that this developmental path sometimes goes awry and sometimes proceeds faster and farther.

Because social maneuvering is fundamental to most negotiations, anyone studying bargaining should be interested in the advances developmental psychologists, animal behaviorists, and cognitive neuroscientists have made in understanding ToM. I will summarize some of these findings here, and my intention, discernable if you apply your ToM, is to intrigue the reader enough that a cross-disciplinary conversation will begin and continue into the foreseeable future.

I. WHAT DO WE KNOW ABOUT TOM?

Theory of mind seems to be a wondrous ability. It seems to be ESP without the invisible brain waves, communing through the ether without the mysticism, divination without the crystal ball. That we can read the contents of someone's mind—her intentions, emotions, wants, beliefs—with an accuracy significantly greater than guessing is rather remarkable. However, ToM has both mundane cognitive roots and non-human manifestations. In fact, the phrase "theory of mind" was first used in an article describing

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chimpanzees' abilities to perceive the intentions behind various actions.[1]

One comprehensive model of the mundane roots of ToM is that advanced by Andrew Meltzoff and Alison Gopnik.[2] They suggest that the human brain is endowed with "a fundamental cross-modal representational system that connects self and other."[3] This innate cognitive ability is manifest in an amazing finding: neonates as young as forty-five minutes old are able to differentially imitate facial expressions.[4] If you stick your tongue out at them, they will try to razz you back; if you make an "O" mouth at them, they will ogle their lips back at you. Imitation is the cornerstone that supports other developmental milestones: At nine months, infants point, grunt, scream and generally try to guide the intentions of other people;[5] at eighteen months, toddlers understand that other people may want things that they do not;[6] at twenty-four months, children are pretending, a cognitive activity that calls for multiple mental states;[7] at thirty months, they can take the other's visual perspective, recognizing that an object may be visible to them but hidden from another person in the room.[8]

Finally, by about the age of four, young children can lie.[9] Or, at least,

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1. *See* David Premack & Guy Woodruff, *Does the Chimpanzee Have a Theory of Mind?*, 1 BEHAV. & BRAIN SCI. 515 (1978).

2. *See* ALISON GOPNIK & ANDREW N. MELTZOFF, WORDS, THOUGHTS, AND THEORIES (1997).

3. *Id.* at 129; *see also* HENRY M. WELLMAN, THE CHILD'S THEORY OF MIND (1990).

4. *See* Andrew N. Meltzoff & M. Keith Moore, *Imitation of Facial and Manual Gestures by Human Neonates*, 198 SCI. 75-78 (1977); Andrew N. Meltzoff & M. Keith Moore, *Newborn Infants Imitate Adult Facial Gestures*, 54 CHILD DEV. 702, 702-09 (1983); Andrew N. Meltzoff & M. Keith Moore, *Imitation in Newborn Infants: Exploring the Range of Gestures Imitated and the Underlying Mechanisms*, 25 DEV. PSYCHOL. 954 (1989).

5. *See* ELIZABETH BATES ET AL., THE EMERGENCE OF SYMBOLS: COGNITION-COMMUNICATION IN INFANCY (1979).

6. In one study, babies watched a grown-up point to one of two plates that were piled with crackers or broccoli, and then "mmmm" or "eeewwww." The grown-up would then hold out her hand. Toddlers "gave her broccoli when she had previously expressed a desire for the broccoli and crackers when she expressed a desire for crackers, despite their own unalterable conviction that broccoli is yucky." GOPNIK & MELZOFF, *supra* note 2, at 150. For the study, see Betty M. Repacholi and Alison Gopnik, *Early Reasoning About Desires: Evidence from 14- and 18- Month Olds*, 33 DEV. PSYCHOL. 12 (1977).

7. *See* Alan M. Leslie, *Pretense and Representation: The Origins of "Theory of Mind,"* 94 PSYCHOL. REV. 4124 (1987); Peter Carruthers, *Autism as Mind-Blindness: An Elaboration and Partial Defense*, *in* THEORIES OF THEORIES OF MIND 265 (Peter Carruthers & Peter K. Smith eds., 1996) ("You cannot enjoy supposing or imagining without being conscious of your (mental) activity. In general, *enjoying Xing* presupposes *awareness of Xing*—which is why you cannot enjoy digestion, sleepwalking, or subliminal perception.") (emphasis in original).

8. *See* John H. Flavell et al., *Young Children's Knowledge About Visual Perception: Further Evidence for the Level 1-Level 2 Distinction*, 17 DEV. PSYCHOL. 99 (1981).

9. *See* Beate Sodian et al., *Early Deception and the Child's Theory of Mind: False Trails and Genuine Markers*, 62 CHILD DEV. 468 (1992).

they can do the next best thing—pass false belief tests. These tests have become well known as critical assessments of ToM and so, it is worth describing them in more detail.[10] The Sally-Anne tasks and its variants use two dolls to portray a little drama for an audience of one very young participant.[11] The scene opens with Sally and Anne busily playing in a room. Sally has a ball that she places in a nearby basket and covers with a blanket. She skips out of the room. Anne, for whatever nefarious or benevolent reason, gets up and switches the ball from the basket to a box. She recovers the basket, folds closed the flaps of the box and returns to her activity. Sally skips back into the room and the scene freezes. The child is asked, "Where will Sally look for her ball?" Very young children will answer, "the box," but by the age of four, most children will correctly answer, "the basket."

Children three years old and younger have a difficult time distinguishing between what they know to be true and what someone else believes. This fact is supported by another false belief task, this one centered on a brightly colored tin covered with pictures of delicious candy-coated chocolates.[12] The participating child is asked, "What do you think is in here?" and she responds quite naturally with "CANDY!" Much to her disappointment, the child is shown that the tin actually contains pencils. To try her patience further, the child is asked, "What did you think was in here?" and "What would another child think is in here?" Little toddlers, but not preschoolers, will fail this test as well by replying "pencils" to both questions.

Both of these tasks involve first-order beliefs, i.e., knowing what someone else knows. It is possible to test second-order beliefs as well. For instance, suppose Sally peeked unseen into the room while Anne moved the ball, now where does Anne think that Sally thinks the ball is? Not surprisingly, the four-year-old mind that can comfortably handle the two tasks above cannot decipher second-order belief situations.[13] In one test, after all age groups succeeded at a first order false belief test, only 71% of six year olds passed a second order false belief test, while 94% of eight year olds and 100% of ten

10. The test was first invented by Heinz Wimmer and Josef Perner. *See* Heinz Wimmer & Josef Perner, *Beliefs about Beliefs: Representation and Constraining Function of Wrong Beliefs in Young Children's Understanding of Deception*, 13 COGNITION 103, 103-28 (1983). A meta-analysis of published false belief tests is contained in Nurit O. Yirmiya et al., *Meta-Analyses Comparing Theory of Mind Abilities of Individuals with Autism, Individuals with Mental Retardation, and Normally Developing Individuals*, 123 PSYCHOL. BULL. 283 (1998).

11. This version is from SIMON BARON-COHEN, MINDBLINDNESS (1995).

12. *See* Josef Perner et al., *Exploration of the Autistic Child's Theory of Mind: Knowledge, Belief, and Communication*, 60 CHILD DEV. 689 (1989).

13. *See* Kate Sullivan et al., *Preschoolers Can Attribute Second-Order Beliefs*, 30 DEV. PSYCHOL. 395 (1994).

year olds passed.[14] As the presented stories become more complicated (while still remaining true to life), only elementary school children and older can easily decipher tales involving double-bluffs or sarcasm, and only middle school children and older can reliably understand a faux pas.[15]

Autistic children lag behind their normally developing peers to a significant extent with respect to performance on false belief tests.[16] In the study reported above, a group of autistic participants whose average age was ten was tested alongside the normal six-, eight- and ten-year olds. Only two-thirds of the autistic children (as compared to all of the control group) correctly answered the Sally-Anne task and just over half could interpret a second-order false belief story.[17] Many scientists now believe that the core deficit of autism is an impaired ToM: in one poignant neologism, the autistic person is "mindblind."[18] Mindblindness causes autistic people to have a variety of behavioral divergences from the norm:

> A list of commonplace behaviors that are absent in autism would include the following: interpreting facial expressions; choosing appropriate gifts (cat litter deodorizer and strawberry jam); responding to hints in conversation; improvising chit-chat; supplying missing information to the audience; engaging in spontaneous pretend play; keeping secrets; enjoying fiction; reacting actively to another's distress or joy; forming reciprocal friendships.[19]

Autists have a colder, more objective view of social interaction. One very famous tool used to prompt social interpretation is a film clip of abstract

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14. *See* E.H. Hill & David Sally, *The Development of Interpersonal Strategy: Autism, Theory-of-Mind, Cooperation and Fairness* (2004) (unpublished manuscript at Goldsmiths College, Univ. of London).

15. For double bluffs, see Francesca G. Happé, *An Advanced Test of Theory of Mind: Understanding of Story Characters' Thoughts and Feelings by Able Autistic, Mentally Handicapped, and Normal Children and Adults*, 24 J. AUTISM & DEV. DISORDERS 129 (1994). For faux pas, see Simon Baron-Cohen et al., *Recognition of Faux Pas by Normally Developing Children and Children with Asperger Syndrome or High-Functioning Autism*, 29 J. AUTISM & DEV. DISORDERS 407 (1999) (An example of a toe-curling faux pas story: Jill had just moved into a new apartment. Jill went shopping and bought some new curtains for her bedroom. When she had just finished decorating the apartment, her best friend Lisa came over. Jill gave her a tour of the apartment and asked "how do you like my bedroom?" "Those curtains are horrible," Lisa said, "I hope you're going to get some new ones.").

16. *See supra* notes 5-10 and accompanying text.

17. Hill & Sally, *supra* note 14.

18. BARON-COHEN, *supra* note 11.

19. David Sally, *Into the Looking Glass: Discerning the Social Mind Through the Mindblind*, 18 ADVANCES IN GROUP PROCESSES 99, 108 (2001) (internal citations omitted); *see also* Uta Frith et al., *Autism and Theory of Mind in Everyday Life*, 3 SOC. DEV. 108 (1994).

geometric figures in motion.[20] Normal individuals watch a clip and respond with such statements as, "The big triangle got jealous of them, came out, and started to pick on the smaller triangle. The little triangle got upset and said like 'What's up?'"[21] Autistic individuals react with the literal, physical truth: "The big triangle went out. The shapes bounce off each other. The small circle went inside the rectangle .... The small triangle and the circle went around each other a few times. They were kind of oscillating around each other, maybe because of a magnetic field."[22]

A subsequent comparison of the brain scans of "mindseeing" individuals who viewed the moving geometric figure clip with those of autistic individuals, revealed increased activity in the medial prefrontal cortex and the superior temporal sulcus in the former group.[23] A variety of studies have confirmed that these two regions are critical to the neural network supporting ToM.[24] The medial prefrontal cortex includes areas activated in monitoring the self's inner states. Damage to this area in normal individuals causes both poor performance in false belief tests and behavioral problems akin to those in autism.[25] The second region, the superior temporal sulcus, is associated with the perception and interpretation of movements by living creatures, especially their eyes, hands, and mouths.[26] Hence, the neuroscientific evidence is broadly consistent with the ToM developmental story above—that there is an equivalence between the self's inner states and those of the other and that perceiving and reacting to the face, the eyes, and the mouth in particular are foremost.

II. WHAT DOES TOM HAVE TO DO WITH NEGOTIATIONS?

At this point, we might seem very far afield and a reader might

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20. *See* Fritz Heider & Marianne Simmel, *An Experimental Study of Apparent Behavior*, 57 AM. J. PSYCHOL. 243 (1944).

21. A. Klin et al., *Theory of Mind in Action: Developmental Perspectives on Social Neuroscience*, *in* UNDERSTANDING OTHER MINDS: PERSPECTIVES FROM DEVELOPMENTAL COGNITIVE NEUROSCIENCE 363 (Simon Baron-Cohen et al. eds., 2d ed. 2000).

22. *Id.* at 363-64.

23. *See* Fulvia Castelli et al., *Autism, Asperger Syndrome and Brain Mechanisms for the Attribution of Mental States to Animated Shapes*, 125 BRAIN 1839 (2002).

24. *See* Uta Frith & C.D. Frith, *Development and Neurophysiology of Mentalising*, 358 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y. B. (BIOLOGICAL SCI.) 435 (2003).

25. *See* Carol Gregory et al., *Theory of Mind in Patients with Frontal Variant Frontotemporal Dementia and Alzheimer's Disease: Theoretical and Practical Implications*, 125 BRAIN 752 (2002).

26. *See* A. Puce & David Perrett, *Electrophysiology and Brain Imaging of Biological Motion*, 358 PHIL. TRANSACTIONS OF THE ROYAL SOC'Y. B. (BIOLOGICAL SCI.) 435 (2003); Mark Sabbagh & Marjorie Taylor, *Neural Correlates of Theory-of-Mind Reasoning: An Event-Related Potential Study*, 11 PSYCHOL. SCI. 46 (2000).

legitimately ask me, "What are you thinking?" The connection between ToM and negotiation is, at once, obvious and unspecified. As we have seen, an advanced ToM is necessary to accurately decipher social situations involving false beliefs, bluffs, faux pas, and misrepresentation. What social situation is more rife with these elements than negotiations? ToM must be essential to negotiations, as it is to all normal social interactions. The mindblindness and behavioral problems of autistic individuals reveal what "mindseeing" does for the rest of us:

> [A]utism proves that a theory of mind and the sympathetic process are, simultaneously and inextricably, essential to language, play, interaction, cohesion, imagination and strategy . . . . [T]he choice of an optimal strategy is linked to the sharing of a smile or a touch, and to speaking through hints, metaphors and jokes.[27]

There is an essential thread, then, that connects all social maneuvers, including those in negotiations, and ties them to ToM and its associated neural system.

This deep and broad connection disguises a host of specific questions that have not yet been addressed by negotiation researchers. However, given the pace of discovery in social neuroscience, it is likely that in the next decade students of negotiations will be taught the answers to the following intriguing questions:

- Do imaging studies confirm that the ToM neural system is active during negotiations? If so, do the patterns of activity vary with the stage of negotiations or with the level of conflict? Are there neural patterns that are correlated with more effective bargaining? Among other purposes (some of which are discussed below), this knowledge could be used as a diagnostic screen. For example, a client might ask various lawyers, who are vying to represent her at an upcoming negotiation, to submit a recent brain scan.

- Is there a link between ToM capabilities and specific negotiation tactics? For example, one might find that people who do poorly on a faux pas recognition test are more likely to: (1) make a highball or lowball offer to a counterpart with a very strong BATNA; (2) fail to confront and counter an opponent's extreme offer. Are those who are more accurate mindreaders better able to

27. Sally, *supra* note 19, at 101.

frame their proposals?

- Are there tests in other behavioral domains that are predictive of negotiation success? If figurative language relies on ToM, then accuracy in interpreting metaphors might be correlated with negotiation skill. Are fiction readers better negotiators than newspaper readers? How about those who give individualized gifts during the holidays versus those who give cash or gift certificates?

- Is there a link between ToM and broad negotiation capabilities? One might imagine that mentalising is more useful in value creation, but a certain social remove is effective in value claiming. For example, a used car salesman might want a limited ToM in order to avoid anticipating or perceiving the negative emotions of a customer who overpays for a clunky, poorly maintained lemon. However, one could see the relationship going in the other direction, as the next question proposes.

- Is ToM responsible for negotiators' emotional entanglements and indirectness about interests and values? One explanation of the geometric film clip interpretations is that autistics see what is there, while normal people are confabulating. "Normals"

> have a hair-trigger on their ToMs: they can find intention, emotion, and belief in the casual, chaotic heap of animal entrails, the stochastic, stress-induced sliding of the plates in the Earth's crust, a blinking shadow cast diagonally through the trees by a passing cloud on a moonlit night, or an ant dragging an oversized crumb up and over, up and over, up and over a series of little twigs and stones.[28]

Attributing intentions to every move in a negotiation may be exhausting, frustrating, and detrimental. Sometimes, a mistake is just a mistake, a bluff should just be ignored and forgotten, and apologies are just a waste of time.

Just as the very young or autistic viewers imputed to Sally their own knowledge of where her ball was located, a

28. *Id.* at 110 (internal citation omitted).

negotiator may know her interests so vividly that she automatically assumes the other side knows. Think about the times you have had a catchy, yet sadly untitled, tune playing in your head. You turn to a significant other and say, "What's the name of that song? You know, the one that goes . . . ," and then you hum or tap a few bars. The other looks at you in puzzlement and you stare in disbelief that he or she cannot recognize it.[29] Autistics certainly are much more literal in their use of language; might this literalness extend into the continuum of ToM capabilities? If so, these people might be much more forthright and direct about their interests in a negotiation, while the rest of us assume that the other side knows what we want.

- Is ToM the missing factor that explains differences in negotiation process and outcomes among different occupations and by gender? Recently, a group of researchers created a self-administered survey that measured the degree to which a normal adult had traits associated with autism, i.e., the person's Autistic-Spectrum Quotient (AQ).[30] When they gave the survey to students at Cambridge University, they found a significant difference between the AQs of those in the sciences and the AQs of students in the social sciences and humanities. Specifically, science students, those studying mathematics in particular, had much higher AQs on average and thus, were closer to the autistic end of the scale than their liberal arts counterparts were. Furthermore, among all students, men scored slightly, but significantly, higher than women.

  These findings might extend into negotiations. Do engineers, mathematicians, and scientists negotiate differently than philosophers, poets, and marketers? Are gender differences in areas such as initiating negotiations and asking for better offers really being driven by different mentalising capabilities?[31]

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29. *See* Raymond S. Nickerson, *How We Know—and Sometimes Misjudge—What Others Know: Imputing One's Own Knowledge to Others*, 125 PSYCHOL. BULL. 737 (1999).

30. *See* Simon Baron-Cohen et al., *The Autism-Spectrum Quotient (AQ): Evidence from Asperger Syndrome/High-Functioning Autism, Males and Females, Scientists and Mathematicians*, 31 J. AUTISM & DEV. DISORDERS 5 (2001).

31. A recent report on gender differences is LINDA BABCOCK & SARA LASCHEVER, WOMEN DON'T ASK: NEGOTIATION AND THE GENDER DIVIDE (2003). The argument that autism reflects broader cognitive divergence between men and women has been made by Simon Baron-Cohen. *See* SIMON BARON-COHEN, THE ESSENTIAL DIFFERENCE: THE TRUTH ABOUT THE MALE AND FEMALE

- Does age improve both ToM and negotiating outcomes? It is clear from our review above that ToM improves throughout childhood. The two published studies that have examined the performance of senior citizens on mentalising tasks contradict each other—one found that seventy year olds were better than twenty-one year olds, while students outperformed the elderly in the other study.[32] Of course, negotiation research has done a poor job in general of examining bargaining behavior in the years between graduation and the nursing home.[33] Accordingly, analysis of the latter three-quarters of the life span would benefit both fields. Future knowledge about ToM and age will guide law firms in deciding, for instance, whether to send senior partners or junior associates to the bargaining table.

- What are the situational influences on ToM? Are normal people occasionally mindblind? It seems possible, for example, that very strong emotions or great social distance might suffice to make the other's mind imperceptible. Our enemies tend to not only be "bad," "strange," and "unlikable," but they seem utterly unfathomable to us as well. One could also imagine that hierarchy might prevent mindseeing both upwards and downwards. If this temporary clouding does occur, the bargaining table is as likely a setting as any other, and this may explain why negotiations between enemies or with an organization are significantly more difficult than other conflict-filled situations.

- It is possible that within the next decade or two cosmetic neurosurgery and advanced neuropharmacology may be able to enhance ToM or correct mentalising deficits? What impact will these interventions have on negotiations and negotiators and the intertwining minds they bring to the table?

BRAIN (2003).

32. *See* Francesca G. Happé et al., *The Getting of Wisdom: Theory of Mind in Old Age*, 34 DEV. PSYCHOL. 358 (1998); Elizabeth A. Maylor et al., *Does Performance on Theory of Mind Tasks Decline in Old Age?*, 93 BRIT. J. PSYCHOL. 465 (2002).

33. This same critique has been leveled at all experimental research in the social sciences. *See* David O. Sears, *College Sophomores in the Laboratory: Influences of a Narrow Data Base on Social Psychology's View of Human Nature*, 51 J. PERS. & SOC. PSYCHOL. 515 (1986).

APPENDIX: FURTHER READING

ALLISON GOPNIK & ANDREW N. MELTZOFF, WORDS, THOUGHTS, AND THEORIES (1997).

UNDERSTANDING OTHER MINDS: PERSPECTIVES FROM DEVELOPMENTAL COGNITIVE NEUROSCIENCE (Simon Baron-Cohen et al. eds., 2d ed. 2000).

C.D. Frith & Uta Frith, *Interacting Minds—A Biological Basis*, 286 SCI. 1692 (1999).

David Sally, *Into the Looking Glass: Discerning the Social Mind Through the Mindblind*, 18 ADVANCES IN GROUP PROCESSES 99 (2001).