Supplements for the manuscript ‘Variation in gaze understanding across the life span: A process-level perspective’

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# Lifespan

## Participants

(#tab:lifespan\_sample)

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| Age group | n | Age mean | Age range | Age SD |
| --- | --- | --- | --- | --- |
| 3.00 | 19 (7 female) | 3.62 | 3.04 - 3.99 | 0.31 |
| 4.00 | 17 (9 female) | 4.45 | 4.05 - 4.91 | 0.30 |
| 5.00 | 22 (13 female) | 5.56 | 5.08 - 5.99 | 0.31 |
| 6.00 | 24 (16 female) | 6.50 | 6.1 - 6.99 | 0.28 |
| 7.00 | 39 (20 female) | 7.48 | 7.04 - 7.95 | 0.25 |
| 8.00 | 41 (20 female) | 8.46 | 8.03 - 8.98 | 0.27 |
| 9.00 | 56 (29 female) | 9.46 | 9.01 - 9.96 | 0.28 |
| 10.00 | 35 (22 female) | 10.49 | 10.01 - 11 | 0.28 |
| 11.00 | 54 (26 female) | 11.43 | 11.01 - 11.96 | 0.28 |
| 12.00 | 43 (19 female) | 12.41 | 12.01 - 12.99 | 0.30 |
| 13.00 | 42 (19 female) | 13.50 | 13.09 - 13.99 | 0.27 |
| 14.00 | 20 (14 female) | 14.37 | 14.05 - 14.98 | 0.23 |
| 15.00 | 21 (11 female) | 15.56 | 15.05 - 15.98 | 0.30 |
| 16.00 | 19 (10 female) | 16.51 | 16.17 - 16.97 | 0.24 |
| 17.00 | 19 (10 female) | 17.53 | 17.01 - 17.95 | 0.28 |
| 18.00 | 2 (0 female) | 18.00 | 18 - 18 | 0.00 |
| 19.00 | 5 (4 female) | 19.00 | 19 - 19 | 0.00 |
| 20.00 | 40 (25 female) | 23.02 | 20 - 29 | 2.77 |
| 30.00 | 40 (21 female) | 34.42 | 30 - 39 | 3.00 |
| 40.00 | 40 (24 female) | 44.17 | 40 - 49 | 2.92 |
| 50.00 | 40 (21 female) | 54.38 | 50 - 59 | 3.04 |
| 60.00 | 40 (21 female) | 63.73 | 60 - 69 | 2.56 |
| 70.00 | 40 (20 female) | 72.75 | 70 - 79 | 2.44 |

# Computational cognitive model

## Imprecision by target position

![(#fig:fig1)Gaze funnel for adult sample with higher trial number.](data:application/pdf;base64,)

(#fig:fig1)**Gaze funnel for adult sample with higher trial number**.

# Components of gaze understanding

## Theory of mind battery

|  |  |  |  |
| --- | --- | --- | --- |
| **Task name** | **Author** | **Description** | **Material used** |
| Diverse Beliefs | Wellman & Liu, 2004 → Wellman & Bartsch, 1989; Wellman et al., 1996 | Child sees a toy figure of a girl and a sheet of paper with bushes and a garage drawn on it. “Here’s Linda. Linda wants to find her cat. Her cat might be hiding in the bushes or it might be hiding in the garage. Where do you think the cat is? In the bushes or the garage?” This is the *own-belief* question., If the child chooses the bushes: “Well, that’s a good idea, but Linda thinks her cat is in the garage. She thinks her cat is in the garage.” (or vice versa) Then the child is asked the *target* question: “So where will Linda look for her cat? in the bushes or in the garage?”, To be correct, the child must answer the target question opposite from his/her answer to the *own-belief* question. | Toy figure of girl, Sheet of paper with bushes and a garage (e.g., garden) |
| Knowledge Access | Wellman & Liu, 2004 → Pratt & Bryant (1990), Pillow (1989) | Children see a nondescript plastic box with a drawer containing a small plastic toy dog inside the closed drawer. “Here’s a drawer. What do you think is inside the drawer?” (The child can give any answer she/he likes or indicate that she/he does not know). Next, the drawer is opened and the child is shown the content of the drawer: “Let’s see…it’s really a dog inside!” Close the drawer: “Okay, what is in the drawer?”, Then a toy figure of a girl is produced: “Polly has never ever seen inside this drawer. Now here comes Polly. So, does Polly know what is inside the drawer?” (*target* question) “Did Polly see inside this drawer?” (*memory* question”, To be correct, the child must answer the target question “no” and answer the memory control question “no”. | Toy figure of another girl, Plastic box with drawer, Toy dog |
| Contents False Belief | Wellman & Liu, 2004 → Perner, Leekam, & Wimmer, 1987; see also Wellman et al., 2001 | The child sees a clearly identifiable band-aid box with a plastic toy pig inside the closed band-aid box. ‘‘Here’s a band-aid box. What do you think is inside the band-aid box?’’ Next, the band-aid box is opened: ‘‘Let’s see … it’s really a pig inside!’’ The band-aid box is closed: ‘‘Okay, what is in the band-aid box?’’ Then a toy figure of a boy is produced: ‘‘Peter has never ever seen inside this band-aid box. Now here comes Peter. So, what does Peter think is in the box? Band-Aids or a pig? (the *target* question) ‘‘Did Peter see inside this box?’’ (the *memory* question). To be correct the child must answer the target question ‘‘band-aids’’ and answer the memory question ‘‘no.’’ | Toy figure of a boy, Band-aid box , Toy pig |
| Explicit False Belief | Wellman & Liu, 2004 → Wellman & Bartsch, 1989; Siegal & Beattie, 1991 | Children see a toy figure of a boy and a sheet of paper with a backpack and a closet drawn on it. ‘‘Here’s Scott. Scott wants to find his mittens. His mittens might be in his backpack or they might be in the closet. Really, Scott’s mittens are in his backpack. But Scott thinks his mittens are in the closet.’’ ‘‘So, where will Scott look for his mittens? In his backpack or in the closet?’’ (the *target* question) ‘‘Where are Scott’s mittens really? In his backpack or in the closet?’’ (the *reality* question). To be correct the child must answer the target question ‘‘closet’’ and answer the reality question ‘‘backpack.’’ | Toy figure of another boy, Sheet of paper with a children’s room with a backpack and a clost on it |
| Perspective-Taking Level 2 | Flavell et al., 1981 | Picture of a turtle is placed horizontally on the table between the child and experimenter, so that it appeared upside down (or right side up) from the child’s side and right side up (or upside down) from the experimenter’s. The child’s task is to indicate in which of these two orientations it appeared to the experimenter (“standing on its feet” or “lying on its back”). | Picture of a turtle |
| Perspective-Taking Level 2 | Flavell et al., 1981 | Children are shown a horizontally placed picture of a worm lying between a red blanket and a blue blanket. The child was then asked if the worm appeared to the experimenter, seated opposite, to be lying on the red blanket or on the blue blanket. | Picture of a worm between two blankets |

## Model comparison

# References