

## Science News

... from universities, journals, and other research organizations

Save Email Print Share

### How One-Year-Olds Can Recognize Beliefs of Others

*ScienceDaily* (Feb. 23, 2012) — The question as to when children become able to attribute mental states such as beliefs and desires to others is answered differently by different tests. A new model by Bochum's philosophers now integrates seemingly contradictory empirical findings. Prof. Dr. Albert Newen and Dr. Leon de Bruin from the Institute of Philosophy II at the Ruhr-Universität explain their theory in the journal *Cognition*. In the first year of life, children already have a basic "theory of mind," that is, they are capable of distinguishing their own beliefs from those of others. At the age of four, this capacity is fully developed. According to the Bochum model, this development is guided by two interacting systems.



Researchers use the false belief test in order to find out whether children can distinguish between their own beliefs and those of others. (Credit: Copyright © RUB, Marion Nelle)

#### See Also:

#### Mind & Brain

- Child Psychology
- Child Development
- ADD and ADHD
- Intelligence
- Educational Psychology
- Gender Difference

#### Living Well

#### Reference

- Belief
- Theory of cognitive development
- List of cognitive biases
- Cognitive dissonance

#### Contradictory results: "false belief" test with and without language

The test: Sally puts her ball into a basket and goes for a walk. Now Anne appears, takes the ball from the basket, and places it in a box. Then Sally comes back. Where will she look for the ball -- in the box or in the basket? The results of the "false belief" test have so far shown that four-year-old children are able to put themselves into Sally's shoes and give the correct answer: "in the basket." Younger children, by contrast, simply attribute their own belief to Sally and answer incorrectly: "in the box." However, non-verbal versions of the false belief test indicate that they expect Sally to look for the ball in the basket. For example, seven to twelve month-old infants look reliably

longer when Sally looks in the box instead of the basket.

#### Bochum dual-system theory

Newen and de Bruin postulate two "theory of mind" systems. Newen explains: "We assume that infants initially establish an association between Sally, the object, and the location of the object, which is based on the observation of Sally's activity." According to the model, this is enabled by the association module. An operating system then allows the infant to update this association in the light of new information. When Sally returns, the operating system inhibits the infant's own belief that the ball is in the box, and selects another belief that is based on her former perception of Sally putting the ball in the basket. As a result, she expects that Sally will look for the ball in the basket.

#### Interacting Systems

According to the Newen and de Bruin's dual-system theory, the association module and the operating system interact from the beginning of life. This allows young children to form increasingly complex associations by observing the actions of others. The theory distinguishes three kinds of associations. Young infants initially develop action-based associations; they understand others in terms of their movements towards objects. Afterwards, perception-based associations emerge: Children become capable of understanding another agent on the basis of his or her visual perspective. Finally, they learn to understand others in terms of symbol-based associations. Children are only capable of passing verbal versions of the false belief test when they have mastered this last stage. Before this point, however, they may already succeed on non-verbal versions of this test, as these only require simpler association formats. "We developed the details of this theory while keeping a close eye on recent empirical findings," said Newen. "We have also advanced the philosophical discussion by presenting a fundamental theory about a basic capacity -- namely, the understanding of other people."

Share this story on [Facebook](#), [Twitter](#), and [Google](#):

#### Ads by Google

**ELUGA Smartphone** — Call for Fresh Style: Das neue wasserfeste Panasonic Smartphone. [smartphones.panasonic.eu/de](http://smartphones.panasonic.eu/de)

**Android-App-Programmierer** — Jetzt im Fernkurs alles zum Thema Android-App-Programmierung lernen! [sgd.de/Android-App-Programmierer](http://sgd.de/Android-App-Programmierer)

**iPhone 4S + o2 Blue S** — Ihr neues iPhone mit Wunscharif bei o2 im Onlineshop bestellen! [www.o2online.de](http://www.o2online.de)

**Try a multi-rater EQ test** — 360 degree feedback - the only reliable way to test EQ [appraisal360.co.uk/EQ-Test](http://appraisal360.co.uk/EQ-Test)

**Business Intelligence** — Improve margins, reduce costs, minimize risks with our help [www.btelligent.com](http://www.btelligent.com)

#### Related Stories

**Doctors Often Don't 'Get' Their Patients, Study Finds** (July 26, 2010) — Physicians are often poor judges of their patients' health beliefs, according to a new study. However, physicians' understanding is better the more patients are involved by asking questions, ... > [read more](#)

**An Underlying Cause for Psychopathic Behavior?** (May 27, 2010) — Psychopaths are known to be characterized by callousness, diminished capacity for remorse, and lack of empathy. However, the exact cause of these personality traits is an area of scientific debate. ... > [read more](#)

**Believers' Inferences About God's Beliefs Are Uniquely Egocentric** (Dec. 1, 2009) — Religious people tend to use their own beliefs as a guide in thinking about what God believes, but are less constrained when reasoning about other people's beliefs, according to a new ... > [read more](#)

**Autistic Children Recognize Stereotypes Based On Race And Sex, Study Suggests** (June 19, 2007) — Children with autism, who are unable to grasp the mental states of others, can nonetheless identify with conventional stereotypes based on a person's race and sex, researchers recently reported in an ... > [read more](#)

**Sexism and Gender Inequality** (Dec. 13, 2011) — Individual beliefs don't stay confined to the person who has them; they can affect how a society functions. A new study looks at 57 countries and finds that an individual's sexism leads to gender ... > [read more](#)

#### Ads by Google

**Expat Health Insurance** — Quick, Easy Compare

#### Just In:

Scientists Wrest Partial Control of a Memory

> [more breaking science news](#)

#### Social Networks

Recommend and share this story on [Facebook](#), [Twitter](#), and [Google +1](#):

Like Send 8 likes. Sign Up to see what your friends like.

Tweet 2 Follow @sciencedaily

Recommend this on Google

Other bookmarking and sharing tools:

#### Breaking News

... from [NewsDaily.com](#)

Debris prompts space station crew to seek shelter

Ariane rocket heads for International Space Station

Paul Allen gives \$300 million to expand brain research

Electric car revolution faces increasing headwinds

Space tourism set for takeoff by 2014, FAA says

[more science news](#)

#### In Other News ...

Obama visits tense Korean border ahead of nuclear summit

Afghan killing spree suspected to occur in two stages

Rallies held around country for Trayvon Martin

U.S. World Bank pick to win broad support: Geithner

James Murdoch severs all ties with UK newspapers

Brazil may shift jurisdiction of Chevron case

SEC demands Wells Fargo comply with subpoenas



Like 8 Tweet 2 0

Other social bookmarking and sharing tools:

| 8

#### Story Source:

The above story is reprinted from materials provided by [Ruhr-Universitaet-Bochum](#), via [AlphaGalileo](#).

*Note: Materials may be edited for content and length. For further information, please contact the source cited above.*

#### Journal Reference:

1. L.C. De Bruin, A. Newen. **An association account of false belief understanding.** *Cognition*, 2012; DOI: [10.1016/j.cognition.2011.12.016](https://doi.org/10.1016/j.cognition.2011.12.016)

Need to cite this story in your essay, paper, or report? Use one of the following formats:

- APA Ruhr-Universitaet-Bochum (2012, February 23). How one-year-olds can recognize beliefs of others. *ScienceDaily*. Retrieved March 26, 2012, from <http://www.sciencedaily.com/releases/2012/02/120223103631.htm>
- MLA

*Note: If no author is given, the source is cited instead.*

**Disclaimer:** This article is not intended to provide medical advice, diagnosis or treatment. Views expressed here do not necessarily reflect those of ScienceDaily or its staff.

#### Search ScienceDaily

Number of stories in archives: 116,304

Find with keyword(s):

Enter a keyword or phrase to search ScienceDaily's archives for related news topics, the latest news stories, reference articles, science videos, images, and books.

TOP Providers Expatriate Health Insurance Quotes  
[www.ExpatFinder.com/Instant-Quotes](http://www.ExpatFinder.com/Instant-Quotes)

**Executive MBA** — Follow a Top Executive MBA at Maastricht University (NL)  
[www.maastrichtuniversitymba.com](http://www.maastrichtuniversitymba.com)

**Notebooksbilliger.de** — Deutschlands großer Notebook-Shop mit saugünstigen Preisen!  
[www.notebooksbilliger.de/Notebooks](http://www.notebooksbilliger.de/Notebooks)

**Psychology PhD** — Earn Your Psychology PhD Online. Request for Information!  
[WaldenU.edu/Psychology](http://WaldenU.edu/Psychology)

**Einstein was Wrong** — Evidence proves Relativity false, revealing cause of gravity & light.  
[filedby.com/author/al\\_mcdowell/](http://filedby.com/author/al_mcdowell/)

U.S. soldier in Afghan killings charged with 17 counts of murder

[more top news](#)

Copyright Reuters 2008. See [Restrictions](#).

#### Free Subscriptions ... from ScienceDaily

Get the latest science news with our free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

[Email Newsletters](#)

[RSS Newsfeeds](#)

#### Feedback ... we want to hear from you!

Tell us what you think of ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

Your Name:

Your Email:

Comments:

Click button to submit feedback:

[Save](#) [Email](#) [Print](#) [Share](#)

[About ScienceDaily®](#) | [Editorial Staff](#) | [Awards & Reviews](#) | [Contribute News](#) | [Advertise With Us](#) | [Privacy Policy](#) | [Terms of Use](#)

Copyright © 1995-2011 ScienceDaily LLC — All rights reserved — Contact: [editor@sciencedaily.com](mailto:editor@sciencedaily.com)

*Note: This web site is not intended to provide medical advice, diagnosis or treatment.*

**Part of the iVillage Your Total Health Network**