# Predictive Perception in Autism

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## Abstract:

Autistic people are often perceived as having 'deficits' in social communication, yet recent frameworks such as the double empathy problem suggest these challenges arise from mutual misattunement between autistic and non-autistic people. This study examined how neurotype awareness modulates predictive social perception, asking whether beliefs about an actor's neurotype influences how their actions are interpreted. Drawing on predictive coding theory and second-person approaches, we tested whether perception of goal-directed actions is shaped not only by sensory cues and prior expectations, but by the identity of who is believed to be seen.

Using an action prediction paradigm, both autistic and non-autistic participants viewed videos of actors (either autistic or non-autistic) reaching toward or withdrawing from objects after hearing verbal statements of intention ("I'll take it"/"I'll leave it"). They then judged the perceived final hand position on a touch-screen. Participants completed three blocks: first, without knowing the actor's neurotype (unaware), and then two counterbalanced with explicit neurotype information (aware).

Results revealed robust predictive biases across all participants, consistent with previous literature of action and intention-based effects. However, only non-autistic participants exhibit reduced predictive bias when they were made explicitly aware that the actor was autistic, indicating a weakened integration of verbal intention cues when aware of actor neurotype. Autistic participants responses remained stable regardless of actor identity or awareness, suggesting a reduced susceptibility to identity-based modulation. Trait-level differences paralleled this, with those who show fewer autistic traits being more influenced by neurotype awareness in intention-based predictions.

These findings support predictive coding accounts of autism, while highlighting how social identity may bias perception, specifically for non-autistic observers. The results contribute perceptual-level evidence toward the double empathy problem, demonstrating that social misattunement may be asymmetric and contextually modulated. This experiment advances the second-person perspective on predictive perception, suggesting that awareness of the neurotype of interacting partners could impact autistic sociality, while also challenging individual deficit-based narratives.