Implicit and explicit recursive mindreading

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Pragmatic accounts of the evolution of human communication stress the importance of the ability to read other minds as an essential evolutionary precursor to human communication (Sperber 2000, Tomasello 2008, Scott-Phillips 2010). This understanding includes iterated representations of others' beliefs in the form of "I know that you know that I know...". According to these authors, recursive mindreading is necessary to initiate ostensive communication (Sperber 2000). Stiller and Dunbar (2007) and Kinderman et al. (1998) have shown that humans are able to correctly track mental states well into the fifth level, after which they observed a decline in the ability to track further iterations of intentionality. However, in these studies recursive mindreading depended on the comprehension of linguistically complex questions, whereas in more naturalistic settings it is often carried out implicitly and is not verbalised. For example, in Shakespeare's *Othello* or the TV show *Friends* (Crane et al. 1999) the audience can keep track of higher levels of mental representation without having to explicitly express the relationships between actors. Instead, their intentions are expressed through their interactions with each other (van Duijn 2012).

Therefore, C. O'Grady and I have devised a methodology in which participants are presented with an acted version of the stories used by Kinderman et al. (1998) and Stiller and Dunbar (2007). To avoid tapping participants' verbal comprehension, they will be presented with a forced-choice task consisting of different story endings. To ensure that the results are comparable to previous research, we will also replicate the methodology used by Kinderman et al. (1998). We hope to establish whether iterative mindreading is constrained by limitations of theory of mind, as previous research suggests, or whether humans are able to represent higher levels of intentionality, when probed non-verbally.

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