

The Upside of Sharing

“Mine!” This all-too-familiar children’s cry can drive parents to distraction. Nevertheless, **Michael Tomasello** from the **Max Planck Institute for Evolutionary Anthropology** in Leipzig firmly believes that – unlike our nearest animal relatives, the great apes, who largely lack the capacity for collaboration – children are naturally cooperative and helpful.

TEXT **SEBASTIAN KIRSCHNER**

Moritz pulls his father through the entrance hall: “There, monkey, there.” The enthusiastic two-year-old points to the enormous ape faces that adorn the display cases in the foyer of the Max Planck Institute for Evolutionary Anthropology. Moritz is well informed. He has participated in a behavioral study at the Department of Psychology three times already. The leader of today’s experiments, Robert Hepach, walks toward them and then accompanies them to the play room on the first floor. At the stairs, Hepach drops the key for the electronic door lock. Moritz is immediately on the spot. He bends down to pick up the blue plastic disk and holds it out to the unknown man.

“We regularly observe such spontaneous gestures of helpfulness in our studies,” says Michael Tomasello, Hepach’s doctoral supervisor and Director of the Department. What is a matter of course for us adults is a fascinating phenomenon from the developmental psychologist’s perspective. Tomasello has been researching the social skills of children and how they learn language

at the Max Planck Institute in Leipzig since 1998. Since his undergraduate studies, the American scientist has focused his attention on the origins of behavior. “The question ‘Where does a particular behavior come from?’ is what interests me most. How does it develop in childhood and how did it emerge over the course of evolution?”

The Max Planck Society’s Wolfgang Köhler Primate Research Center opened twelve years ago at Leipzig Zoo. “There are very few places where you can do experimental studies with apes. And Leipzig is the only zoo where all great ape species are kept – chimpanzees, orangutans, bonobos and gorillas,” gushes Tomasello. “This is a huge advantage, as when we compare the behavior of humans and chimpanzees, for example, we don’t know what the original state is and which of the two species has changed. However, if we examine all four ape species and discover, for instance, that none of them communicate with pointing gestures, but one-year-old children do, we can assume that this gesture was invented by the direct ancestors of humans.”

Today, the Department of Comparative and Developmental Psychology is



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the world's largest research facility dedicated to this topic. Tomasello is currently supervising 22 doctoral students and collaborating with 20 scientists on site at the institute. Through their cleverly devised studies, he and his colleagues aim to explain the specific features of human psychology. Though considerable gaps still exist in our knowledge about the mosaic of human evolution,

the institute's psychologists and biologists are constantly adding new tiles to the overall picture with their approximately 100 publications each year.

In his latest book, "A Natural History of Human Thinking," which will be published in early 2014, Tomasello explains that humans' unique cognitive skills arose when environmental conditions in Africa changed. Back then, our

Children are born helpers. They show a distinct propensity for helpfulness long before they are called upon to be helpful.





Cooperation is a human specialty: No other living creature relies as much on cooperation and rejects direct gain for the benefit of others. Our closest relatives, for instance, the chimpanzees, rarely share their spoils with other members of their species.

ancestors could survive only by collaborating when foraging.

“Unlike apes, who usually search for food individually and consume what they find on the spot, humans hunt together and return their spoils to a central location where they are distributed,” says Tomasello.

Chimpanzees, which sometimes hunt colobus monkeys in groups, are the only exception to this rule. Nevertheless, they still tussle over the prey, each one taking what he can grab. Some scientists classify this as sharing. “However, I believe the prey is simply too big to be claimed by a single animal alone. So the catcher accepts that the other apes will take some of it. However, chimpanzees don’t know how to share.”

THOSE WHO GET NOTHING STOP HELPING

Tomasello draws this conclusion from studies carried out at Leipzig Zoo, in which two chimpanzees no longer cooperate when the reward is available

in a pile in the middle of the room. The dominant ape then takes everything and the subordinate animal is left empty-handed and refuses to cooperate from then on. In contrast, in comparable studies, children share the reward.

Tomasello believes that the last ancestor shared by modern humans and Neanderthals over 500,000 years ago relied on the availability of trustworthy partners and the smooth coordination of their actions for the success of their joint hunting ventures: everyone fulfilled their individual tasks, relied on each other and eventually benefited from their collaboration as they each received a fair share of the spoils. Tomasello thus refers to his evolutionary scenario as the interdependence hypothesis. He sees the origin of many typical human patterns of behavior in the collaborative search for food, which was essential for the survival of our species: our enthusiasm in pursuing shared goals, our willingness to share knowledge voluntarily, our instinctive desire

to help the needy, and our tendency to share resources fairly.

Tomasello’s colleagues were able to observe all of these behavioral patterns in young children. “The comparison of apes and young children is particularly interesting because children under the age of three don’t yet act on the basis of the social norms and moral rules of their culture.” In a number of studies, Tomasello’s colleagues were able to show that children don’t learn to deal with norms and rules until their fourth year of life, for example by protesting or admonishing each other when they break such rules. “And yet, our young study participants are cooperative, communicative and helpful.” Tomasello is convinced that the forms of cooperation visible in young children largely reflect the very earliest collective activities in human history.

The Leipzig team of psychologists succeeded in showing that small children have an instinctive desire to help others: they clear obstacles out of the way, pick up fallen pens and point to

» Children help not only because it is expected of them – they want to support other people.

sought items. The question is: why is this desire to help observed in children as young as two years old? Do they empathize with the other person and want to help them overcome their predicament? Or is it, perhaps, that they want to gain the approval of their parents?

To find out more about the children's motives, the scientists used a new technique: two-year-old children sitting on their mothers' laps watched Robert Hepach stack cans on a table to form a tower. When the last can fell off the table, he tried, unsuccessfully, to reach it. Some of the children were allowed to help: almost all of them retrieved the can and gave it back to the researcher. The mothers of a second group of children were asked to hold their children back if they tried to reach the can. The children in a third group weren't allowed to help either, instead

they saw a second adult come to the assistance of the researcher.

Meanwhile, a hidden camera recorded the diameter of the children's pupils. "This is a good indicator of their state of arousal: the more agitated a person is, the more the pupils dilate," explains Hepach. The scientists compared the widths of the children's pupils immediately after the mishap and after their successful or prevented efforts to intervene. The measurements showed that the children who helped were less agitated than those who weren't able to intervene themselves; the diameter of the former group's pupils had contracted again markedly. The same effect also arose in the children from the third group: they calmed down when the third person intervened. "So children don't need to intervene and help themselves, the help

itself – even if given by a stranger – is the main thing. This shows that helpfulness in young children isn't only a reaction to parental expectation; it's actually about the wellbeing of other people," concludes Hepach.

THE ONLY WAY FORWARD IS TOGETHER

Even infants have a sense of cooperation. American scientists observed that six-month-old babies judge people according to whether they help or not. Accordingly, they show a preference for helpful people over those who don't help or who actually cause harm – a further indication of the fact that helpfulness isn't an acquired behavior but a natural one.

At the age of three, children develop an increasing sense of the social

Children want to help and react positively to people who help: Even two-year-olds pick up a can that has fallen off the table out of the researcher's reach (left, center). And it isn't just because they want their mothers to approve of them. They are also content if someone else intervenes and picks up the can while they merely observe the scene (right).



»» The emergence of morality can only be explained by life in groups. Unless you believe in God.

rules of behavior, such as the feeling that partners should help each other when completing a task. For her doctoral thesis, Katharina Hamann examined the extent to which two children support each other when they have to perform a joint task. To reach two building blocks they want, two three-year-olds must use a multi-level apparatus together. However, one of the children reached her block earlier than the other and could have stopped cooperating at that point. "Many children actually stayed with their playmates and helped them to reach their goal," says Hamann.

When the apparatus was set to ensure that only one child was reliant on cooperation and the other one could take the block immediately, there was far less spontaneous helpfulness. "Children obviously feel a greater obligation toward a partner if they have engaged in a joint effort," assumes Hamann.

So three-year-olds sense that cooperation ends only when everyone has attained their previously agreed objective. Michael Tomasello adds: "There are many examples of prosocial behav-

ior in the animal kingdom. Chimpanzees also present themselves as helpful in our studies. What is unique to human morality is the feeling of mutual obligation: we should behave like that." In his view, moral values arose in response to the increasing complexity of social life. "We subsume under the concept of morality several psychological mechanisms that people developed to adapt to their hyper-collaborative lifestyle. The group is the only place in which morality can arise. Unless you believe in God."

SELF-CONTROL THROUGH GUILTY CONSCIENCE

Tomasello shows this using the example of a guilty conscience. "I don't feel guilty because the others condemn my theft, but because we condemn me! I am part of the group and ought to punish myself." Therefore, a guilty conscience is a kind of involuntary self-castigation to protect oneself against committing further unauthorized actions and, in this way, avoiding sanctions. As soon as a thief is caught, he

openly displays his feelings of guilt – according to Tomasello this, again, constitutes an adaptation to group life and conveys the message "Look, I know the rules and I know that I should follow them. I am already punishing myself." This is meant to show that he is still a cooperative member of the group.

The concern about one's own reputation is typically human. For Tomasello, it originates in collaboration in the search for food. The more our ancestors depended on collaboration during hunting, the more important it became for each individual to have the reputation of being a good collaborative partner: "See, I'm a skilled hunter and am happy to share my spoils. Take me with you when you go hunting a zebra again tomorrow."

Even preschool children engage in strategic reputation management, but chimpanzees don't. This was the conclusion reached in a study carried out by Jan Engelmann. He investigated whether chimpanzees and five-year-old children behave differently when someone is watching them. "Chimpanzees will always give the same amount of food to another animal, or steal it from them, irrespective of whether an alpha animal can see them doing it or not," says Engelmann. "In contrast, children appear to consider their reputation when deciding how to act."

In this behavioral study, the children experience joint success. They must push their blocks up the steps using a stick (left). Even if one child can pull her block through the opening in the cover earlier than her partner, she continues to help until her partner can also remove her block (right).





For Michael Tomasello, the capacity for collaboration is the key to the evolutionary success of humans. Even the ancestors of *Homo sapiens* hunted together and shared the spoils. This gave them an edge over all other competitors and enabled them to spread throughout the world.

The psychologist thought up a task for the five-year-olds that prompted them to steal: the children were given different stickers, which they were asked to stick into a sticker album. However, one sticker needed for the album was missing. On the other side of the table there was an empty album and several unused stickers for use by the next child. "When the researcher left the room, we observed with a hidden camera whether the child would take a sticker from the opposite side of the table."

INTENT ON A GOOD REPUTATION

Some of the young participants were left alone in the room, while others were observed by a child of the same age. The result was clear: the children were less likely to take the unauthorized sticker when someone was watching them. To test their willingness to help, Engelmann reversed the situation: he gave them an extra sticker and explained that there was one missing on the other side of the table. "When they were being watched, more children left the extra sticker for the next child instead of taking it home with them."

The researcher also demonstrated that five-year-olds weighed up their actions and prioritized earning a good reputation with members of their own group: they were more willing to share when a child from their own group was watching. "This points to strategic thinking: 'The children from my own group are more important because I am more likely to need their help in the future. For that reason, I act in a completely moral way in their presence and share my stickers fairly,'" extrapolates Engelmann.

Human beings have an entire arsenal of psychological mechanisms for maintaining cooperation in larger groups: the awareness of their personal standing, a feeling of fairness, an aversion to cheats and a propensity for conformism. When did these mechanisms become necessary in our evolutionary history? According to Tomasello's theory, these characteristics arose as far back as the emergence of the first modern human, around 150,000 years ago. Population growth and increasing competition between groups for living space and food made it necessary for them to collaborate more and more closely.

Related groups amalgamated into clans, and several clans developed a sense of belonging to a tribe. Life in such large societies introduced completely new challenges for our ancestors: they no longer knew all members of the group in person. They constantly encountered strangers who belonged to their tribe, but they were unable to assess their reputations and capacity for cooperation.

CHEATS PUT COMMUNAL LIFE AT RISK

They solved this problem by highlighting the characteristics necessary for membership in a group: "The stranger speaks my language, dresses like I do and cooks in the same way – I may assume that he or she follows the same social norms and values as I do," says Tomasello, describing one possible scenario. Moreover, the success of communal life in larger anonymous societies was threatened by cheats and freeloaders. The specific function of many of our morals is to counteract this threat: We keep our word. We punish thieves. We pay our dues. We ostracize lazy people. >



World explorers also want to be in good standing in their community (left): Children are more likely to share stickers for a sticker album if a member of their own group is watching (above right) than if they are watched by a child from a different group (below right).

Tomasello and his colleagues succeeded in showing that children develop their ideas about morality in two stages. Young children are born with many altruistic tendencies. They help, share and cooperate with their partners long before they have developed a sense of belonging to society. “If we measured it, we would probably find the same natural willingness to cooperate in all cultural circles,” predicts Tomasello.

A SENSE OF COMMUNITY

From the fourth year of life, children develop an extended we-sentiment: the sense of a “we” that includes not only their current playmates, but all children in the preschool group, all people in the village and all members of society. They increasingly consider their own behavior and that of others from a bird’s-eye perspective, base themselves on the conventions of their culture, and adopt moral values: We don’t

hurt each other. We keep our promises. We don’t lie. We share fairly.

“Such morals can, of course, vary between different cultures. These differences arise in the course of adaptation to the way of life involved,” assumes Tomasello. A new research group is going to test this hypothesis and compare

children from different African ethnic groups, such as the Samburu, a semi-nomadic pastoralist people from northern Kenya. This will show which morals are natural and which are acquired. However, Tomasello is already sure about one thing: the Samburu children are also naturally helpful. ◀

TO THE POINT

- Even infants are willing to share, and display helpful behavior toward others. Humans evidently have a natural propensity for cooperation.
- The visible forms of cooperation among today’s young children are probably a reflection of the earliest collective activities in human history: over 500,000 years ago, effective collaboration ensured survival in the search for food and was the decisive factor behind the further development of the unique cognitive capacities and inner drive of human beings.
- From the age of three, children develop a sense of the social group and gradually adopt the moral values of their culture. Modern humans probably developed social norms to overcome the challenges presented by increasingly complex societal structures.

Diskurs³

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