

Rethinking Social Cognition Beyond Mindreading

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Abstract

Theory of Mind (ToM)—the capacity to infer others’ mental states—has long been treated as a cornerstone of social cognition. Yet its conceptual boundaries and mechanistic foundations remain vague, and its empirical robustness is less secure than often assumed. This tension is especially striking because ToM originated in comparative work on chimpanzees, even though chimpanzee social life is best known for power-related behavior. The same problem appears in humans: lie detection—arguably the most iconic real-world false-belief task—reveals an accuracy of only about 54%, barely above chance. Across humans and other social species, mental-state inference is inconsistent, context-dependent, and error-prone, indicating that “mindreading” is better understood as pattern-based social inference rather than a dedicated cognitive module. By contrast, status recognition and power-relevant behavior are robust, contextually stable, and consistently observed across species. We therefore propose reframing social cognition as the tracking of status and the navigation of power dynamics rather than hidden mental-state inference. This reframing provides an empirically grounded account of social cognition that better reflects social interaction in real-world settings.

Keywords: Theory of Mind, Social Cognition, Mental State Inference, Human Social Reasoning, Power and Status

1 Introduction

The dominant view in psychology and cognitive science treats Theory of Mind (ToM) as a cornerstone of social cognition [1–4]. ToM is usually understood as the capacity to infer the mental states of others, including their beliefs, intentions, desires, and knowledge. Under this view, hidden mental-state inference forms the core mechanism of social cognition and has shaped influential theories in cognitive science and psychology, particularly in developmental psychology and comparative cognition.



Fig. 1 Theory of Mind and its comparative tension. Although ToM originated from work on chimpanzees, chimpanzee social life is most clearly organized around power-related behavior. Yet limited evidence for animal mindreading has been treated as evidence that ToM is uniquely human, rather than as evidence that mental-state inference may not be the central basis of social cognition.

Yet the comparative origin of ToM points to a tension within this framing. Theory of Mind was originally introduced through a question about chimpanzees [1]. However, chimpanzee social life is most clearly organized around power-related behavior: dominance, rank, coalition, and strategic adjustment to others' positions [5]. The field has often treated the limited evidence for animal mindreading as evidence that ToM is uniquely human. Yet the comparative evidence points in a different direction: social cognition is organized primarily around tracking status and navigating power dynamics rather than inferring hidden mental states.

The same tension appears in human social interaction. Mental states are not directly observable, and people frequently misread others, overinterpret ambiguous behavior, or simply fail to know what others are thinking. Misunderstanding is therefore not an exceptional failure but a normal feature of everyday social interaction, making hidden mental-state inference an unstable foundation for social cognition.

By contrast, status and power are pervasive and robust features of social life across species. From rank-sensitive behavior and coalition management in primates to status competition and organizational hierarchy in humans, individuals continuously monitor their own and others' positions within social structures and adjust their behavior accordingly. These processes are directly observable, quickly recognized, and consistently guide behavior across contexts, providing a more stable foundation for understanding social cognition than hidden mental-state inference.

We therefore propose reframing social cognition as the tracking of status and the navigation of power dynamics. Rather than treating social cognition primarily as the

attribution of hidden beliefs, we argue that it is better understood as the strategic navigation of social structure. This account provides a mechanistic and empirically grounded explanation of how social cognition functions in real-world settings.

Our contribution.

This article makes four contributions:

- It revisits the comparative origin of Theory of Mind, showing that chimpanzee social life points toward power-related behavior as a central feature of social cognition.
- It reassesses the empirical baseline for human mental-state inference, linking idealized false-belief tasks, weak lie-detection accuracy, and unstable real-world social inference.
- It connects biases in social and general reasoning to a pattern-based account of social inference, where judgment is shaped by surface-level patterns under noisy and incomplete information.
- It develops an alternative grounding for social cognition in relative position, status tracking, and the navigation of power dynamics, with strategic goal inference as the practical basis of social understanding.

2 Conceptual Ambiguity in Theory of Mind

A central problem with Theory of Mind is that the concept itself, and the phenomena it is meant to describe, remain unclear. Although ToM is often described as the capacity to infer others' mental states, it is rarely specified what counts as mental-state inference, what mechanisms support it, or where ToM ends and other forms of social cognition begin. Across the literature, the term therefore shifts between several different levels of explanation:

- **A descriptive capacity:** the ability to attribute mental states such as beliefs, desires, intentions, knowledge, or emotions to others [1].
- **A task-based ability:** performance on false-belief tasks or related experimental paradigms, often treated as evidence of ToM [2, 3].
- **A cognitive mechanism:** a proposed process or system that enables mental-state attribution, such as mindreading, simulation, inference, or a dedicated module [6].
- **A developmental milestone:** the emergence of false-belief understanding in childhood, often treated as a marker of mature social cognition [4].
- **A broad social explanation:** an account of social understanding, cooperation, deception, empathy, communication, or behavior prediction [7].

This conceptual instability is not accidental. ToM has developed over several decades, yet its core claim—that social cognition is grounded in mindreading or hidden mental-state inference—remains difficult to specify and empirically unstable. As a result, the meaning of ToM has expanded over time, shifting between task performance, developmental markers, broad social functions, and general accounts of social understanding. The concept therefore becomes flexible enough to absorb many phenomena, but less precise as a mechanistic account of social cognition.

3 The Empirical Fragility of Theory of Mind

3.1 The Comparative Origins of Theory of Mind

Theory of Mind did not begin as a purely human account of social cognition. Its earliest formal formulation came from Premack and Woodruff’s question: “Does the chimpanzee have a theory of mind?” [1]. From the beginning, ToM was therefore framed as a comparative problem: whether nonhuman primates could understand the mental states behind others’ behavior.

This origin is striking because chimpanzees are best known not for abstract belief inference, but for power-related social behavior. Dominance, rank, coalition, and strategic positioning are central to chimpanzee social interaction [5]. These patterns suggest that primate social cognition is organized less around hidden mental-state attribution than around status and power.

However, much of the subsequent ToM literature treated weak or limited evidence for explicit belief inference in animals as evidence that ToM is distinctively human. Yet the same evidence points in the opposite direction: if chimpanzees show rich social intelligence without clear dependence on abstract belief inference, then the foundation of social cognition may lie not in mindreading, but in tracking status and navigating power dynamics.

3.2 Weak Empirical Baselines for Mental-State Inference

Much of the evidence for ToM begins from artificial change-of-location false-belief tasks. In classic paradigms such as Wimmer and Perner’s Maxi task [2], participants are given a fully arranged information gap: they see that an object has been moved, while the story character has only seen its original location. The task therefore reduces false-belief reasoning to following a pre-specified information gap, rather than inferring beliefs from ambiguous social behavior in real social life. Success in these tasks shows performance under highly idealized conditions, not reliable mental-state inference in real-world social interaction.

In more ecologically realistic tests of false-belief reasoning, the human baseline is much weaker. The clearest case is repeated lie detection: across the experimental literature, average accuracy is only about **54%**, barely above chance [8].

Real-World Mental-State Inference Is Weak.

Repeated lie-detection studies show that humans distinguish truth from deception only slightly above chance, with average accuracy around **54%**.

This evidence suggests that actual false-belief inference is not a strong or generally reliable human capacity.

3.3 The Instability of Real-World Social Inference

In real-world interaction, human social inference is often unstable because others’ mental states are not directly accessible. People frequently misread others, overinterpret

ambiguous behavior, or simply fail to know what others are thinking. Misunderstanding is therefore not an exceptional failure, but a normal feature of human interaction. This instability challenges the view that social cognition is primarily grounded in reliable hidden mental-state inference.

Because people often do not know what others are thinking, human social life relies heavily on external mechanisms for stabilizing social inference. Gossip, reputation, recommendation, and trust all serve this function. They convert uncertain individual judgments into shared information, allowing people to evaluate others without directly inferring their hidden mental states. These mechanisms therefore compensate for the limits of mental-state inference by providing stable social information that can guide behavior under conditions of high uncertainty.

4 Social Inference as Memory-Based Pattern Matching

Reasoning Domain	Cognitive biases
Deductive reasoning	Belief bias [9] / Matching bias [10]
Probabilistic reasoning	Conjunction fallacy [11]
Counterfactual reasoning	Hindsight bias [12] / Outcome bias [13]
Planning	Planning fallacy [14]
Judgment and decision making	Availability heuristic [15] / Representativeness heuristic [16]
Causal reasoning	Post-hoc inference [17]
Social reasoning	Fundamental attribution error [18] / Stereotyping [19]

Table 1 Systematic biases in social reasoning and general human reasoning. Rather than simply reflecting deviations from a stable logic of inference, these biases show that human judgment is repeatedly guided by surface-level patterns in the available information.

Theoretical accounts of Theory of Mind often assume that social inference operates through a stable logic of mental-state attribution. On this view, people interpret others’ behavior by inferring hidden beliefs, intentions, desires, or knowledge. Yet in real-world interaction, others’ mental states are not directly accessible, and the same behavior can support different inferences depending on context, prior experience, social position, and available cues. Social inference is therefore rarely a clean process of reading off mental states from behavior. It is usually partial, uncertain, and context-dependent.

This creates a problem for accounts that treat social cognition as stable mental-state reasoning. Real-world social information is often sparse, incomplete, ambiguous, or even misleading. Under these conditions, a long chain of social inference can easily break down. Pattern matching offers a more effective way for social inference to operate under uncertainty. Rather than requiring full access to the underlying mental state, it allows people to form an interpretation from limited cues, past experience, and recurring social patterns.

Systematic biases in human social reasoning and general reasoning further support this account. Fundamental attribution error [18], stereotyping [19], and related social biases show that social inference is often shaped by surface-level patterns and can lead to mistaken conclusions. More broadly, heuristics [20], post-hoc rationalization [17], and representativeness bias [16] show that human inference is frequently organized around surface-level similarities rather than stable access to underlying causes.

Taken together, these findings suggest that social inference is fundamentally pattern-based. It is repeatedly shaped by surface-level patterns, past experience, and incomplete social information. Everyday social understanding therefore operates less through a stable logic of mental-state inference than through pattern matching over noisy and partial social cues.

5 Power as the Core Structure of Social Cognition

5.1 From Status Tracking to Power Navigation

Human social life, like that of other primates, is organized by power-related behavior rather than abstract mindreading. Across many social settings, what matters first is not simply what another individual believes, but where that individual stands in relation to others. People occupy different positions: some have higher status, some have decision-making authority, some control resources, and some depend on others. Social cognition therefore begins with status tracking. To understand a social situation, one must first know where others stand relative to oneself and to each other.

These positions matter because people are not treated in the same way, and their possible actions are not equally available, across different social positions. The same action can have different consequences depending on whether it comes from a superior, a peer, a subordinate, or a high-status group member. In workplaces, teams, classrooms, and peer groups, people adjust what they say, how directly they act, whom they challenge, and whom they accommodate according to relative position.

Once social life is understood as organized by relative position, power dynamics become central. Unequal positions shape what is possible, risky, acceptable, or advantageous in interaction. Much of everyday social behavior consists of navigating these asymmetries: avoiding punishment or exclusion, gaining support, maintaining status, challenging authority, or rebalancing one's position. Social cognition is therefore better understood as the tracking of status and the navigation of power dynamics, rather than as a general capacity for abstract mindreading.

5.2 Relative Position as the Backbone of Social Dynamics

The reason relative position matters is that it shapes what people can do, how their actions are interpreted, and what consequences those actions produce. Whether the context is competition, cooperation, negotiation, hierarchy, or coalition formation, interaction is shaped by who holds leverage, who defers, whose preferences carry weight, and whose actions constrain the options of others. Relative position therefore functions as the organizing structure of social interaction.

This perspective clarifies the relation between power and status. Both are forms of relative position, but they capture different aspects of social dynamics:

- **Power** — the actual relative position in the system, determining one’s true capacity to influence outcomes.
- **Status** — the perceived relative position in the system, reflecting how others collectively see and treat that capacity.

This is especially clear in many of the most representative problems of social life, including bullying, discrimination, clique formation, exclusion, and status competition. These problems are not primarily failures to infer hidden beliefs. They arise because people occupy unequal positions, and those positions determine who can dominate, exclude, protect, reward, punish, or define the terms of interaction.

Domain	Representative behaviors
Coordination and Alignment	Leadership, delegation, alliance formation, group conformity
Attention and Visibility Management	Status display, reputation signaling, social comparison, impression management
Access and Boundary Regulation	Inclusion, exclusion, threat, discrimination, gatekeeping
Norm and Value Stabilization	Group identification, labeling, virtue signaling, value affirmation
Influence and Contingency Management	Influence, persuasion, manipulation, bullying

Table 2 Relative position as the backbone of everyday social behavior. What appears as many different aspects of social life can be traced back to a common structure: relative position.

5.3 Tracking Status to Navigate Social Asymmetry

In real-world social settings, humans track status because social interaction is rarely symmetrical. Relative position shapes what people can say, what they can demand, whom they can challenge, whose support matters, and which actions carry risk. Status tracking therefore helps individuals estimate the asymmetries that structure a situation and adjust their behavior accordingly.

Humans detect status through two complementary channels:

- **Proxy-based recognition.** Status is often inferred from visible public indicators of relative position, such as wealth, titles, institutional rank, credentials, or follower count. These cues function as cognitive shortcuts for locating others within a social structure. Because they are visible, they can also be manufactured, inflated, or overvalued.

- **Interaction-based recognition.** Status is also inferred from interactional patterns, such as who initiates, who defers, who interrupts, who receives attention, who is protected, and who is ignored. These patterns reveal how status is enacted in real time, even without formal labels. They function as dynamic cues for estimating relative position within the ongoing interaction.

Together, these channels allow humans to map social asymmetry efficiently. Proxy-based cues provide fast public indicators of relative position, while interaction-based cues reveal how status is enacted in real time. Status tracking therefore functions as a practical system for estimating relative position and guiding behavior within ongoing social interaction.

5.4 Social Inference as Strategic Goal Inference

Once social interaction is understood through relative position, the central object of inference is not another person’s hidden mental state, but what that person is trying to achieve within a given social structure. Goals matter because they connect position to action, while mental states often remain difficult to translate into practical response.

In real social situations, knowing what another person wants, what they are trying to secure, or what outcome they are moving toward can change how one responds. Social cognition therefore depends on strategic goal inference: tracking what others are trying to achieve and how those goals shape action, advantage, and response.

6 Discussion: Real-World Emotional Understanding Is Less Reliable Than Assumed

Emotional understanding illustrates the same problem. Humans can often recognize highly visible emotional expressions, especially when the signal is strong and the context is clear. Yet everyday emotional states are frequently ambiguous. People may suppress emotions, conceal vulnerability, exaggerate reactions, or display emotions they do not actually feel. As a result, emotional understanding is less stable and reliable than is often assumed.

7 Conclusion

Theory of Mind has been treated as a foundation of social cognition, but its conceptual boundaries and empirical reliability remain unclear. Across humans and other social species, mental-state inference is often unstable, context-dependent, and error-prone. By contrast, status recognition and power-relevant behavior are more robust, action-guiding, and widely observed across species. We therefore propose that social cognition is better understood as the tracking of status and the navigation of power dynamics, rather than as abstract inference of hidden mental states.

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Competing interests

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Data and code availability

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Author contributions

The author conceived the study, developed the central argument, and wrote and revised the manuscript.

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