Babylab CEU

Newsletter 2023

Content

Foreword

A special shout out to those families who were the first to have visited us five times to participate in studies! Thank you!

Dear Parents!

There is nothing more exciting than the developing human mind, and as parents and researchers we thrive to find out what young children understand from the world around them and how they learn most efficiently.

Thank you for contributing to this endeavor and for participating in our research!

After 14 years of running developmental studies in Budapest, our team opened its second research center in Vienna in March of 2022. We were touched by the warm welcome and support we received from the Viennese community. In the last year, more than 500 families have contributed to developmental science by coming to our studies, and many of them have kindly agreed to come back on several occasions.

Without enthusiastic parents who consider developmental research important and volunteer for our studies, and of course the involved children, we would not be able to make any scientific progress in this domain. We are very grateful to everyone who accepted our invitation and got involved.

With your help, we aim to explore a variety of questions that target how babies engage in communication, how they figure out what people think and why they behave the way they do, and what they understand of the speech they hear. In this newsletter, you can read about the different studies that were run in the CEU Babylab last year, as well as about our team and our other activities.

Thank you again for contributing to science and hope to see you next year so that together we can understand our children's development better.

Ágnes Melinda Kovács

Head of the Cognitive Development Center at CEU

Team 1

TEAM

We are the CEU Babylab!

Scientific team

Ernő Téglás
Gergely Csibra
György Gergely
Ágnes Melinda Kovács
Jonathan Kominsky
Barbara Pomiechowska
Denis Tatone
Rachel Dudley
Liza Vorobyova
Dóra Fogd
Eszter Körtvélyesi
Anna Kispál
Barbu Revencu
Bartug Celik
Bálint Varga
Levente Madarász
Maja Blesic
Maria Mavridaki
Laura Schlingloff
Magdalena Roszkowski
Nima Mussavifard
Shany Dror

Staff members

Ágnes Volein
Christina Regorosa
Dorottya Mészégető
Katharina Wenig
Edit Vitrai
Flóra Tósaki

Interns

Chiara Vollmerhausen
Selma Polte

Research Summaries

2

COMPARING EFFICIENCY

How do babies learn to understand the behavior of others?

Researchers:
Barbara Pomiechowska,
Laura Schlingloff

How do babies learn to understand the behavior of others? This can sometimes be a big challenge for the little ones because the people around them do a lot of strange things: even everyday actions such as making coffee are a mystery to an uninformed observer. Why do some people grind coffee beans and froth milk every morning while others just press the button on the capsule machine? Babies are unfamiliar with many of the different activities we engage in, and they can't read our minds to directly grasp the purposes of those activities.

The naive utility calculus

One theory argues that babies use a simple principle when interpreting goal-directed actions: the naive utility calculus. According to this principle, agents behave in a way that they maximize their benefit and minimize their effort. Of course, this doesn't mean that humans really are such rational calculators – we often do things without thinking or against our best interests. The theory merely states that observers use this principle as a basic assumption to explain the behavior of others. This way, we can draw a surprising number of conclusions and even predict how people will probably behave in the future. For example, if I see my colleague going past the nearby coffee machine and coming back later with a cup from a coffee shop further away, I can assume that he places a high value on good-quality coffee – the longer walk is worth it to him. Another example: If there are two Starbucks stores in the area – one 100 meters and the other 1 kilometer away, – it would be strange for my colleague to approach the one being further away: after all, the drinks in a chain should be identical.

Past studies have shown that babies use a rudimentary version of this naive utility calculus: when they see a character moving toward a goal, they expect the character to behave efficiently and take the shortest path possible – in other words, to minimize the cost or effort of their action. In our current study, we want to find out how babies can use the principle to compare different options where one is in some way better than the other (like in the Starbucks example above). To do this, we use eye tracking, a method that allows us to measure where babies look while watching an animated video.

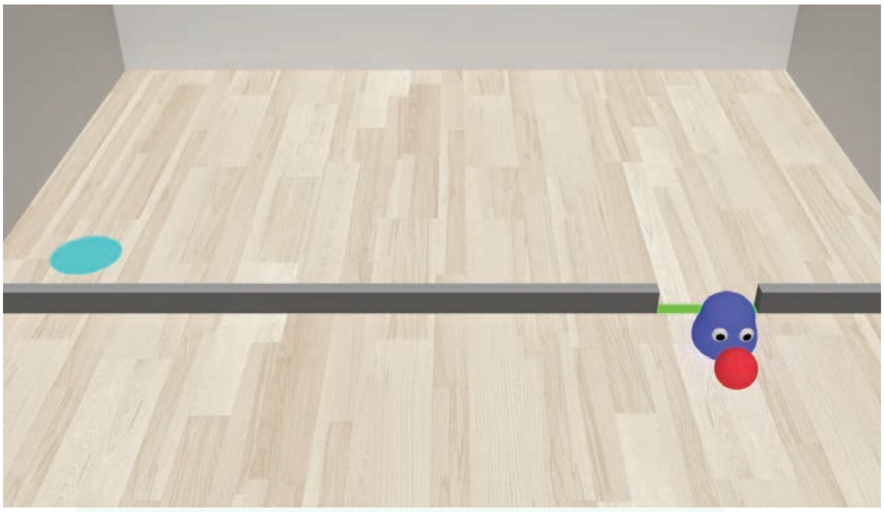


Fig. 1: The blue figure approaches the red ball

Tapping into babies' assumptions

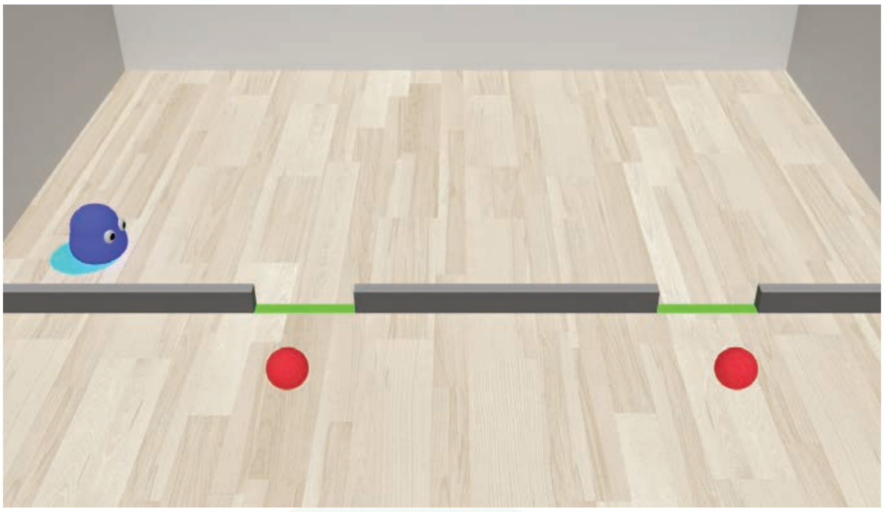
In the movies, babies first see a small, blue figure approaching a target – a squeaky red ball (fig. 1). To do this, the character has to pass through an opening in the wall created by a door sinking into the ground. The ball is sometimes behind a closer door, sometimes behind a farther door. The purpose of these videos is to help babies understand that the character's goal is to reach a red ball and that it always takes the shortest path to get there.

In the critical test films, both doors are present, and there is a red ball behind each of them (fig. 2). The character begins to move as in the previous scenes but stops before it becomes clear towards which ball it is moving. We now measure whether babies tend to look more at the nearer or the further ball as a potential target. If they are using a naive utility calculus, they should expect the character to minimize its effort and aim for the ball that is easier to reach.

One could argue that this gaze behavior would not necessarily mean that babies engage in such rational considerations. Alternatively, it could be the case that babies simply start looking at the moving character, and then let their gaze wander across the rest of the screen from there. In this case, their gaze could also get stuck on the closer ball. To rule out this alternative explanation, we show the babies additional videos, the so-called control films. These are similar to the test films except for one key factor: there are no balls in the scene (fig. 3). If babies rely on a naive utility calculus to interpret goal-directed actions, they should not show any preference between the near and far door in the control films: after all, there is no goal to be reached and for which action costs could be minimized. If, on the other hand, the simpler explanation is correct and babies merely let their gaze wander, they should also fixate on the closer option here, just like in the test films.

Babies expect efficiency

The study showed that babies' gaze patterns indeed differ between the test and control videos: on average, babies prefer to look at the ball that is closer to the agent in the former, while in the latter, they linger on the two doors for roughly the same amount of time. Thus, these data support the theory that babies make comparisons between different possible goal options and the respective costs they would require, and expect agents to choose the "better" option. In the future, we plan to examine the cognitive mechanisms that are used here in more detail.



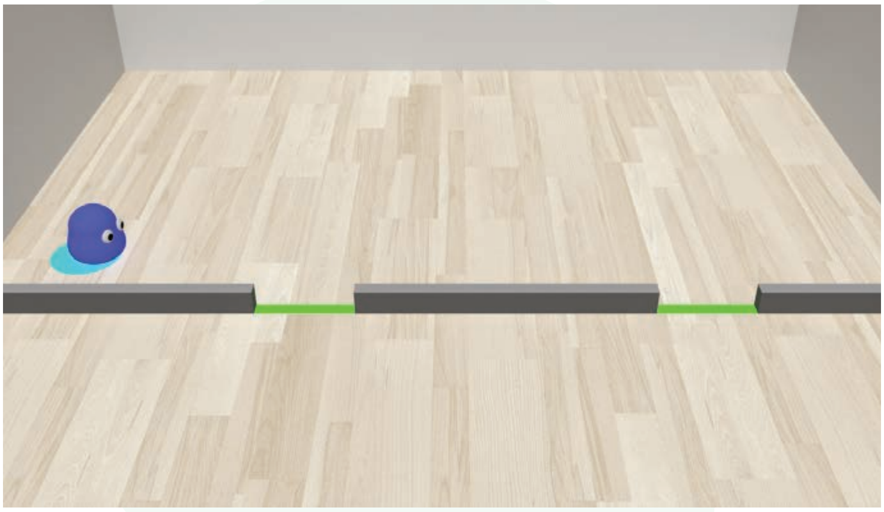


Fig. 2: The critical test film: the figure can choose between two balls
Fig. 3: The control film: there are no balls present

MORAL COGNITION

Do babies prefer prosocial agents?

Researchers:
Denis Tatone,
Laura Schlingloff

Choosing partners is a critical skill for social species who rely heavily on cooperation. Making a good choice requires evaluating the characters of the people around us: for example, we're more likely to succeed if we team up with someone helpful or benevolent. These traits can be inferred by directly interacting with someone, or by observing how they act towards others.

Recent studies (the most well-known published in Nature in 2007 by Kiley Hamlin, Karen Wynn and Paul Bloom) suggest that even infants can make such evaluations when observing others' interactions. More specifically, Hamlin and her colleagues found that babies can distinguish between pro- and antisocial characters and prefer those who help others. These studies gave rise to a flurry of follow-ups and replications, making this by far the most discussed topic in early social cognition.

A multi-lab collaboration

To properly assess the robustness of this phenomenon, a group of scientists set up a major multi-lab replication project within the framework of the *ManyBabies* initiative. The *ManyBabies* consortium brings developmental scientists together to cooperate in data collection and the implementation of best practices. Its joined replication projects aim to rerun studies addressing key questions in the field, with many research groups and families participating worldwide – including the CEU Babylab.

In this study, we tested whether babies between 5.5 and 10.5 months would prefer a prosocial agent over an antisocial one. (We use the general term "agent" as a reference to all beings displaying self-initiated action, including people, animals, cartoon characters and so on.) We presented infants videos featuring one agent (the Protagonist) attempting to climb a hill to get to the top, while being consecutively helped by a character (the Helper) in reaching this goal in some scenes and obstructed by another character (the Hinderer) in others – see the picture on the right. At the end of the study, infants were presented with three-dimensional replicas of the Helper and Hinderer

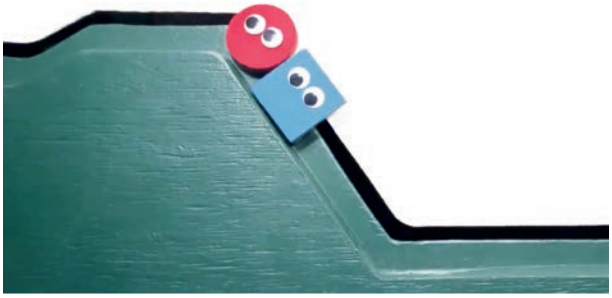


Fig. 1: The Helper (blue) pushes the Protagonist up the hill

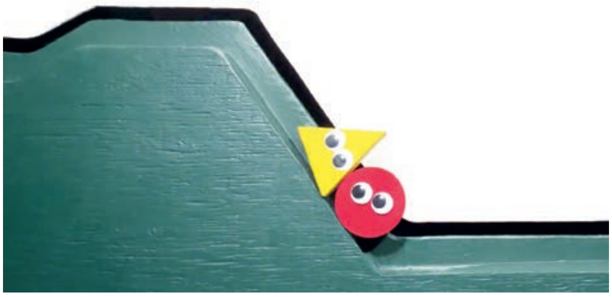


Fig. 2: The Hinderer (yellow) pushes the Protagonist down the hill

in a live interaction and asked which one they liked. The babies could indicate their preference by touching one of the agents.

The results will be analyzed together with data from other contributing labs to produce an empirically sound understanding of whether and at which age this preference for prosocial agents, and the evaluative competence it presupposes, develops.

TRACKING KNOWLEDGE

Do babies understand that other people can form beliefs via communication?

Researcher:
Bartuğ Çelik

Understanding that others' behavior is not only guided by reality, but also by their internal states is one of the crucial abilities shaping our social interactions. Previous research showed that even young babies can track what others can and cannot see, and what knowledge or beliefs they form based on this, which may not always coincide with reality. However, many beliefs are formed through communication and social learning – for example, think of the times another person showed you how to use a new tool or gave you directions. Do young babies also understand that others' beliefs can be shaped based on communication?

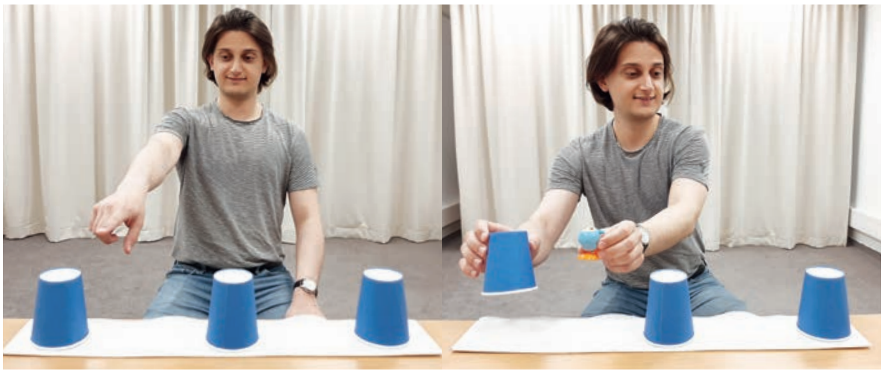


Fig. 1: *A* points at the hiding location of the toy

Fig. 2: *A* removes the toy and hides it in a different cup

We designed an interactive study to test this question with 18-month-old babies. Two researchers played a hiding game with the infant: person A always hid a jumping toy in one of three cups, and B always wanted to find it. Although the baby and person B couldn't see the hiding event itself, person A told them where he put the toy while pointing at the hiding place. Therefore, person B could form a specific belief about the toy's location, but only based on what A communicated.

Would babies share what they know?

To understand whether babies track person B's belief, we asked whether they would correct it when it became false by pointing to the current location of the object. Thus, in the second phase of the study, babies witnessed A changing the location of the toy.

Importantly, in the so-called *true belief* trials, person B was also present, and saw A hiding the toy in another cup – so her belief probably changed along with reality. In *false belief* trials, however, person B left the room before the location change and couldn't see the second hiding. When we witness such a situation, we realize that B probably still thinks the toy is in the original hiding place, and we might even help B finding the toy by pointing to the correct location when she returns. We asked whether infants would react similarly and inform B that the toy is not where she thinks it is.

Both types of trials ended with B approaching the cups, asking the child whether they should continue playing, then remaining passive for about 20 seconds. We measured where and how many times the babies pointed during this response period.

We found that babies pointed more to the location where B believed the toy to be (earlier hiding location) when she could not see the location change. These results suggest that babies understand that beliefs can be formed via communication, and they even take such beliefs into account when communicating with another person. We're currently investigating whether beliefs based on visual evidence would have the same effect on infants' pointing responses.

KNOWING VERSUS BELIEVING

Understanding different degrees of certainty

Researcher:
Anna Kispál

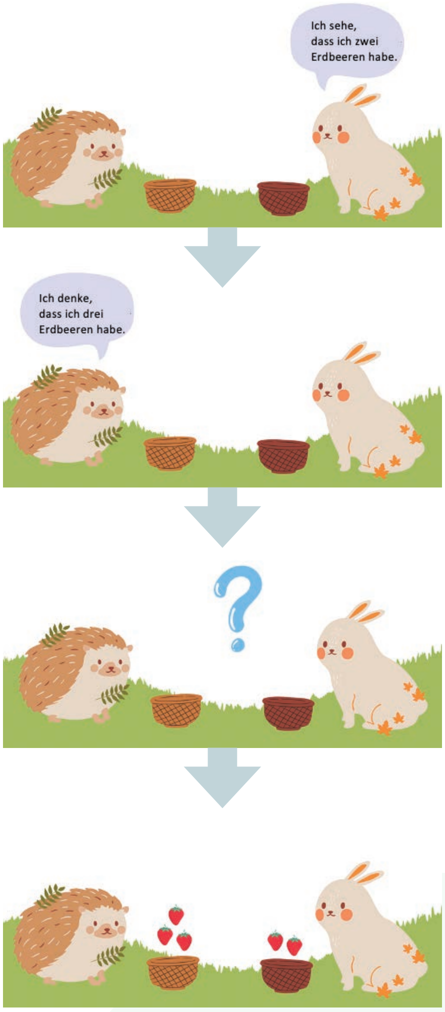


Fig. 1 One round in the game: After the animals indicate how many berries they have, children have to choose the basket with more berries

Information can be communicated in many different ways, and the terms we use influence how others interpret our sentences. By the age of four, children have learned words such as know and think, and they understand their meanings. However, comparing expressions with such words could be difficult for children, as they represent different connections to reality and convey different amounts of certainty. For instance, saying "I know" suggests that my information aligns with reality and that I'm fairly certain of this. On the other hand, "I think" could be used by someone being less certain that they have the correct information.

In our study, we explore how 4- and 5-years old children compare different sentences containing verbs such as know and see versus think and believe. In a game-like task displayed on a tablet, we introduce children to two characters, Bunny and Hedgehog, who went to the forest to collect strawberries. Now they are heading home, but they can only take one of their baskets, and they need the child's help to decide which basket contains more strawberries. The animals always collect one, two, or three berries, so making the decision based on the quantity information alone should be easy for children at this age.

However, the animals use different verbs to inform the child about the number of strawberries they have. We measure how fast children decide which animal collected more berries and whether they are more likely to choose the animal with fewer berries in specific cases.

Less certainty – more difficulty

We predict that if both animals indicate high certainty, for example, Bunny says, "I know that I have three strawberries", while Hedgehog says, "I see that I have two strawberries", making a decision should be relatively easy for children. We also predict that comparing the statements should be a bit harder, but still fast, when one animal thinks while the other believes the information. However, we expect that when one animal uses a verb indicating higher certainty than the other (for instance, if Bunny says, "I know I have one strawberry", while Hedgehog says, "I think I have three strawberries"), and the less certain animal seems to have more berries, children would be slower to make a decision. In such cases, the higher quantity is coupled with less certainty, making the decision-making process more complex if children consider both types of information.

While data collection is still ongoing, preliminary data has shown that children make the fastest decision when the animals use the know and see word pairs. Furthermore, they are the slowest when one animal uses think or believe while the other says know or see, and the less certain animal claims to have more berries, in alignment with our prediction. We have also found that children also choose the animal with fewer berries more often in such cases, which also supports the notion that they factor in the different degrees of certainty when making a decision.

LAUNCH EFFECT

Baby physicists and causal reasoning

Researcher:
Jonathan Kominsky

Starting at 6 months, when babies see an event like the one in figure 1, they understand that the green object is causing the red object to move. One of the ways that we know this is that if they see this event many times, until they get bored of it, they get interested again when they see it played in reverse. When it's played in reverse, red causes green to move. But, they don't get interested again if you show them an event where there is no cause-and-effect relationship, like when there's a long pause between when green stops and red starts moving (see figure 2).

How well do babies understand Newtonian mechanics?

In this study, we were interested in whether 7-month-old babies' understanding of Newtonian mechanics is connected to this ability to understand causality. To do this, we used collision events like the one in the first illustration, but where the red ball moved three times faster than the green ball. These events are physically impossible without some extra force besides the collision, even if green has much more mass than red (you can mathematically prove this with Newton's 3rd law). In earlier work we discovered that babies recognize that these physically impossible events are different from physically possible collisions, but we didn't know if that was because they thought they were a different kind of cause-and-effect event, or if they thought that these weren't cause-and-effect events at all. In other words, did babies still think that green caused red to move, even if the way red moves isn't physically possible from the collision alone?

Babies use their intuition for identifying cause and effect

To test this, we showed them events like in figure 1 and 2, except red moved three times faster than green. Then we showed them the reversed event, where red moves until it touches green, and then green moves three times faster than red. If they thought that green caused red to move, even when there's a physical violation, then they should look longer when the event is reversed, compared to an event with a long delay in the middle (which never looks causal). Instead, we found that they looked equally at the reversed event whether there was a delay or not.

This tells us that 7-month-old infants use their intuitions about Newtonian mechanics to identify whether there is a cause-and-effect relationship in an event. In the big picture, combined with other research from our lab and other labs around the world, this give us important hints about why humanity is so good at understanding cause and effect while most other species, even our close primate relatives, aren't very good at it at all.

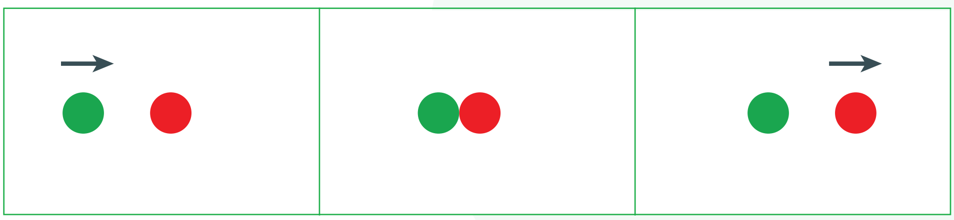
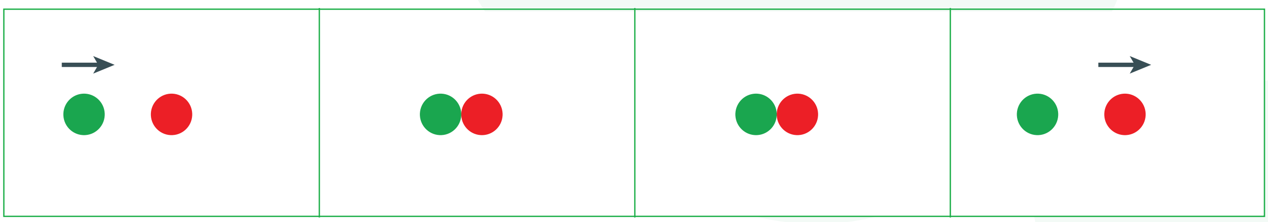


Fig. 1: The green object causes the red object to move – the so-called *launch-effect*.

Fig. 2. There is no clear cause-and-effect-relationship between the green and the red object.



SYMBOLS

Do babies understand that objects can be used as symbols for other things?

Researcher:
Barbu Revencu

Fig. 1a: Beginning of trial: infants see two geometric shapes

Fig. 1b: Labeling: One of the objects is labeled with a familiar noun

Fig. 1c: Test question: Infants are asked about the same noun or a different noun

Fig. 2a: Beginning of trial: infants see two geometric shapes

Fig. 2b: Labeling: One of the objects is labeled with a familiar noun by a female speaker

Fig. 2c: Test question: Infants are asked about the same noun or a different noun by a male speaker

Symbols are widespread in human communication. We create drawings to depict objects, we watch instructional animations to find out how various things work, and we use diagrams to assemble furniture pieces. From about two years of age, young children also engage in symbolic behavior whenever they pretend that an object is to be used as something else: for instance, a banana as a phone, or a pillow as a horse. It is noteworthy that objects often serve a symbolic function only temporarily: for instance, a pillow can represent a horse in one game and a car in another game, while remaining a pillow throughout.

In this set of experiments, we used an eye-tracker to test whether 15-month-olds—an age at which they do not engage in pretend play yet—understand this kind of symbolic relations. We tested this by showing infants two geometric shapes and attributing a familiar identity to one of the shapes (infants heard a female / woman's voice saying "Hi baby, look! A duck!" while a hand was pointing to the shape). Following this labeling episode, infants were asked by the same person to find the same object ("Where is the duck?") or a new object ("Where is the spoon?"). We were interested whether infants would preferentially look to the shape labeled as such when asked to find the same object.

Even though the babies we tested knew what "duck" and "spoon" were, they accepted the labeling of the novel objects stipulated by the adult voice. For instance, when infants were asked where the duck is, they reliably looked at the shape previously labeled as a "duck". By contrast, when they were asked about a new word ("Where is the spoon?"), they had no preference for either of the objects.

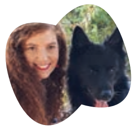
How do babies interpret these symbols?

Since the babies knew what ducks and spoons were, these findings suggest that 15-month-old infants can use novel objects as symbols for known objects. However, it is also possible that infants learned that the shape labeled as a "duck" is actually a duck, even if it does not look like one. On the other hand, if the shape is interpreted as only a temporary symbol of a duck, then infants should not generalize the relation between the shape and "duck" outside the current context. To test this, we ran an identical study to the first one, except that the labeling and the test question were spoken by two different people. If infants did indeed learn that the shape labeled "duck" by the first person is actually a duck, then it should not matter who asks infants about the duck. If, on the other hand, they interpret the shape labeled "duck" by the first person as a (temporary) symbol for a duck, then they should not generalize this symbolic relation to a different person. This is exactly what we found: infants look equally at the two objects if the test question comes from a different person.

These results show that younger infants, like older children, understand that arbitrary objects can be temporary symbols for other objects. Just as older children do not think that pillows are actually horses when playing, younger infants also do not learn from labeling episodes that a geometric shape is a duck. If the person asking about the duck is different from the person who labeled the shape as a duck, they no longer look preferentially to that shape. This suggests both that infants understand symbolic relations very early on, and that these relations are local and do not generalize outside the current communicative episode.

MEMORY

Do gestures help babies recall the names of objects?



Researcher:
Shany Dror

Imagine you are on a walk with your baby and you point toward a dog crossing the street. Does this act of nonverbal communication influence what information the child recalls when looking at the dog? One-year-old babies tend to know quite a few things about dogs already: for example, that they are animate creatures, they can move, they bark, and they are called dogs. Depending on the context, different elements of this knowledge base might be relevant. If we want to play with a dog, it's probably more important to keep in mind that it's an animal than remembering the name 'dog'. In a communicative context, however, names are much more useful. Would pointing – a communicative act – help infants recall the names of things in their environment? Answering this question may give us a better understanding of how infants represent the world around them.

Fig. 1: Babies see someone pointing at a familiar object

The effect of pointing

Since infants cannot talk yet, we cannot directly ask them what comes to their minds when they see someone pointing at a familiar object. We can, however, uncover what they think by using an eye tracker, a special device that records where on a screen a baby is looking, and allows us to measure their language comprehension skills. In this study, we presented 12-month-old babies with a five-minute-long video. We showed them pairs of objects that children at this age likely recognize. In some trials, a hand pointed at one of these objects, say, at a ball (see the picture), and then the baby heard a voice asking either where that object is, or where the other one is (e.g. "Where is the ball?" or "Where is the car?"). In other trials, we simply showed babies a still image of two familiar objects for a few seconds before they heard the question.

We measured how much time passed from when the babies heard the name of the object to when they looked at it and how long they looked at it overall. Preliminary results suggest that pointing helps babies recall the names: they seem to find the named objects faster after pointing than without it. This study is still ongoing and we hope to share our final results with you in next year's edition of the CEU Babylab Newsletter.

LINGUISTIC AMBIGUITY

Children's understanding of plural sentences

Researcher:
Magdalena
Roszkowski

Sentences involving more than one plural expression such as "Two girls fed three cats" have more than one possible interpretation: The sentence may mean that each of the two girls fed three cats, but it also has an interpretation that the two girls fed three cats in total. In this study, we investigate whether preschoolers who do not yet correctly use expressions like "each", "together" or "in total", nevertheless distinguish between those meanings.

Fig. 1: Group 1 | Fig. 2: Group 2 | Fig. 3: Group 3

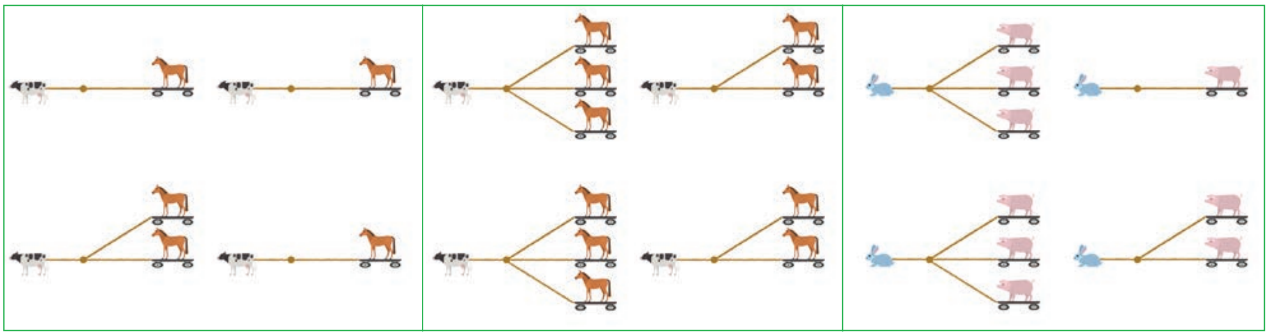


Fig. 1: "in total" / false — Two cows are pulling three horses
Fig. 2: "each" / false — Two cows are pulling three horses
Fig. 3: "each" / "in total" — Two rabbits are pulling three pigs

Matching pictures to learn about children's interpretation

We first present children with an ambiguous sentence, such as "Two cows are pulling three horses", accompanied by two pictures. One picture does not match the description, and the other corresponds to one possible meaning of the sentence. Children get randomly assigned to two groups. In Group 1, one image always corresponds to the interpretation „Two cows are pulling three horses in total" (figure 1), and in Group 2, it corresponds to the meaning „Two cows are each pulling three horses" (figure 2). We ask children to pick the picture that best matches the sentence. If they interpret the numerical expressions correctly and know that the ambiguous sentence can have the respective meaning, they would likely pick the picture that corresponds to one of the possible interpretations.

In the second phase, we pit the two possible interpretations against one another. We present children with another ambiguous sentence that differs in the characters referred to and the numerical properties. This time, the sentence is paired with two pictures, each corresponding to a possible interpretation of the sentence (figure 3).

We expect that if the different meanings of such sentences are available to children, their choice in the first trial will affect their response in the next one. We assume that children in Group 1 would pick the picture corresponding to the meaning „Two rabbits are pulling three pigs in total" more often. In Group 2, we expect a preference for the interpretation „Two rabbits are each pulling three pigs".

Children can already distinguish before being able to verbally express it

Preliminary results suggest that 4-to-6-year-olds indeed distinguish between those meanings, suggesting that children's linguistic knowledge sometimes precedes their correct usage of certain expressions. We will further explore whether children can also distinguish between the meanings described above and an interpretation on which an action is performed collectively (e.g. „Two rabbits are pulling three pigs together").

Publications

3

Publications

ULTRA-SOCIAL INFANTS

New research shows babies' behavior is influenced by beliefs of those around them

A study by researchers Ágnes Melinda Kovács and Dóra Kampis showed that young infants look longer for a potential hidden object in an empty box if another person believes that something is still in there. When everyone present could see that all hidden toys were retrieved from the box, 14–15-month-old infants spent less time searching in it than when another person missed the retrieval of the last hidden object (because they left the room for a minute) and therefore believed that there's still something left to find. This is especially surprising because the person didn't say anything, didn't search in the box herself and her belief was seemingly irrelevant. The researchers think such effects can be explained by the ultrasocial nature of humans, which makes us especially attentive to others' mental states (goals, knowledge, beliefs), even when they can lead to mistakes.

— ***Read more here***
— ***Find the article here***
Kampis, D., & Kovács, Á. M. (2021). Seeing the world from others' perspective: 14-Month-Olds show altercentric modulation effects by others' beliefs. Open Mind, 5, 189–207.

TRACKING POSSIBILITIES

Babies Found to Have Greater Imagination Than Previously Known

Infants as young as 14 months can contemplate several alternatives on their own if they have been exposed to an object that is not clearly recognizable and is open to interpretation, as a recent study by Nicolò Cesana-Arlotti, Bálint Varga and Ernő Téglás has shown. The researchers presented 10- and 14-month-old infants with video animations where three different objects (a doll, a toy elephant and a ball) moved behind two screens. Importantly, all objects in these animations had one thing in common: their upper part looked the same. Thus, when an object emerged from one of the screens but remained in partial occlusion – revealing only its top part, – this object was compatible with a varying number of possible identities. The investigations showed that babies' pupils dilated more when the infants looked at a scene that left several possibilities open than when the object being viewed could be unambiguously identified. This difference in the pupil dilation indicates that babies took multiple possible alternatives into account when they couldn't be sure what they were looking at.

— ***Read more here***
— ***Find the article here***
Cesana-Arlotti, N., Varga, B., & Téglás, E. (2022). The pupillometry of the possible: an investigation of infants' representation of alternative possibilities. Philosophical Transactions of the Royal Society B, 377(1866).

Publications

PICTURES AS SYMBOLS

Researchers challenge conventional view of visual perception: Is it really a horse or the photo of a horse?

Gábor Bródy, Barbu Revencu, and Gergely Csibra argue that people interpret images of objects as symbolss – visual objects through which people communicate with each other. To find out whether photos are just recognized as objects or are interpreted as symbols, the researchers investigated how people interpret photos of toys – small objects that often represent much larger objects.

The authors built on previous studies in which people were shown two photos of different sizes and asked to select which image is larger. People found the task harder when the sizes of items in the photos didn't match their real-world knowledge (e.g., when a photo of a zebra was smaller than a photo of a watermelon). When confronted with toys, however, participants were slow when they saw a small photo of a toy zebra next to a large photo of a watermelon even though this pairing preserves the real-world size difference of the two objects. This shows that people do not merely recognize objects in images, but they interpret them as symbols.

— ***Read more here***
— ***Find the article here***
Brody, G., Revencu, B., & Csibra, G. (2023). Images of objects are interpreted as symbols: A case study of automatic size measurement. Journal of Experimental Psychology: General, 152(4), 1146–1157.

TRUSTING OTHERS OVER SELF

Infants' Unusual Bias Towards Outside Observations

Researchers from Copenhagen University in collaboration with CEU researcher Barbu Revencu found that 8-month-old infants prioritized an animated character's attention over their own in tracking an object's location. The scientists used an animation about a ball being moved behind one screen and then behind another screen. An animated human character also followed the movement of the ball, but only to the first location. The younger babies expected to see the ball in the first location, even though they had seen it being moved to the second location. They prioritized the animated agent's attention to what they saw afterwards. However, by 12 months, children showed signs of transitioning towards trusting their own observations more.

— ***Read more here***
— ***Find the article here***
Manea, V., Kampis, D., Wiesmann, C. G., Revencu, B., & Southgate, V. (2023). An initial but receding altercentric bias in preverbal infants' memory. Proceedings of the Royal Society B: Biological Sciences, 290 (2000).

4 Varia

Events

VISIT

Visiting the Wolf Science Center

The CEU BabylabTeam took a special trip to the Game Park of Ernstbrunn where researchers study the behavior of hand-raised wolves and dogs. Some of the questions they investigate are very similar to what we are aiming to explore, and their work provides insight into the evolution of cognition across different species. The trainers introduced the animals and the methods that they work with, sharing many interesting and surprising details about the wolves. Since they are welcoming research collaborations, we're also looking forward to the opportunity to even work together in the future!

SUPERPOWER

Discover your superpower at the Viennese Science Fair 2022

After two years of break due to the pandemic, the Viennese Science Fair took place from 9th until 11th of September 2022 in the great Vienna City Hall. Over 10 000 visitors could experience hands-on science at over 30 different stations with free admission.

Our lab was also part of this huge research lab and encouraged young scientists-to-be to explore the eye tracker, solve the KiKo-quiz and play cooperation games that we use in our research following our credo of combining research with fun and play!

— ***Here you find a short video***
of those three exciting days

RESEARCH NIGHT

Long Night of Research 2022

On May 20th, 2022 the Long Night of Research took place again live! Together with our colleagues from the Department of Cognitive Science, we demonstrated our research by showing experiments in a hands-on manner. It was a great experience for everyone and definitely lots of fun!

— ***You can get a glimpse of the event here***

Collaborations

COMMUNITY ENGAGEMENT

Twice in a year: cooperation with Teach for Austria

We are very happy about the fact that we had the chance to cooperate with ***Teach for Austria*** twice in this past year.

Widening Initiative

The Widening Initiative came about through the CEU Community Engagement Office. Two students, Melanie Helm and Anna Fasching, contacted the Teach for Austria fellows, who are teaching at the NMS Quellenstraße, and mentored the group of pupils before and after their visit at the CEU Babylab. The aim of the visit was to give the pupils an idea of what it is like to work in the field of empirical research for a broader perspective on career orientation. The 14 to 15-year-olds were curious and engaged, and we hope that by offering this workshop we could contribute a little to creating educational equality.

„Berufspraktischen Tage"

This initiative led to the second cooperation opportunity: We were glad to host Muhammad Bakir, a pupil from NMS Quellenstraße, during his "work experience days" which aims at providing young teenagers first hands-on experiences in a work environment. He learned about the characteristics of CEU and about daily life at a research center: programming, collecting data, coding, and translating information forms for participants were the activities we engaged him in. He also visited a doctoral seminar about infant cognition and a Research Club – just like a real student or researcher.

COOPERATION

Cooperation with the Natural History Museum

Since February 2023, the CEU Babylab is also conducting studies in the Natural History Museum in Vienna! This is just the first step of the envisioned long-term collaboration between the Cognitive Science Department at CEU and the largest museum in Austria!

The first two studies focus on decision-making processes in children aged 4 to 10 years. In the study CoCollectors, children could choose partners to find a solution for a task in an iPad game that was specifically designed for this study. In this game they got to choose between characters with different degrees of prosocial behavior and skills. The second study was concerned with preschoolers' interpretation of ambiguous sentences.

The young visitors enthusiastically participated in both playfully conceptualized studies. Some even wanted to play the games repeatedly, while parents wanted to learn more about our research. Our work in one of the most beautiful buildings of Vienna enables the public to engage in and contribute to science all the while having fun, a parent stated.

Community Engagement

EDUCATIONAL ACTIVITIES

CEU Babylab offered lab tours to school classes

Upon request of teachers of the BRG 9 who had read the ***Der Standard article*** about our labs, we organized three lab visits for groups of 11th graders. Researchers of all stages were involved: faculty, Postdocs, PhD students as well as our research assistant demonstrated methods of studying infant cognition such as EEG, eyetracking, and iPad games and discussed research findings.

We are very pleased to have attracted interest from schools and are happy to share knowledge about developmental psychology. Both teachers and pupils gave positive feedback and reported about their visit on ***their website***.

PhD Students

DEFENSE

Congratulations

We congratulate Nima Mussavifard to the successful defense of his doctoral thesis! His theoretical work discusses the ***pedagogical origin of human communication***.

Furthermore, Dóra Fogd successfully defended her PhD thesis investigating the ***"The representational flexibility of spontaneous theory of mind in human adults"***.

Nima Mussavifard

Dóra Fogd

Hope to see you next year!

CEU Babylab

Quellenstrasse 51 · 1100 Vienna

Landline +43 (0)1 25230 7440

Mobile +43 (0)676 8864 9610

instagram.com/kinderkognition_ceu

facebook.com/kinderkognition

www.cognitive-development.ceu.edu