ManyBabies2 Lab Manual:

Infant Theory of Mind: Knowledge vs. Ignorance

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Project OSF repository: https://osf.io/jmuvd/#!
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Thank you for contributing to *ManyBabies*, a large-scale, collaborative network of infancy researchers with the aim of promoting replication and best practices in developmental science. If you would like to learn more about the broader ManyBabies project, please check out the website.

ManyBabies 2 (MB2), is a multi-lab project studying a fundamental feature of human social cognition: Theory of Mind (ToM) or the ability to ascribe mental states to agents. We examine whether 18- to 27-month-olds' and adults' anticipatory looks distinguish between two basic forms of an agent's epistemic states: knowledge and ignorance. More details about the background, design and hypotheses can be found in the **Registered Report**. This manual will provide instructions on how to implement the experiment in your lab and report data back to the project as a whole.

Contributing data to this project or helping with the planning and logistics in any major way will result in authorship on this publication. For more information about ManyBabies authorship policies and guidelines, please refer to the Authorship section of the ManyBabies General Manual. For project-specific questions about authorship, please contact your Project Leads.

To-do summary

1. Complete the **Initial Sign-Up Form**.
2. Sign up for the MB2 listserv here for major project announcements. Do not forget to confirm your membership after receiving the welcome email.
3. Read this manual start to finish.
4. Before you begin data collection, please ensure that you have carefully read all of the documentation regarding authorship and ethics.
5. Before you begin data collection, set up your study in consultation with this document. Carefully record any needed deviations from the protocol. Decide on your planned age group and sample size/stopping rule.

This project manual template is adapted from the ManyBabies 1 Big Manual, the ManyBabies 4 Big Manual, and the Primary Manual for ManyBabies 3 (The ManyBabies Consortium)

6. Before you begin data collection, complete the **Laboratory Questionnaire** (serves as your lab's preregistration) and submit Ethics approval and a copy of your demographics questionnaire if you are not using the recommended form (via this laboratory questionnaire). Please also upload the walkthrough-video and translations of the demographics questionnaire via the corresponding Google Drive folders (walkthrough-video here and translations of demographic questionnaire here).
7. Run pilot sample (**as comma delimited csv file (**note that this is not the standard in many EU countries, so if you get an error from the validator, you might need to change the ";" into "," in your csv files**)**) through our data validator (there are two different data validators for MB2, one for toddlers "mb2_toddlersubjects" and one for adults "mb2_adultsubjects") and send the Lab Participant Data (e.g., lmumunich_pilot_toddlers_participantdata) as .csv file AND the raw eye-tracking data (e.g., lmumunich_pilot_toddlers_eyetrackingdata) as .tsv or .csv file the ManyBabies2 Coordination-Team (manybabies2@gmail.com).
8. **Wait** for your official "green light" from the leadership team to begin data collection.
9. Collect your data!
10. Complete your participant data files in consultation with the data reporting instructions.
11. Complete the data submission checklist and submit your data.
12. After you submit your data, complete the MB2 CRedIT reporting form that asks you to report your contributions to the project. *Anyone who will be an author on the MB2 manuscript must complete this form.* You will also receive a post-test survey that asks about your lab practices during data collection.

IMPORTANT: DO NOT begin data collection (other than piloting) until you have been explicitly "green-lighted" to do so.

Table of Contents

Getting started

Start and End Date

Data collection is scheduled for the period **08/22 - 08/23**. Labs may join the ManyBabies2 project anytime during the data collection period, provided that set-up and a formal “green light” is obtained, and data collection can be completed before the end date. However, we understand that there may be disruptions to data collection due to the current global situation related to the coronavirus outbreak. If you are having trouble meeting this timeframe, please alert the leadership team to discuss possibilities.

General Ethics Guidelines

ManyBabies projects are committed to best practices and high ethical standards, they follow the Declaration of Helsinki (version of 64th WMA General Assembly, Fortaleza, Brazil, October 2013) without exception. This includes, but is not limited to:

a. Data will only be shared with informed consent or when fully anonymized.

b. Participation by research participants must be both voluntary and informed.

In addition, participating laboratories are expected to follow the ethical and legal standards of their country of operation, granting agencies and institutional policies.

Ethics approval

Each participating lab must provide a copy of an ethics (e.g., IRB, REB) certificate **before beginning the study**, demonstrating that they have received approval to participate in the project.

It is a good idea to get started on your ethics approvals as soon as possible. Approvals must be in place and a copy submitted to the leadership team via the laboratory questionnaire before you can obtain a green light to collect data. Contact our **ManyBabies2 Coordination-Team** (manybabies2@gmail.com) if you need advice on obtaining ethics approval.

The following **data types** will be collected:

- Pseudonymized demographic information. For details see the **demographics questionnaire for children** or the **adult demographics questionnaire including debriefing**.
- Raw gaze data, obtained either with an in-lab eye-tracker or with a web-based eye-tracking tool (note: sharing of video-recordings of participants is not mandatory).
- Your lab's meta data, e.g. test date, name of Experimenter. For details see the **Lab Participant Data Template**.

We strongly encourage labs (where possible) to store/share video recordings of their testing on Databrary, which is a secure site for the purpose. You will need to ensure that you have ethics and/or GDPR approval in place to do this, and collect consent from your participants. In addition, you will have to become a member of Databrary, which will require approval from your institution, so it's helpful to start this process early. You can begin the registration process here.

Upload a copy of your Ethics approval documentation:
Ethics documentation should be submitted prior to data collection. Ethics forms should be uploaded via the laboratory questionnaire. ***Please ensure that all materials uploaded for ethics are clearly labeled in the filename with the lab ID you identified for your lab in the***

laboratory questionnaire (e.g. lmuMunich_ethics.pdf). Check here for a complete listing of lab IDs to confirm yours.

Participants and Recruitment

Age and numbers

- The minimum expected contribution is 16 participants (who meet eligibility criteria and are not excluded by a session-level error, see below "Eligibility and Exclusions") either children or adults (we suggest an age-group of 18-55 years). If you want to test more than 16 participants, please aim to go onwards in steps of 16 (meaning 16, 32, 48, 64, …). However, if you realize that you can not finish the second (or third, …) set of 16, please just test as many participants as possible. Please ensure that if you test children AND adults, that you have at least 16 participants per age group (i.e., you can test 16 children and 16 adults or 16 children and 32 adults, but not, for example, 8 children and 8 adults).
- If you decide to test children:
    - To avoid an unbalanced age distribution in the children sample, sign up for testing at least one of the two age ranges and ensure approximately equal distribution of participants' age in their collected sample if possible
        - Age range 1: 18-22 months (548-699 days)
        - Age range 2: 23-27 months (700-822 days)
    - Here are some examples of how you can distribute:
        - 16 participants: 8 children in age range 1 and 8 children in age range 2 OR 16 children in age range 1 OR 16 children in age range 2
        - 32 participants: 16 children in age range 1 and 16 children in age range 2 OR 32 children in age range 1 OR 32 children in age range 2 OR 24 children in age range 1 and 8 children in age range 2 OR 8 children in age range 1 and 24 children in age range 2
    - If you are unsure about the distribution, please contact our **ManyBabies2 Coordination-Team** (manybabies2@gmail.com)

    - Please report the exact age in days. You can use an online tool such as: https://www.calculator.net/age-calculator.html to calculate the time between birth date and testing date
- If you are unable to recruit your full targeted sample size or test additional participants, we ask that you still submit your data and describe why you terminated data collection early/late. It is critical that your decision to stop data collection is not based on the data itself (i.e., whether your data is trending in a certain direction).

- While we very much encourage as much participation as you can spare, it is crucial to the success of the project that you treat our study with the same care as you would any other study in your lab with respect to recruitment procedures, timing of data collection, and

RAs/RA training. Please do not commit to providing data to ManyBabies if this level of care is not possible.

Eligibility and Exclusions

Eligibility

Please try to determine participants' eligibility **prior** to scheduling them in the ManyBabies study to avoid testing ineligible participants. For example, if you schedule on the phone, please ask parents whether the child fulfills the eligibility criteria before making an appointment. If you schedule via an online sign-up you could inform about eligibility criteria in the scheduling email. However, if a participant's non-eligibility only becomes apparent when they are already in the lab, test them anyway (to not make the parents or the child uncomfortable). Please enter their data and clearly mark this exclusion in the "exclude_session" column of your data file with the corresponding reason (i.e., e.g., not full-term or diagnosed developmental disorder).

- ***Full-term.*** We define full-term as **37** weeks or more gestation.
- ***Typical Development***. No diagnosed developmental disorders (medical syndromes) that would plausibly impair performance in the task (e.g., neurocognitive or genetic disorders).
    - Medical Issues will be self-reported in response to the question "Does your child have any current medical issues and/or diagnosed conditions (e.g., medical syndromes, neurocognitive or genetic disorders)?"
    - Developmental disorders will typically be self-reported in response to the question "Have you, your pediatrician, or anyone else close to the child ever expressed concerns about your child's development? ". "At risk" due to the presence of a condition in a sibling (without further reasons for concern) would not typically on its own be cause for exclusion.
    - A physical development disorder would ***not*** be an exclusion criterion unless it prevents appropriate responding during testing (e.g. difficulty turning the head, significant visual impairment).
- ***Normal hearing:*** Hearing impairments will be self-reported in response to the question "Does your child have any problems with hearing?" or a comparable expression whatever the lab uses typically.
    - A history of ear infections is **NOT** on its own a criterion for exclusion
- ***Normal seeing:*** Seeing impairments will be self-reported in response to the question "Does your child have a known vision problem?" or a comparable expression whatever the lab uses typically.

Exclusion (for more detailed information and examples see Reporting human and technology mishaps and toddler "fuss-outs")

We distinguish between **session-level errors** and **trial-level errors**.

Session-level errors: Session level errors are those which result in **discarding the data completely and/or when the familiarization session was not completed**.

Trial-level errors: Once the infant completed familiarization, every fuzz out counts as a trial-level error, even if there was no usable data in any of the test trials.

First-session/second-session policy

Some laboratories have the practice of testing babies in more than one study during the same visit. '***First session***' refers to babies tested soon upon arrival to the lab, prior to participating in any other studies. '***Second session***' refers to any testing that is done after the first session.

- ⇒ **Please contribute 'first session' toddlers when possible**. It is possible that second session toddlers will contribute worse/weaker/different data with respect to the larger goals of determining effect sizes.
- ⇒ **Please label 'second session' toddlers** appropriately if toddlers were run in a different study on the same visit prior to their participation in MB2. Please also document the nature of the study run prior to MB2 for all 'second session' participants (e.g., "7 minute study of object categorization using eye-tracking").

Setting up the experiment

Experiment Overview

Once the participant is seated, the experimenter will initiate the eye-tracker specific calibration procedure. Additionally, we will present another calibration stimulus before and after the presentation of the task.

Each participant will view **4 familiarization trials**, followed by **2 test trials** (one *knowledge*, one *ignorance* trial). Each familiarization trial lasts approx. 36 to 38 seconds. The first test trial lasts approx. 40 seconds and the second test trial 1.40 minutes.

During **familiarization**, after a brief chasing introduction, the chasee enters an upside-down Y-shaped tunnel with a box at both of its exits. The chasee then leaves the tunnel through one of the exits and hides in the box on the corresponding side. Subsequently, the chaser enters the

tunnel (to follow the chasee) and approaches the box in which the chasee is hiding and knocks on it. Then, the chasee jumps out of the box and the two briefly interact.

In **test trials**, the chasee first hides in one of the boxes, but shortly thereafter the chasee leaves this box and hides in the second box, at the other tunnel exit. Critically, the chaser either witnesses (*knowledge condition*) or does not witness (*ignorance condition*) from which tunnel exit the chasee exited and thus where the chasee is currently hiding. Finally, the chaser enters the tunnel but does not appear in either exit. Rather, the scene "freezes" for four seconds.

We will vary the starting location of the chasee (left or right half of the upper part of the scene) and the box the chasee ended up (left or right box) in both familiarization and test trials. The presentation of the familiarization trials will be counterbalanced in two pseudo-randomized orders.

VoE Spin-off
As part of the spin-off to the main MB2-study (MB2-Pupil) we want to add a final scene (60 seconds) at the end of the study, i.e., after the final video was presented, which shows the chaser exiting the tube either on the side where the chasee is currently hiding (chasee-box-side) or on opposite side (empty-box-side). This sequence would be added for the main study in order to test the concurrent validity of using measures of pupil dilation and looking time. Importantly, the proposed spin-off would not interfere with the already established study design! But it would require all participating labs to make sure that the very last video participants see contains the final resolution scene. There are four experimental conditions based on two experimental factors with two levels each: knowledge vs. ignorance and chasee-box-side vs. empty-box-side. The main hypotheses are as follows:

- Hypothesis 1: Children will show **greatest** pupil dilation in the **knowledge condition** when the chaser exits the tube on the side of the empty box. This is the only condition, in comparison to the other three conditions, where the resolution of the sence is in fact *knowledge incongruent.*
- Hypothesis 1b: In the **knowledge condition**, children will show **greater** pupil dilation when the chaser exits the tube empty-box-side compared to the chasee-box-side.
- Hypothesis 1c: In the **ignorance condition**, children will show **similar** pupil dilation when the bear exits the tube empty-box-side compared to the chasee-box-side.

For more details, please see:

https://docs.google.com/document/d/1ImFSOOzvcWXCiXH_4_xNzjYH63XNcgPel8Tuf15qOsw/edit

Equipment

We assume you will use one of the following procedures to run this study:

(1) Eye-tracker (Tobii, EyeLink, SMI, ASL, Mangold or a different company, with appropriate software from the eye-tracker or custom software)
(2) Web-based eye-tracking: There will be an option to use a custom WebGazer setup. The method is currently validated by the ManyWebcams project. Here you can find the **Manual for the MB2-WebGazer Setup**.

We also assume you know how to set up looking-time studies on your equipment. If that is not the case, or if you need help (regarding Procedure, Software or other systems), support is available from our **ManyBabies2 Coordination-Team** (manybabies2@gmail.com). We'll do our best to help out.

Please also **check your eye tracker's point zero coordinate** (e.g., in Tobii Pro you can find the information by choosing "data export", then under eye-tracking data you will find Gaze point 2D, which will be the raw gaze coordinate.
Please **check that the stimuli are presented centered on the screen** (and **NOT** fit to screen). This information will be in the Display area Coordinated System with 0,0 being the upper left for Tobii Pro Fusion 120Hz) and have it ready to enter it into the **Lab Participant Data Template** for each participant.

Stimuli

There are five video stimuli (calibration, attention getters, calibration check, familiarization stimuli, test stimuli). All materials are available in our **google drive folder**.

IMPORTANT:

- **Before data collection the administration team will assign you to your testing bin(s) (depending on your planned sample).** Please make sure to test one child per each counterbalancing order that you are assigned to. In case you either want to test more or less children than previously thought please contact the administration team.
- **If you use a Tobii, SMI or Eyelink eye-tracker we will provide you with a sample project** that already includes the videos in the right counterbalanced order for your test bins (and also includes attention getters and calibration, see below). We can also provide you with a **Psychopy** version of the experiment.

Stimulus presentation order

1) 5-point Calibration
2) Calibration Check

3) Black/White Screen (Pupil Calibration)
4) Familiarization Trials
    a) Fam Trial 1
    b) BlackScreen 1000ms
    c) Fam Trial 2
    d) BlackScreen 1000ms
    e) Fam Trial 3
    f) BlackScreen 1000ms
    g) Fam Trial 4
5) Attention Getter
6) Test Trial without ending
7) Attention Getter
8) Test Trial with ending (the ending consists of the bear entering the tunnel on one side, followed by a 60 sec still-frame, this is on purpose and part of the VoE Spin-off)
9) Attention Getter
10) Calibration Check

Counterbalancing table

Note that before data collection the administration team will assign you to your testing bin(s) (depending on your planned sample).
Here is the full counterbalancing table.

- The total 64 counterbalancing possibilities are subdivided into 4 bins (each consisting of 16 counterbalancing orders).

Details of the stimuli:
Important: all stimuli should be presented centered to the screen and NOT fit to screen.

Calibration

- Eye-tracker specific 5-point calibration.

Attention Getter

- The attention getter is available **here.** It is a circular fixation stimulus alongside a simple tune. It is presented before each test trial.

Calibration check

- The stimulus can be found **here**. It is an animated star (with sound), moving and stopping at 4 locations (dimensions: 720 x 576 pixels). It is presented in the beginning (after the calibration) and in the end (after the last test trial). This stimulus is used to

check the calibration accuracy of the eye tracker, and eventually correct for it. (Click here for more information.)

Black/white Screen

- The stimulus can be found **here**. It is used for the pupil calibration and is presented after the calibration check.

Familiarization Trials

There are 4 familiarization trials available **here**. Each participant will see all 4 trials.

- FAM_RR.mp4: Mouse starts on the right and ends up in right box
- FAM_RL.mp4: Mouse starts on the right and ends up in left box
- FAM_LR.mp4: Mouse starts on the left and ends up in right box
- FAM_LL.mp4: Mouse starts on the left and ends up in left box

Presented in pseudo-randomized trial order. Two parallel versions to counterbalance for trial order:

- Trial Order A: FAM_LR – FAM_LL – FAM_RL – FAM_RR
- Trial Order B: FAM_RL – FAM_RR – FAM_LR – FAM_LL

To separate the different familiarization videos we ask you to add a blackscreen of 1000ms between the familiarization videos.

Test Trials

There are 24 videos for the test trials: 8 videos without an ending (4 ignorance, 4 knowledge) and 16 videos with an ending (8 ignorance, 8 knowledge).

- Each participant will see two test trials, i.e. one knowledge and one ignorance video in counterbalanced order. The **first** test trial will be shown without an ending, the **second** test trial will be shown with an ending (the chaser either exiting on the chasee-box-side or the empty-box-side). You can find the test trials without an ending **here**, and the test trials with an ending **here**.

- **First (critical) test trial version** = Test trials **without** ending:
  - IG_RR: IG = ignorance condition, RR = the chasee starts on the right and exits the tunnel on the right
  - KNOW_LR: KNOW = knowledge condition, LR = the chasee starts on the left and exits the tunnel on the right
  - …

- **Second test trial version** = Test trials **with** ending:
  - IG_LL_ExitRight_CON: IG = ignorance condition, LL = the chasee starts on the left and exits the tunnel on the left, ExitRight = the chaser exits on the right, CON

= Congruent outcome, because the chasee and the chaser both end up on the right
    - KNOW_RL_ExitLeft_INC: KNOW = knowledge condition, RL = the chasee starts on the right and exits the tunnel on the left, ExitLeft = the chaser exits on the left, INC = incongruent outcome, because the chasee ends up on the right and the chaser on the left
    - …

Piloting and other non-primary data

Labs might wish to pilot their design on a small number of infants in order to work out problems with the setup and allow experimenters to practice the protocol. **Piloting with this purpose is indeed encouraged and we ask every lab to pilot 3 participants of their chosen age group (children and/or adults).**

- It is critical to the integrity of the ManyBabies project that **these pilot data are carefully differentiated from your main contribution.** You do **NOT** need to report pilot data in your spreadsheet, but if you do, please ensure that you properly mark them as such in the designated Pilot column.
- You must make an explicit decision to begin non-pilot data collection at a particular date. After piloting, please wait until green light before you start to collect non-pilot data. After the green light only non-pilot data should be collected. **The decision to start collecting non-pilot data cannot be retroactive, and cannot be based on inspection of the pilot data**.

Some labs might plan to test additional babies beyond the primary sample, including babies who are preterm, additional manipulations, etc. These data will not be included in our primary planned analyses, and will not count toward the minimum contribution, but these additional datasets are welcome, and we encourage researchers to preregister other hypotheses regarding these populations. You are free to publish these “side studies” on your own terms, but please keep in mind the restrictions on publishing the main dataset if you are using it as a comparison/control sample (see policy in **authorship guidelines**).

Procedure

Please adhere to the following specifications for conducting this study. If any of the following technical specifications are not possible for your lab, please clearly describe your planned deviation (and the reason for it) in your laboratory questionnaire prior to green-lighting.

Instruction

Please check that the **stimuli (videos) are presented centered on the screen**!

Children:

- The infants sit either in a high chair/car seat or on the caregiver's lap.
- The caregiver should not look at the screen (wear black glasses, close eyes or look down on child's head)
- Instruct parents NOT to point to the screen, interact with their child, shift their bodies, or move their chairs if the child is inattentive. If the child tries to engage them they should respond as neutrally as possible ("uhum", etc).
- In order for the pupillometric data to be reliable, please ensure that the lighting conditions do not change throughout the session (i.e. do not open curtains or switch lights on or off while recording) and that no light source other than the screen is placed in view or in front of the child. Lamps and lights should be on the ceiling or placed behind the participant.
- Please inform the caregiver that the last video will stop and a still image will be shown for approx. 60 seconds, which is part of the experiment (and not a technical error). The experiment will end after the star calibration video.

Adults:

- Adult participants will be seated on a chair within the respective appropriate distance from the monitor.

For both age groups there is no further instruction than *"watch what happens on the screen"*.

Collecting participant information

We aim to integrate our testing procedure with your lab's procedure as much as possible. But there is some amount of information that we need to gather in a standardized fashion.

- **Participant information**: **This spreadsheet** shows the information we need about each participant. Please use the **Demographic Questionnaire (for children)** to collect the information on child participants and the **Adult Demographic Questionnaire**. You are welcome to adapt the format as long as the wording is not changed, except as noted:
    - Please keep the wording as similar as possible to ensure consistency in reporting.
    - Translations into other languages are available **here**. If you create a new translation, please add it! Please label the file "MB2_DemographicQuestionnaire__[language]".
    - If you need to make changes other than as indicated above, please contact the leadership team to discuss your concerns.
    - Let us know if any of the questions are unclear to you - it is important that you are able to answer any questions the participants may have. Please also check the participants' answers to avoid blank responses.

If you modify any of the wording in the form, please upload a blank copy of your form to **this** google drive folder. ***Please ensure that your form is clearly labeled in the filename with the lab ID you identified for your lab in the laboratory questionnaire (e.g. lmumunich_background.pdf).***

General lab practices

Training research assistants

You are responsible for implementing rigorous training practices. Research assistants should be held to the same high standards for ManyBabies as they would be for your main studies. You are free to have any number of research assistants conduct the test sessions, but please document which research assistant tested a given participant (using code names such as RA1, RA2, etc. if you wish). You will be asked to report about your standard training practices (e.g., how/when do you determine it's okay for a research assistant to test real participants) in the lab questionnaire.

Greeting families

You can greet families, explain the study, obtain informed consent, and conduct the appointment as you normally would.

Explaining study to parents

You can explain the study to the parents in your own way (as you normally would). Here are two examples (here and here) of what you can say/send to the parents.

Compensating families

You can provide gifts, cash, travel reimbursement, taxi rides, or other incentives for participation as you normally would.

Walkthrough video

If you have not completed a walkthrough video for ManyBabies1, or your procedure has substantially changed, you should complete a walkthrough video describing your lab processes. Instructions can be found **here.**
Here you can also find an example video from the Göttinger Kindsköpfe lab for the MB2 procedure.

Upload your walkthrough video:
Walkthrough videos should be uploaded to this **here**. ***Please ensure that your video is clearly labeled in the filename with the lab ID you identified for your lab in the laboratory questionnaire (e.g. lmumunich_walkthrough.mpg).*** After uploading your video please make sure to set the access rights according to your preferences.

Prior to data collection checklist

- ☐ **Complete the Initial Sign-Up Form (if you have not already done so).**
- ☐ **Confirm ethics approval uploaded:** Make sure that a copy of your lab's ethics approval is uploaded via the laboratory questionnaire. If you plan to share participant videos via Databrary, you should also make sure you are getting proper consent for video sharing.
- ☐ **Confirm walkthrough video uploaded:** Make sure that a copy of your lab's walkthrough video is in this google drive folder.
- ☐ **Complete the Lab Questionnaire:** Make sure someone from your lab has filled out the Lab Questionnaire with details about your laboratory. **The leadership will be notified of your submission of the Lab Questionnaire after which they will start the approval process**.
- ☐ **Use pilot data** into the right format for submission **using the validator** (see details below) to check data validity**,** label these file(s) in the filename with the lab ID you identified for your lab in the laboratory questionnaire (e.g. lmumunich_pilot_toddlers_participantdata) and send the .csv file and your raw eye-tracking data (labeled e.g. lmumunich_pilot_toddlers_eyetrackingdata) to the ManyBabies2 Coordination-Team (manybabies2@gmail.com).
- ☐ **Wait until you receive an official go-ahead from Project Leads before you begin testing.** We may have questions for you about your planned protocol deviations.

During data collection

Restarts, recalibration (eye-tracker) and pauses

Any pauses in the procedure can potentially lead to an erasure of the weak memory trace for the familiarization stimuli (Gerken, p.c. noticed a loss of effect if there is a 30+ second pause between familiarization and test phase). Therefore, we ask:

- **NO RESTARTS.** Do not restart any trials, regardless of short looking, fussiness, experimental error, etc. Very short trials will be excluded centrally during the analysis process, but should be fully reported and not repeated.
- **DO NOT RECALIBRATE (eyetrackers)** once the session has started.
- **Pauses:** If toddlers are fussy, it can be necessary to attempt to get them settled. You may use the natural pause of an attention getter to let the parent non-verbally resettle their toddler for a very short time (a couple of seconds, according to your practices). However, longer pauses should result in the cessation of the study.
    - *Suggestion: if the toddler is fussy and you would like to try to continue the experiment after the toddler calms down just so that the parent gets the full*

experience, you are welcome to do so, but this data must be excluded. For these toddlers, you would report any data collected before the actual experiment terminated from fuss-out/inattention, not the repeat or continued demonstration.

Reporting human and technology mishaps and toddler “fuss-outs”

In ManyBabies studies, we do not discard “partial data”. It is important for both reporting purposes and potential secondary analyses to have full information about any “usable” trials, even for participants who did not complete or provide usable data for all 2 test trials. Trial-level exclusions may not result in the exclusion of the participant from the dataset. This counters many labs’ normal internal practices, so please ensure that RAs are fully trained on this element.

We distinguish between **session-level errors** and **trial-level errors**. Most lab-reported errors will be “trial-level” errors. ***If the participant completed familiarization***, please do **NOT** report the participant as a session-level error **EVEN IF THERE WERE NO USEABLE TEST TRIALS**. It is important that you provide a clear and succinct reason for each marked session-level or trial-level error; please classify as one of the listed options where possible. Use the “other” category sparingly and only if absolutely necessary. In the notes column, please provide further succinct but sufficient information so that it is clear why a given trial or infant was excluded (e.g. “mom pointed at the screen in all trials” or ”child fussed out after entering the test room but prior to completing any trials”).

Session-level errors: Session level errors are those which result in **discarding the data completely and/or when the familiarization session was not completed**. Session level errors include:

- Fuss-out after entering the testing room but prior to starting the experiment
- Fuss-out during familiarization, participant did not begin the testing phase
- Parental interference affecting ALL trials (e.g. caregiver chronically failing to comply with experimenter instructions such that the validity of the entire session is in question).
- Experimenter error that makes the *entire session* unuseable (e.g. ran the wrong test session).
- Equipment failure that makes the *entire session* unuseable (e.g. video was not playing properly)
- Failure to calibrate (*eye-trackers only*, as defined by your eye-tracker)
- Toddlers that were tested but were found not meet the inclusion criteria (e.g. preterm infants).

Only in cases where toddlers did not start familiarization (due to fuss-out or equipment/calibration failure) labs are welcome to reschedule the appointment to another occasion; please indicate this in the participant data form.

With regards to session-level errors:

1) Please make sure to include these session-level excluded participants in your participant data file. Data from infants where session-level errors are reported do **not** count towards the minimum sample size.
2) Please do **NOT** mark a participant as a "session-level" error if an infant entered the testing room and completed the familiarization phase even if they provided no usable test trial data.

REPORTING SESSION-LEVEL ERRORS

Please determine whether and to which extent participant exclusion criteria 1-4 apply and add this information to the participants protocol sheet.

1. Participants did not complete the full experiment.
2. Participants' caregivers interfered with the procedure, e.g. by pointing at stimuli or talking to their child.
3. The experimenter made an error during testing that was relevant to the procedure.
4. Technical problems occurred, e.g. data not saved, unable to calibrate eye-tracker, eye-tracker lost signal, data loss due to computer failure, computer crashed during recording.

Trial-level errors: If the toddler completed familiarization, it is important that you report within the Lab Participant Spreadsheet **for each of the test trials** whether it was usable or an error (i.e. to be discarded), regardless of whether there are any other usable trials. Trials with no usable data should have NA marked in their data columns. You will make the decision lab-internally and report whether a trial should be excluded, as well as the reason why. These can include *temporary instances* of issues such as:

- toddler participants' caregivers interfered with the procedure, e.g. by pointing at stimuli or talking to their child
- experimenter error or equipment failure that affects one or more trials but not the entire session
- Transitory infant fussiness involving only a very brief pause in testing (see below for further details on reporting), or fussiness where the infant "fusses out" after the initiation of one or more test trials

With regards to trial-level errors note:

1) For transitory fussiness, ONLY mark the trials on which the infant was actually fussy - further exclusions may be implemented centrally, but it is important that any potentially usable trials after a transitory fussiness period be included in the submitted data. If the infant provides some usable trials and then "fusses out" so that the study is terminated prematurely, please make this clear by writing "NA" on trials that were not given.

2) For trial-level exclusions, please be sure to report the specific trials that were affected. E.g., if the infant was fussy on trial 2 but not trial 1, just trial 2 should be marked as an exclusion.

Peeking and stopping rules

All data should be submitted, even if a baby fusses out during the first trial. In the lab questionnaire, you will document your recruitment practices, your initial plan regarding how many participants you will run and of what type (first session or second session), as well as your stopping rule (e.g., stop when I reach the specified N, stop when the study data collection time ends). If circumstances change, it is possible to change your stopping rule, however, we will ask for documentation of the reasons for any change of plans.

IMPORTANT: It is critical for the integrity of the data analysis that you do NOT base any decisions about how many participants to run on the data being generated in your lab. Our preference is that anyone making decisions about the numbers of participants being run NOT have viewed the emerging data. However, we recognize that this may not be possible. We therefore simply ask that labs to make careful decisions about the number of participants they run, take steps to avoid any such biases being introduced, and be explicit about how those decisions are made.

After data collection

Analysis team contacts for questions about data submission and data preparation (please read text below carefully first!): **ManyBabies2 Coordination-Team** (manybabies2@gmail.com)

Data submission

Data from all participants entering the testing room / booth should be submitted, even if a toddler fusses out before or during the first trial. In the case of fuss-out prior to the test phase, only participant data needs to be reported. This provides valuable information for e.g., secondary analyses regarding fuss-out rates. Data collected after the study has been terminated (e.g. fussy babies who are brought back in for a “second run”) should not be reported. **If you report pilot data make sure this is indicated as such in the Pilot column of the data table.**

Data reporting summary

Below instructions are designed to help you share data with the ManyBabies project team in a format that will minimize analysis errors and maximize the ease of merging datasets from many different labs.

The primary deliverables for the project are two datafiles, filled out by your lab from the templates provided - see section Data dictionaries and links to templates below.

- Lab Participant Data - this will be an excel or TSV file with one row for each participant, providing age, gender, demographic information, notes on the session, notes on trial errors, etc.
    - Lab Participant Data Template for **toddlers**
    - Lab Participant Data Template for **adults**
- Raw eye-tracking data: please share the raw eye-tracking data as .tsv or -csv file. Please select the export options so that the file remains as unchanged as possible (select all possible variables, **no fixation filters**, etc.).

Please take note of the following:

- **These files must use *identical, anonymous* subject identifiers,** according to whatever convention you use in your lab.
- ***These files should be clearly labeled in the filename with the lab ID you identified for your lab in the laboratory questionnaire***
    - **Toddlers: e.g. lmumunich_toddlers_participantdata.csv and lmumunich_toddlers_eyetrackingdata.csv**
    - **Adults: e.g. lmumunich_adults_participantdata.csv and lmumunich_adults_eyetrackingdata.csv**
- As a reminder, all potentially identifying information, including, e.g., birth date and test date, should be stripped from your data file before submission for central processing.
- We prefer TSV data formats (e.g., instructions for exporting from Excel) **PLEASE NOTE that saving in this format will remove any formulas or other non-plain-text features of your spreadsheet.**
- After preparing your data please use the **Data Validator for toddlers and/or adults** to check if the data is in the right format.

ALL DATA YOU COLLECT GOES IN THESE FILES! That means: **don't** exclude data or participants yourself. We will apply all exclusions in the final analysis, so that we can consistently report dropout and exclusions. If a baby doesn't complete the experiment, or if there is an experimenter error, etc., **please give us the data anyway**. We need to tabulate these numbers in an equivalent way across labs, so it's critical that you give us all the data you collect. **ALL participants should be reported in the Participants Data file, regardless of outcome and whether the participant meets the inclusion criteria.**

NOTE: It's *really* important to remember that these files are designed to be read by a computer program, not a person. So anything that violates the template (e.g., variables that aren't of the specified type, formatting, comments, etc.) will not work. For example, the column "lang1_exposure" in the participant data file should contain numbers. If you write "80 to 90" this will cause errors (note: please check questionnaire responses before participants leave the lab to avoid NA responses). If you have questions, comments, or calculations, please communicate directly with the analysis team, rather than embedding them in the data.

Video records of data collection (optional)

If you are sharing videos of your data collection (and this is ***strongly*** encouraged, if it's at all possible given your ethics approval), you can store them in Databrary if you are a member. ***The naming convention for Databrary volumes is "ManyBabies2: yourlaboratorycode" (e.g. "ManyBabies2: lmumunich").*** We ask that you use this naming convention so people can easily search for all the ManyBabies-related volumes.

Data dictionaries

Below are two tables listing all the variables that need to go into the data forms. Please note the following when filling out those forms:

- **Blank entries.** Please do not leave any fields blank. If something does not logically have an answer, or if you did not collect this information, please mark it as "NA".
- **Discards and exclusions.** Decisions regarding discards for experimental reasons will be made centrally and need to be reported consistently, hence it is important to **retain all data from all infants that entered the testing room**.
    - There are two possible kinds of exclusion: session level (exclude all data from this participant from analysis) and trial level (exclude just this trial, e.g. because there was interference or the baby had already fussed out).
    - For clear-cut judgements such as age, please just use the appropriate columns to report the values that would result in exclusion (e.g. "age = 3 years", or an NA value for the looking time).
    - For subjective judgements such as whether the baby was too fussy, the central decision will be made based on the original coder/RA's judgment, since it would be impractical to review comments/videos and make the decision centrally. Therefore, please be very clear (but succinct) in the "trial_error_info" and "session_error_info" fields about whether a given trial should be discarded and why. Ambiguous entries will be problematic for data analysis!
    - **Exclusions for hearing/vision/medical reasons.** If you are unsure, please mark these as "Y" and provide sufficient detail in the "hearing_vision_info"/"cognitive_developmental_info" field for the analysis team to review and categorize centrally. As with all exclusions, it is important to include these in your data if the infant entered the testing room. Infants who were screened out prior to entering the testing room do not need to be reported.

- **RA field**. We are collecting information about which RA ran a given participant for possible secondary analysis about variability in RA coding. As with all our analyses, the goal is not to assess individual performance, but to examine sources of variability. However, you may wish to provide this information as an anonymous code. Like with the participants, the coding scheme is up to you.
- **Language.** If you collect data from children who are learning more than one language, please provide an approximate percentage of exposure to each language, either by parental report, or if it is standard practice in your lab, using a day-in-the-life style questionnaire administered by the RA. The total should add up to 100%.

Template / Data Dictionary - Lab Participant Data

Template for Toddlers:

Variable	Format	Value example(s)	Description
'labid'	[string]	'lmuMunich'	Unique lab identifier (**must match what you chose in the laboratory questionnaire**).
'participant_id'	[string]	'LMU_583' 'LMU_175'	unique ID for the participant: [acronym of your institution, not longer than 4 characters]_[3-digit participant number]
'testing_date'	[integer]	'20220721' or NA	Date of testing, year/month/day, e.g. July 21, 2022 = 20220721 or NA
'pilot'	[string]	'yes' 'no'	yes = pilot data, no = final sample You do NOT need to report pilot data, but if you do, it should be clearly marked here.
'method'	[string]	'In-lab' 'web-based'	
'zero_coordinate'	[string]	'upperleft' 'upperright' 'lowerleft' 'lowerright'	eye tracker's point zero coordinate (e.g. in Tobii Pro you can find the information by choosing "data export", then under eye-tracking data you will find Gaze point 2D, which will be the raw gaze coordinate. This information will be in the Display area Coordinated System with 0,0 being the upper left for Tobii Pro Fusion 120Hz)
'centered_screen'	[string]	'yes' 'no'	Was the video centered on screen?
'test_order'	[integer between 1 and 64]	'3'	Which order was the child in (see https://docs.google.com/document/d/1i0EhXU1LGdwEal3xUSQG3d26bHeC1VTyfvmLFx4k9nU/edit).
'session_error'	[string]	'noerror' 'error'	Sessions with 'error' value will be excluded from the central MB2 analysis. **Do not use this field for individual trial level errors**.
'session_error_info'	[integer between 1 and 4]	'NA' '3'	Explanation of what caused the session error using exclusion criteria 1-4 defined in the lab manual (i.e., 1. Early termination, 2. Interference of caregiver, 3. Experimenter error, 4. Technical problems). Use this field to report a reason that **ALL** data from this participant should be excluded from analysis. Write NA if no session level error.

‘session_error_notes’	[open ended string]	‘Technically a second-session baby, but fussed out of the first study almost immediately, took a 20min break before MB2’	Use this column to report anything that doesn’t fit somewhere else, rather than adding that information in another column.
’second_session’	[string]	‘yes’ ‘no’	Put ‘yes’ if toddlers were run in a different study on the same visit prior to their participation in MB2.
’fam1_error’	[string]	‘noerror’, ‘error’	Familiarization trial 1 with ‘error’ value will be excluded from analysis.
’fam1_error_info’	[open ended string]	NA ‘experimenter error’ ‘too fussy’ ‘parent interference’	NA if no error; suggestions are “experimenter error”, “too fussy” or “parent interference”. Decision-making for whether a given trial reaches the level of exclusion for e.g. fussiness are made by the original coder, NOT centrally, so please do not provide overly detailed or ambiguous information here.
’fam2_error’	[string]	‘noerror’, ‘error’	Familiarization trial 2 with ‘error’ value will be excluded from analysis.
’fam2_error_info’	[open ended string]	NA ‘experimenter error’ ‘too fussy’ ‘parent interference’	
’fam3_error’	[string]	‘noerror’, ‘error’	Familiarization trial 3 with ‘error’ value will be excluded from analysis.
’fam3_error_info’	[open ended string]	NA ‘experimenter error’ ‘too fussy’ ‘parent interference’	
’fam4_error’	[string]	‘noerror’, ‘error’	Familiarization trial 4 with ‘error’ value will be excluded from analysis.
’fam4_error_info’	[open ended string]	NA ‘experimenter error’ ‘too fussy’ ‘parent interference’	
’test1_error’	[string]	‘noerror’, ‘error’	Test trial 1 with ‘error’ value will be excluded from analysis.
’test1_error_info’	[open ended string]	NA	

		‘experimenter error’ ‘too fussy’ ‘parent interference’	
’test2_error’	[string]	‘noerror’, ‘error’	Test trial 2 with ‘error’ value will be excluded from analysis.
’test2_error_info’	[open ended string]	NA ‘experimenter error’ ‘too fussy’ ‘parent interference’	
‘trial_error_notes’	[open ended string]	NA ‘Baby moved around a lot but attentive to stimuli’	Use this field to make any comments about the trial that don’t fit anywhere else (or enter NA if you don’t have anything to say). For instance, if a baby moved around a lot, but was attentive to the stimuli (and you think the trial should still be included), you could note that here.
‘ra_id’	[string]		Unique RA identifier (name or anonymous code).
’caregiver_seat’	[string]	‘caregiver’ ‘seat’	Was the toddler tested in a baby seat or held by a caregiver
‘behavior_caregiver’	[string]	‘glasses’ ‘closed eyes’	Instructed behavior of caregivers to avoid erroneous tracking of their eyes.
’participant_gender’	[string]	‘boy’ ‘girl’ ‘other’ ‘NC’	For this and all other gender columns, use ‘other’ if this (or a similar response) is indicated by the caregiver. Put ‘NC’ if it was left blank by the caregiver or if this data was not collected.
‘age_days’	[integer]	‘582’, or NA	Chronological age in days.Here is an online converter: https://www.timeanddate.com/date/duration.html
’residence_city’	[string]	’Munich’ ’Vienna’	Place of residence (city) of the participant.
’residence_country’	[string]	’Germany’ ’Austria’	Place of residence (country) of the participant.
’nationality’	[string]		Nationality of the participant.

’preterm’	[string]	‘preterm’ ‘term’	
‘gestation_week’	[integer above 0]	‘38’, ‘40’	
‘daycare’	[string]	‘yes’ ‘no’	
‘hours_daycare’	[integer above 0]		Sum of hours the child usually spends in daycare per week (or NA if child is not in daycare).
‘hours_other’	[integer above 0]		Sum of hours the child usually spends somewhere other than with the primary caregivers or in daycare per week (or NA if not applicable).
‘hours_parentA’	[integer above 0]		Sum of hours the child usually spends with parent A per week (or NA if child does not spend time with parent A).
‘hours_parentB’	[integer above 0]		Sum of hours the child usually spends with parent B per week (or NA if child does not spend time with parent B).
‘hours_siblings’	[integer above 0]		Sum of hours the child usually spends with siblings per week(or NA if child does not spend time with siblings).
‘hours_adults’	[integer above 0]	or NA	Sum of hours the child usually spends with other adults per week(or NA if child does not spend time with other adults (not daycare)).
‘hours_children’	[integer above 0]	or NA	Sum of hours the child usually spends with other children per week (or NA if child does not spend time with other children (not daycare)).
‘lang1’	[string]	‘dutch’	Native or most-heard language
‘lang1_exposure’	[integer between 0 and 100]	‘70’	Percentage exposure to lang1. **Note that exposures to all languages for a child should sum to 100!**
‘lang2`	[string]	‘english’ ‘NA’	Second most-heard language. Put NA if they do not have a second language.
‘lang2_exposure’	[integer between 0 and 100]	‘20’ ‘0’	Percentage exposure to lang2. Ex**posures to all languages for a child should sum to 100.** Put NA if they do not have a second language.

`lang3'	[string]	'german' 'NA'	Third most-heard language. Put NA if they do not have a third language.
'lang3_ exposure'	[integer between 0 and 100]	'10' '0'	Percentage exposure to languages 3. Ex**posures to all languages for a child should sum to 100.** Put NA if they do not have a third language.
`lang4`	[string]	'french' 'NA'	Fourth most-heard language. Put NA if they do not have a fourth language.
'lang4_ exposure'	[integer between 0 and 100]	'10' '0'	Percentage exposure to languages 4. Ex**posures to all languages for a child should sum to 100.** Put NA if they do not have a fourth language.
'hearing'	[string]	'yes' 'no'	Put 'yes' if there is potential exclusion based on hearing problems.
'hearing_ info'	[open ended string]		Briefly explain if the previous column is 'yes'. Write NA if the previous column is 'no'
'vision'	[string]		Put 'yes' if there is potential exclusion based on vision problems.
'vision_ info'	[open ended string]		Briefly explain if the previous column is 'yes'. Write NA if the previous column is 'no'
'medical_issues'	[string]	'yes' 'no'	Put 'yes' if potential exclusion based on medical issues/diagnosed conditions.
'medical_issues_i nfo'	[open ended string]		Briefly explain if the previous column is 'yes'. Write NA if the previous column is 'no'.
'development'	[string]	'yes' 'no'	Put 'yes' if potential exclusion is based on development.
'development_inf o'	[open ended string]		Briefly explain if the previous column is 'yes'. Write NA if the previous column is 'no'.
'sibling1_age'	[integer 0 or higher]	'2' 'NA'	For this and all following sibling age columns, put their age in full months accomplished, for example 11 months and 5 days = 11. If they have no siblings, mark as NA.
'sibling1_gender'	[string]	'boy'	If they have no siblings, mark as NA.

		‘girl’ ‘other’ 'NC'	
‘sibling2_age’	[integer 0 or higher]		Age in months.
‘sibling2_gender`	[string]	‘boy’ ‘girl’ ‘other’ ‘NC’	If they have no further siblings, mark as NA.
‘sibling3_age’	[integer 0 or higher]		Age in months.
‘sibling3_gender`	[string]	‘boy’ ‘girl’ ‘other’ ‘NC’	If they have no further siblings, mark as NA.
‘sibling4_age’	[integer 0 or higher]		Age in months.
‘sibling4_gender`	[string]	‘boy’ ‘girl’ ‘other’ ‘NC’	If they have no further siblings, mark as NA.
‘sibling5_age’	[integer 0 or higher]		Age in months.
‘sibling5_gender’	[string]	‘boy’ ‘girl’ ‘other’ ‘NC’	If they have no further siblings, mark as NA.
‘parentA_gender’	[string]	‘man’ ‘woman’ ‘other’ ‘NC’	Use ‘other’ if this (or a similar response) is indicated by the caregiver. Put ‘NC’ if it was left blank by the caregiver or if this data was not collected.
‘parentA_nationality’	[string]		Nationality of the parent A.

‘parentA_native_lang1’	[string]	‘french’ ‘NA’	Native language (if more than one, add others to variables below)
‘parentA_native_lang2’	[string]	‘german’ ‘NA’	Further Native language
‘parentA_education’	[integer 1-20+]	‘18’	Parent A's years of education after Kindergarten (e.g. in the US 12 = finish high school, 14 = finish associates degree, etc.). Here you can find a guideline for converting level of education into years of education.
‘parentB_gender’	[string]	‘man’ ‘woman’ ‘other’ ‘NC’	Use ‘other’ if this (or a similar response) is indicated by the caregiver. Put ‘NC’ if it was left blank by the caregiver or if this data was not collected.
‘parentB_nationality’	[string]		Nationality of the parent B.
‘parentB_native_lang1’	[string]	‘french’ ‘NA’	Native language (if more than one, add others to variables below)
‘parentB_native_lang2’	[string]	‘german’ ‘NA’	Further Native language
‘parentB_education’	[integer 1-20+]	‘18’	Parent B's years of education after Kindergarten (e.g. in the US 12 = finish high school, 14 = finish associates degree, etc.). Here you can find a guideline for converting level of education into years of education.
anything_else	Open ended string	(open ended)	Did caregivers report anything else in the questionnaire?

Template for Adults:

Variable	Format	Value example(s)	Description
‘labid’	[string]	‘lmuMunich’	Unique lab identifier (**must match what you chose in the laboratory questionnaire**).

‘participant_id’	[string]	‘LMU_583’ ‘LMU_175’	unique ID for the participant: [acronym of your institution, not longer than 4 characters]_[3-digit participant number]
‘testing_date’	[integer]	‘20220721’ or NA	Date of testing, year/month/day, e.g. July 21, 2022 = 20220721 or NA
‘pilot’	[string]	‘yes’ ‘no’	yes = pilot data, no = final sample You do NOT need to report pilot data, but if you do, it should be clearly marked here.
‘method’	[string]	‘In-lab’ ’web-based’	
’zero_coordinate’	[string]	‘upperleft’ ‘upperright’ ‘lowerleft’ ‘lowerright’	eye tracker’s point zero coordinate
’centered_screen’	[string]	‘yes’ ‘no’	Was the video centered on screen?
‘test_order’	[integer between 1 and 64]	‘3’	Which order was the participant in (see https://docs.google.com/document/d/1i0EhXU1LGdwEal3xUSQG3d26bHeC1VTyfvmLFx4k9nU/edit).
‘session_error’	[string]	‘noerror’ ‘error’	Sessions with ‘error’ value will be excluded from the central MB2 analysis. **Do not use this field for individual trial level errors**.
‘session_error_info’	[integer between 1 and 4][open ended string]	‘experimenter error’ ‘language exclusion’ ‘NA’‘3’	Explanation of what caused the session error using exclusion criteria 1-4 defined in the lab manual (i.e., 1. Early termination, 2. Interference, 3. Experimenter error, 4. Technical problems). Use this field to report a reason that **ALL** data from this participant should be excluded from analysis. Write NA if no session level error.
‘session_error_notes’	[open ended string]	‘Technically a second-session baby, but fussed out of the first study almost immediately, took a 20min break before MB2’	Use this column to report anything that doesn’t fit somewhere else, rather than adding that information in another column.
’second_session’	[string]	‘yes’ ‘no’	

'fam1_error'	[string]	'noerror', 'error'	Familiarization trial 1 with 'error' value will be excluded from analysis.
'fam1_error_info'	[open ended string]	NA 'experimenter error' 'interference'	NA if no error; suggestions are "experimenter error" or "interference". Decision-making for whether a given trial reaches the level of exclusion are made by the original coder, NOT centrally, so please do not provide overly detailed or ambiguous information here.
'fam2_error'	[string]	'noerror', 'error'	Familiarization trial 2 with 'error' value will be excluded from analysis.
'fam2_error_info'	[open ended string]	NA 'experimenter error' 'too fussy' 'parent interference'	
'fam3_error'	[string]	'noerror', 'error'	Familiarization trial 3 with 'error' value will be excluded from analysis.
'fam3_error_info'	[open ended string]	NA 'experimenter error' 'too fussy' 'parent interference'	
'fam4_error'	[string]	'noerror', 'error'	Familiarization trial 4 with 'error' value will be excluded from analysis.
'fam4_error_info'	[open ended string]	NA 'experimenter error' 'too fussy' 'parent interference'	
'test1_error'	[string]	'noerror', 'error'	Test trial 1 with 'error' value will be excluded from analysis.
'test1_error_info'	[open ended string]	NA 'experimenter error' 'too fussy' 'parent interference'	
'test2_error'	[string]	'noerror', 'error'	Test trial 2 with 'error' value will be excluded from analysis.
'test2_error_info'	[open ended string]	NA 'experimenter error' 'too fussy' 'parent interference'	

‘trial_error_notes’	[open ended string]	NA ‘Participant moved around a lot but attentive to stimuli’	Use this field to make any comments about the trial that don’t fit anywhere else (or enter NA if you don’t have anything to say).
‘ra_id’	[string]		Unique RA identifier (name or anonymous code).
’participant_ gender’	[string]	‘man’ ‘woman’ ‘other’ ‘NC’	For this and all other gender columns, use ‘other’ if this (or a similar response) is indicated. Put ‘NC’ if it was left blank by the participant or if this data was not collected.
‘age_years’	[integer]	‘28’, or NA	Chronological age in years.Here is an online converter: https://www.timeanddate.com/date/duration.html
’residence_city’	[string]	’Munich’ ’Vienna’	Place of residence (city) of the participant.
’residence_countr y’	[string]	’Germany’ ’Austria’	Place of residence (country) of the participant.
’nationality’	[string]		Nationality of the participant.
‘native_lang1’	[string]	‘french’ ‘NA’	Native language (if more than one, add others to variables below).
‘native_lang2’	[string]	‘german’ ‘NA’	Further Native language
‘hearing‘	[string]	‘yes’ ‘no’	Put ‘yes’ if there is potential exclusion based on hearing problems.
‘hearing_ info’	[open ended string]		Briefly explain if the previous column is ‘yes’. Write NA if the previous column is ‘no’
‘vision’	[string]		Put ‘yes’ if there is potential exclusion based on vision problems.
‘vision_ info’	[open ended string]		Briefly explain if the previous column is ‘yes’. Write NA if the previous column is ‘no’

‘medical_issues’	[string]	‘yes’ ‘no’	Put ‘yes’ if potential exclusion based on medical issues/diagnosed conditions.
‘medical_issues_info’	[open ended string]		Briefly explain if the previous column is ‘yes’. Write NA if the previous column is ‘no’.
‘education’	[integer 1-20+]	‘18’	Participant´s years of education after Kindergarten (e.g. in the US 12 = finish high school, 14 = finish associates degree, etc.). Here you can find a guideline for converting level of education into years of education.
anything_else	Open ended string	(open ended)	Did the participant report anything else in the questionnaire?
purpose_experiment	Open ended string	(open ended)	What did the participant report was the purpose of the experiment?
trying_to_study	Open ended string	(open ended)	What did the participant report was this experiment trying to study?
while_watching	Open ended string	(open ended)	What did the participant report he/she was trying to do while watching the videos? Did he/she have any particular goal or strategy?
story_videos	Open ended string	(open ended)	What did the participant report about the story in the videos?
bear_knowledge	[string]	‘yes’ ‘no’	Did the participant report that he/she noticed that the bear sometimes had knowledge about the whereabouts of the mouse when coming back and other times it did not?
bear_knowledge_info	Open ended string	(open ended)	(If ‘yes’) How did this knowledge vs. ignorance come about? (Based on what would the participant say the bear did or did not have knowledge of the mouse?)

Thank you for being part of ManyBabies 2!