

A Reading of
Henry M. Wellman's
From Desires to Beliefs: Acquisition of a Theory of Mind

Wellman's paper is concerned with the mental representation of human agency, roughly describing the mental image we have of other human agents as a system that incorporates desires and beliefs into actions. This follows the general idea of most of the frameworks we have seen so far. His particular approach to theory of mind is a developmental one, following Dennet's classification of intentional psychology into internal state systems and proper theory of mind.

The main argument is that belief enters a child's theory of mind around the age of three. This is established by both showing that three-year old children do have the desire-belief concept of mentalization, and that younger children do not. Instead the latter use an internal (behavioral) system to represent other agents' mental states. This corresponds, according to Wellman, to a desire-only representation.

First off, it is worthwhile to note that the developed theory of mind Wellman presents is a stripped down version of the one described by Blackwell in the same book, although it would be more accurate to say that Blackwell builds on Wellman's model. Wellman should therefore be credited at least for that.

While the precise developmental aspect of theory of mind is not of paramount interest to us (in particular the age issue), we might be able to utilize the conceptually evolving order of desire-only and belief-desire systems to infer on an order of complexity between the two. In other words, understanding that beliefs are of a higher order than desires (at least in child development) might give us clues as to the structural hierarchy of such representations in artificial agents.

Wellman's evidence for existence of a belief-desire mechanism is structured well and carefully controlled. I find his evidence for the lack thereof in younger children less convincing. This might be due to the fact that the only evidence actually produced for this is only by reference and through word-analysis. His word-analysis data seems more prone to argumentative distortion, and is also particularly frail when dealing with such an early verbal age.

Instead I do believe that a belief based theory of mind is in place from a younger age -

possibly from early infancy, but also that this may be difficult to experimentally measure, allowing for evidence to be diagnosed to fit either theory. Still, this paper has great value in formalizing the belief-desire theory of mind, and serving as a base for the very good desire-attention-belief framework presented by Blackwell, which in turn looks extremely promising for the design of collaborative machines.