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## **Information sheet for legal guardians; LeibnizDream research project study participation of a child**

Dear Parents,

Thank you for your willingness to participate in this scientific study. In the study, we observe children's natural language use in playful situations. Participation is completely safe and should be fun for the children. We expect this study to yield important scientific findings that will contribute to future discoveries that will help children and adults. In this text, we answer questions you probably have, including about who is involved, research under pandemic conditions, the process of the study, and data protection.

**Members of the scientific team:** The members of my team are student or research assistants at the Leibniz Centre for General Linguistics. The student assistants are students at universities in Berlin and Brandenburg who have been selected by me for their suitability and instructed to carry out experiments.

This research is carried out by the Leibniz Centre for General Linguistics (ZAS). The ZAS is a non-university research institute of the State of Berlin under the auspices of the Geisteswissenschaftlichen Zentren Berlin e.V. The LeibnizDream project was selected for funding by the European Research Council (ERC).

In this project we collaborate with Humboldt University of Berlin and the University of Milano-Bicocca.

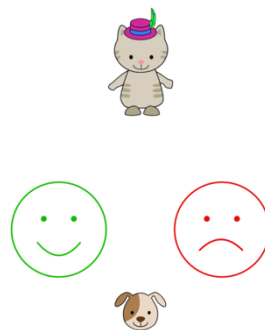
Individual data processing steps are carried out by the service companies Scicoverly GmbH (Paderborn) and Microsoft Germany in compliance with GDPR as part of commissioned data processing.

**Research during the pandemic:** Tests will only be carried out if all performing scientists and the staff of the day care centre are fully vaccinated against the SARS-CoV-2 corona virus. Before each visit to the day-care centre, the scientists carrying out the tests will offer to provide proof of a negative COVID test (not older than 24 hours).

**Procedure:** As soon as a new study is available, we contact the responsible staff at the day care centre and arrange an appointment for our visit. This way, you can find out about our studies in advance at any time. The study then takes place in a quiet area of the facility. Two staff members of the LeibnizDream project will always be on site during the study. The staff of the day care centre has access at all times.

No child has to participate in the study against its own will. Therefore, each child is asked before the start of a study whether he or she really wants to take part. This is done through a child-friendly communication at the beginning of the actual study. If the researchers have the impression that the child wants to stop, they will immediately abort the testing. The childcare workers present can also stop the study at any time.

In the actual study, your child will hear simple sentences over speakers and see pictures to accompany them (such as the picture below this paragraph). Your child then has the task of clicking on something on the screen, observing what is happening or responding to what they hear. E.g. in the picture below: Depending on whether the sentence describes the picture well or poorly, your child should click on the green or red face. The whole study takes no more than twenty minutes.



**Data protection:** The legal basis for the processing of your child's data is Article 6(1)(a) and Article 9 (2) GDPR. We do not collect names or other identifying information in the study itself, but only the anonymous data mentioned below. Personal data from your consent will be kept strictly separate from all research data. The research data will be pseudonymised, analysed and, after a period of time, made publicly available free of charge in a fully anonymised form for non-commercial purposes. Such public availability and secondary use of research data corresponds to the goal of open science. The pseudonymised data will be deleted after ten years at the latest.

As a data subject, you have the right to information, to correction, to deletion, to restricted processing and to transfer of your data in accordance with the GDPR. Please note that once the study is completed, we will no longer be able to associate the anonymous data to your child. Your rights regarding non-anonymised data remain unaffected. We will delete your contact details immediately after the end of the study, unless you have expressly consented to further storage.

We recommend that you take note of the legal information below and keep it for future enquiries and/or complaints.

**Contact and legal information:** The legal basis for processing participant's data is Article 6 (1) and Article 9 (2) of GDPR. The contact details of the main responsible person are Prof. Uli Sauerland, Pariser Str. 1, 10719 Berlin, phone: +49-30-20 192 406, email: sauerland@leibniz-zas.de. If you have any doubts about the lawfulness of the processing of your personal data, you can lodge a complaint with the following offices:

1. Data protection officer of the Leibniz Center for General Linguistics: Jens Neumann, pico engineering GmbH, Oldenburger Allee 25a, 30659 Hannover, Germany, +49 511 165911-77, DSB@pico-engineering.de
2. Member State Supervisory Authority: Berlin Commissioner for Data Protection and Freedom of Information Official Data Protection Officer, Friedrichstr. 219, 10969 Berlin +49 30 13889- 406, behDSB@datenschutz-berlin.de

**Type of data collected:** In the study, the following data will be collected: demographic data, written protocols of the project staff during the testing, the data types marked with a cross ☒ in the paragraphs below, and the combination of that data. Video data will not be collected.

☒ *Keyboard or screen input:* Participants in this study will be asked to complete tasks using the keyboard, mouse pointer or touch screen. The input (e.g. selection of an image, choice of button or text entered) and time of input will be recorded. The following procedure ensures the security and anonymity of the data entered:

- The data is stored on the device during the experiment.
- After the experiment is completed, the data is sent to a secure server in Germany.
- All data will be pseudonymised, i.e. all data will only be linked by a random combination of letters and numbers.
- All recordings by which participants inadvertently or knowingly disclose personal data will be deleted (Note: this does not apply to the demographic information collected before the start of the study. These will be stored separately until the end of the study).

☒ *Eyetracking:* Participants in this study are asked to allow the measurement of eye movements via a camera (e.g. webcam, smartphone camera or tablet camera). A software uses the camera image to determine head position and eye movements. No picture or video recordings are made in the process! The following procedure ensures secure and anonymous eye movement measurements:

- Before the start and during the experiment, the accuracy of the measurement is checked.
- A software calculates the eye positions as X-Y coordinates on the screen.
- Only X-Y coordinates are created and send to a secure server in Germany after the experiment.
- The file with the coordinates is pseudonymised, i.e. it is not given a name, but a random combination of letters and numbers.

☒ *Audiorecordings:* Participants in this study are asked to speak aloud (e.g. in response to a question or when repeating sentences or words). An MP3 sound recording is made via the microphone of the device (e.g. laptop, tablet, mobile phone or headphones with microphone). The following procedure ensures safe and anonymous sound recording:

- The sound is only recorded during the response phases. Participants will always be informed about the beginning and end of the audio recording.
- Participants will be instructed not to disclose their names, addresses or any other information, that could be used to identify them, during the audio recording.
- After the end of the response phase (online) or after the end of the experiment (of- fline), the resulting MP3 files are sent to a secure server in Germany. The data is then anonymised in three steps:
  1. The audio recordings are "pseudonymised", i.e. the files are only linked by a random combination of letters and numbers.
  2. By randomly changing the frequency of the audio recordings, it becomes impossible to identify the participants by their voice in the audio recording.

3. All parts of the recording in which the participants accidentally or knowingly reveal personal data are deleted or replaced by a beep. Likewise, recordings or parts of recordings in which third persons are accidentally heard are deleted.

**Use of this research:** How children manage to acquire the language of their parents is a small miracle that is still poorly understood by science. Only recently has it become clear that children use some words correctly on the surface, but understand them differently from adults.

We hope that our research will contribute to the following three goals and thereby help to improve the educational system:

- Developing better methods for assessing the language ability of children starting school.
- Developing better diagnostic and therapeutic methods for children with language disorders.
- Gaining new insights into child-centred language in preschool and primary education.

These goals are an important motivation for our work. In addition, our personal benefit from this research is solely the scientific recognition we receive from the knowledge gained. We do not plan to use the findings commercially. These student members of our team are being paid for their work and are also gaining important experience in scientific work as part of their education.

I very much hope that I have answered all your questions and that I have been able to convince you to participate in our study. Now and after the study is completed, you and your child will have another opportunity to ask questions to the team member who is in contact with you. If you need any further information, my staff and I will be happy to help you by email or phone.

With best regards,

Uli Sauerland