

# Children's Respect for Ownership Across Diverse Societies

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Ownership is a cornerstone of many human societies and can be understood as a cooperative arrangement, where individuals refrain from taking each other's property. Owners can thus trust others to respect their property even in their absence. We investigated this principle in 5- to 7-year-olds ( $N = 152$ ) from 4 diverse societies. Children participated in a resource task with a peer-partner, where we established ownership by assigning children to one side or the other of an apparatus and by marking resources with colors to help children keep track of them. When retrieving resources in the partner's presence, the majority of children took their own things and respected what belonged to their partner. A proportion of children in all societies also respected ownership in their partner's absence, although the strength of respect varied considerably across societies. We discuss implications for the development of ownership concepts and possible explanations for societal differences.

*Keywords:* cooperation, social institutions, ownership, cross-cultural, social development

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Humans not only physically possess and control things, they also own them. Ownership extends beyond an individual's physical control of an object and describes the relation among individ-

uals with regard to an object (Christman, 1994; Singer, Berger, Davidson, & Penalver, 2017). Ownership can be understood as a cooperative arrangement, where individuals refrain from taking each other's property (Hume, 1739/2000; Rose, 1985). Owners can thus trust others to respect their property even in their absence.

Children from North America and Europe first show a basic understanding of ownership toward the end of the second year of life, when they begin to use words like "mine" or "yours" (Hay, 2006; Tomasello, 1998). Moreover, toddlers infer ownership of their own objects and that of others (Brownell, Iesue, Nichols, & Svetlova, 2013; Fasig, 2000; Gelman, Manczak, & Noles, 2012; Ross, Friedman, & Field, 2015), and spontaneously claim ownership of and win fights over toys that belong to them (Ross, 1996, 2013; Ross et al., 2015). Children's understanding of ownership becomes more sophisticated during the preschool years (e.g., Blake, Ganea, & Harris, 2012; Friedman, van de Vondervoort, Defeyter, & Neary, 2013; Kanngiesser, Gjersoe, & Hood, 2010). For example, three-year-olds defend their own and a third party's property if taken without permission (Rossano, Rakoczy, & Tomasello, 2011), and older preschoolers prioritize verbal ownership cues over physical possession (Blake et al., 2012) and signal ownership to absent others (Rossano, Fiedler, & Tomasello, 2015).

While there is increasingly detailed knowledge of the development of North American and European children's ownership understanding, there are few studies with children from other populations (see also Nielsen, Haun, Kärtner, & Legare, 2017). The existing studies have revealed similarities in children's concepts of

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ownership (Furby, 1978, 1980), their reasoning about land ownership (Zebian & Rochat, 2012), and their ownership attributions based on creation (Kanngiesser, Itakura, & Hood, 2014; Rochat et al., 2014). However, they have also found that principles such as ownership attributions based on first possession are not universally present from an early age (Kanngiesser, Rossano, & Tomasello, 2015; Rochat et al., 2014), although these findings may be due to methods (e.g., reasoning about third parties) that are unfamiliar to young children from non-Western populations (Greenfield, 1997).

What remains unclear is whether children from diverse societies respect others' ownership, even when they can potentially maximize their own gains by taking what belongs to others. There is consistent evidence that young children from diverse populations behave in a self-interested way and keep the largest share of windfall resources for themselves (e.g., Cowell et al., 2017; Rochat et al., 2009). This tendency is only overcome when children collaborate to acquire resources (German children: Ulber, Hamann, & Tomasello, 2015; Warneken, Lohse, Melis, & Tomasello, 2011), possibly because they perceive the resources as jointly owned. Respect for ownership may thus counteract early selfish tendencies to hoard resources.

In the current study, we investigated whether respect for ownership is found among 5- to seven-year-old children from diverse societies using a novel, interactive task, in which children had access to the same resources. Peer dyads played with beads on a marble run. We established ownership of beads by assigning children to one side or the other of the marble run; each side was color-marked, and beads were marked in the same color to help children keep track of the beads they had played with. (Note that we did not use any explicit ownership labels like "yours.") North American preschoolers have been shown to use visual marks and other indicators to track and identify who owns an object (Gelman, Manczak, Was, & Noles, 2016). Next, children put their beads on the marble run at the same time. At the end of the marble run, all beads dropped into a box ("resource pool") and mixed. Then, we told each child to "take your beads out of the box and put them in your bag"—either simultaneously with their partner (partner-present condition) or by themselves while the partner waited outside (partner-absent condition; within-subject). We measured whether children retrieved their own beads (i.e., the beads marked in their color) and refrained from taking their partner's beads. The main test of respect for ownership was whether individuals would only take their own things even when the partner was absent from the room (partner-absent condition).

We conducted the study in four societies that vary in their subsistence styles, their local environments, community sizes, and residency styles (see Table 1 and ethnographic information in the methods section for further details): (1) ≠Akhoe Haillom children from a recently sedentarized hunter-gatherer group in Northern Namibia, (2) Kikuyu children from an agricultural group in Central Kenya, (3) German children from a city in Germany, and (4) Wichí children from a sedentarized hunter-gatherer group in Northern Argentina. Our aim was to include populations with a (former) hunter-gatherer lifestyle, as, traditionally, demand for sharing has led to little or no accumulation of individual property in these societies (Gurven, 2004) and norms regarding personal ownership may be weak. Since a previous study found that Kikuyu children showed a different developmental trajectory in a third-party ownership reasoning task (Kanngiesser et al., 2015), they were in-

cluded in the current study to assess whether this developmental pattern would generalize across tasks. We further included German children as one example of a population that has been frequently studied in ownership research and for which we know that respect for ownership emerges during the preschool years (Rossano et al., 2011).

## Method

### Participants

Children from four different populations participated in this study: 28 five- to seven-year-old ≠Akhoe Haillom children from Farm 6 near Tsintsabis in Northern Namibia ( $M_{\text{age}} = 6.2$  years,  $SD = 0.9$  years, 12 female), 40 five- to six-year-old German children from five kindergartens in Leipzig, Germany ( $M_{\text{age}} = 5.7$  years,  $SD = 0.4$  years, 20 female), 46 five- to six-year-old Kikuyu children from two schools near Nanyuki in Central Kenya ( $M_{\text{age}} = 5.5$  years,  $SD = 0.5$ , 22 female), and 38 five- to six-year-old Wichí children from one school in Misión Chaqueña in Northern Argentina ( $M_{\text{age}} = 5.4$  years,  $SD = 0.5$ , 16 female).<sup>1</sup> Broadly speaking, families in the three rural populations had a lower socio-economic status and fewer years of education than German families (see Table 1 and ethnographic information, for further details). We mostly tested five- to six-year-olds because piloting had revealed that younger children in the rural sites were too shy to participate or did not fully understand the procedure. We included Haillom children up to seven years of age to increase the sample size for this population. Sample sizes were based on the availability of participants in the three rural locations; the sample size in the urban location was matched to the ones of the rural populations.

All testing took place in a room in kindergartens or schools. Each child was partnered with another child of the same gender and of a similar age (max. 1-year age gap). We ensured that both children in a dyad knew each other, but did not control whether they were close friends or not. We randomly matched children who fulfilled the above criteria (and were present on the testing day). We tested 76 dyads in total: 65 dyads were of the same age (in years), and 11 dyads had a gap of one year (6 ≠Akhoe Haillom dyads, 4 German dyads, 1 Kikuyu dyad). Due to the absence of one or both children in a dyad on the final testing day, one Haillom dyad and three German dyads participated only in the partner-absent condition, and two Wichí dyads participated only in the partner-present condition. In total, 74 dyads participated in the partner-absent condition and 72 dyads participated in the partner-present condition (for details, see Table S1 in the online supplemental materials).

The study was conducted in accordance with the Declaration of Helsinki and the ethical guidelines of the German Psychological Society and the Association of German Professional Psychologists. The study did not involve any invasive techniques, ethically problematic procedures, or deception, and therefore, did not require approval by an Institutional Review Board (see the regulations on freedom of research in the German Constitution, § 5 (3)). German children were recruited from a database of parents who had signed

<sup>1</sup> Children's ages are only reported at the level of years as exact ages were not reliably available for Haillom and Kikuyu children.

Table 1  
*Overview of the Populations in the Study*

Population	Language family	Region	Environment	Community size	Residence	Economic base
≠Akhoe Haillom	Khoisan	Northern Namibia	Rural	200–250	Sedentary, semi-nomadic	Gathering, some wage work
German	Indo-European	Eastern Germany	Urban	~540,000	Sedentary	Wage work
Kikuyu	Bantu	Central Kenya	Rural	~20,000 across small villages	Sedentary	Agriculture, wage work
Wichí	Mataco-Mataguyan	Northern Argentina	Rural	~1,500	Sedentary	Some gathering, craft production, some wage work

up their children as participants in developmental studies. Parents gave informed consent before their children participated in the study. ≠Akhoe Haillom, Kikuyu, and Wichí children were recruited through local schools. Depending on locality, permission to conduct the research was obtained from education or science ministries, local school boards, and/or community representatives. Consent for children's study participation was given by school head-teachers. As part of the study, children received beads and cookies (or stickers; see procedure for details); parents received no compensation. Schools in the three rural locations received a small donation as a thank-you for their help (e.g., allowing us to use school rooms for testing).

We piloted the procedure with 8 Kikuyu children aged four to seven years. Two additional Haillom children, 11 additional Kikuyu children, and 10 additional Wichí children only participated in the warm-up session as no suitable peer-partner was available or they were absent on the testing day. One additional Kikuyu child had to be dropped after the warm-up because we confused her with an older child, and one additional Wichí child was dropped because she did not do anything in the warm-up.

### Ethnographic Information

**≠Akhoe Haillom—Farm 6.** Traditionally, the ≠Akhoe Haillom are hunter-gatherers, living in the Northern Namibian dry-lands between the Etosha salt-pan and the Namibian–Angolan border. In the last decades, due to political and economic marginalization, many aspects of their traditional culture have been lost. However, while gardening and wage-work have increased in frequency and relevancy, hunting and gathering are still practiced regularly in many Haillom communities. Other examples of retained traditional practices are healing trance dances, the traditional kinship and naming system, and a landscape-based system for orientation (Widlok, 1999). The language, ≠Akhoe Haillom, is part of the Khoekhoe cluster of languages.

Although largely sedentary due to the privatization of land in Namibia, the ≠Akhoe Haillom of Farm 6, the community where the present study was conducted, still frequently move between settlements for long periods of time. The social structure of the ≠Akhoe Haillom is egalitarian, as is considered typical for hunter-gatherer communities: Adults do not typically wield the authority to speak on behalf of another adult within the community. Decisions concerning the community as a whole are based on consensus.

As is frequently reported for hunter-gatherer communities, children are raised to develop high levels of autonomy (Hewlett, 2016; Widlok, 1999). They are mostly free to structure their own activ-

ities with, little emphasis on social obligations, and rarely receive direct instruction from adults (Terashima & Hewlett, 2016).

Traditionally, ≠Akhoe Haillom, as is true for hunter-gatherer communities more generally, accumulate comparatively small amounts of personal property (Suzman, 2001). Although in the wake of the emergence of a more sedentary lifestyle in recent years, the ≠Akhoe Haillom on Farm 6 have been increasingly accumulating possessions. Some of the accumulated items, such as hunters' bows, jewelry, or huts, are treated as personal properties in many ways comparable to the other societies in this study. However, there are also differences: For example, gift givers maintain some ownership rights on the given gifts. If a hunter gives arrows to another as a gift, all animals that are killed using that arrow belong in small part to the man who manufactured the arrow (Widlok, 2005). This system effectively spreads the unpredictable success rate of hunting and evens out declining hunting skill-levels across age, since old hunters, while slower and less dexterous, excel in arrow manufacturing.

**German—Leipzig.** Leipzig is a medium-sized town in the eastern-central part of Germany. It is a densely populated city with a population of approximately 540,000 people at the time of the study (Statistisches Landesamt des Freistaates Sachsen, 2014). In 2014, the vast majority of the population (94%) were German citizens (Statistisches Landesamt des Freistaates Sachsen, 2014), and German is the main language spoken in the city. It is fully market-integrated, and the economy is based on salaried and wage work.

Children typically grow up with their parents and one or two siblings. Other family members often live in other parts of the city or the country and are not necessarily part of children's daily lives. Parents spend a large part of the day away from home, and the majority of children are cared for in nurseries or other settings outside the home from early on. From age six, children attend primary school and spend a lot of time outside the family home.

In general, German parents socialize their children to be independent, self-confident, and assertive (Durgel, Leyendecker, Yagmurlu, & Harwood, 2009). Playing and learning are viewed as important parts of children's lives, and children are usually not responsible for household tasks until well beyond middle childhood. Children grow up surrounded by an abundance of toys and other artifacts, and personal possessions are common in childhood. Private property is widespread.

**Kikuyu—Nanyuki.** The Kikuyu are an East African Bantu-speaking people. They are Kenya's largest ethnic group, living in the country's central highlands. Traditionally, the Kikuyu have

been small-scale farmers, cultivating maize, beans, and other vegetables and practicing animal husbandry for their subsistence. Although trade and wage work have become increasingly important over the last decades, agriculture continues to be the main pillar of the Kikuyu economy. Land is owned by individual families, and parcels are passed on to the next generation according to intricate inheritance rules (Kenyatta, 1938/1965).

Despite many changes, the family still forms the Kikuyu's basic economic and social unit. The Kikuyu are patrilineal, and fathers are followed by their eldest sons as heads of the family. Typically, male members of the family continue to live in the same village or nearby. Older members of the community are highly respected (Whiting, 1996), but positions in other institutions such as church, schools, or government are also causes for respect. While most Kikuyu recognize the national government and its institutions, family- and community-related issues are usually resolved by local councils of elders.

Although children are highly valued, many families at present decide to restrict the number of children they have due to economic reasons (Price, 1996). In the rural communities we worked with, children have few or no possessions of their own. Many children attend nursery school from about four years of age, and almost all of them will go to school once they are five or seven years old. Schooling is free of charge at the primary level (classes 1 to 8). Outside school, children help with various tasks in and around the house, take care of their younger siblings, or look after animals. Children are expected to be quiet and obedient at home, although parents also tend to value curiosity and self-confidence in school settings (Whiting, 1996).

**Wichí—Misión Chaqueña.** The Wichí are indigenous to the Gran Chaco, a semiarid region stretching along northern Argentina, eastern Bolivia, and western Paraguay. Traditionally, they had a seminomadic lifestyle within fixed territories and subsisted on hunting, gathering, fishing, honey collection, and seasonal slash-and-burn horticulture (Miller, 2001). This lifestyle was an adaptation to strong seasonal variation in temperature (subzero to >40 °C) and rainfall (rainy season: November–April). From the 19th century, military actions by the Argentinian government and the increased presence of European settlers have resulted in the loss of many traditional Wichí territories. In addition, the 19th century saw a growing sugar cane industry in the region in need of Wichí labor. As a consequence, the Wichí became increasingly sedentary.

Today, there are about 50,000 Wichí (Instituto Nacional, 2010) in Argentina, some living in urban dwellings but many still in often impoverished communities throughout the Chaco. Families subsist on selling traditional crafts, gathering, some wage labor, and governmental assistance for families (*asignación familiar*).

The present research was conducted in Misión Chaqueña, Salta Province, which was founded as the first Anglican mission in the Chaco in 1914. Today, about 1,500 Wichí live in the community. Residential groups are structured on the basis of kin relations between female family members (Palmer, 1997) and occupy a parcel of land, usually separated by traditional wooden fences from their neighbors.

The Wichí language belongs to the Mataco–Mataguan language family. Children in Misión Chaqueña learn Wichí as their first language and Spanish as a second language when they enter kindergarten (from age four) or school (from age 6). The majority

of children's daily activities are outdoors (Taverna, Waxman, Medin, Moscoloni, & Peralta, 2014). Wichí children are not explicitly taught by family members, but learn by participating in daily activities (Rossi, 2003).

Traditionally, Wichí do not believe that nature can be owned (Alvarsson, 1988, as mentioned in Palmer, 1997). Within the modern Argentinian state, however, Wichí land rights are often a major source of conflict between local communities and farmers. In Misión Chaqueña, the community communally owns the land of the settlement, although some families have exclusive use rights for certain allotments. Personal property rights are recognized, and natural resources that have been harvested or produced become personal property: "For example, a hunter locates honey but is unable to extract it immediately, because he is not equipped to do so, to dispossess him of the hive would be an infringement of his rights" (Palmer, 1997, p. 36).

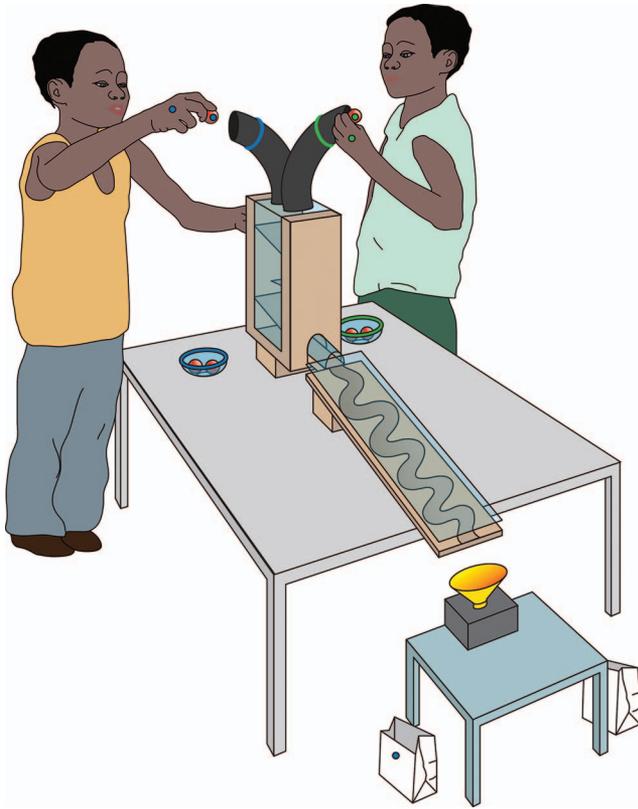
## Procedure

**Overview.** Children put beads on a marble run that was mounted on a table (see Figure 1; Supplementary Figure S1). We used a marble run for several reasons: (1) It was a fun and engaging game for children, (2) it allowed us to use beads as rewards, and (3) it created a physically plausible reason for why all beads would mix in one container. First, children participated in an individual warm-up session to familiarize them with the set-up. The warm-up took place either on a separate day (Kikuyu and Wichí children) or on the same day as the first test session (German and Hailom children).<sup>2</sup> Then, children were partnered with another child of the same gender and similar age and participated in two test conditions (one per day): (1) In the partner-present condition, both children had access to the resource pool at the same time, and (2) in the partner-absent condition, one child had exclusive access to the resource pool while the partner waited outside. There were three trials per condition. Partners remained the same in both conditions; the order of conditions was counter-balanced across dyads.

One experimenter (the first author) conducted the study in the three rural populations, and a second experimenter conducted the study in Germany. Children in all locations were instructed through videos and audio-playbacks from a laptop computer in the children's native language. Most Kikuyu and Hailom children had participated in previous studies that had used audio and/or video instructions, and most Wichí children were familiar with computers and/or TVs. Additional verbal instructions by the experimenter (such as "come over here") were kept to a minimum in all locations and always given in a language children were familiar with (e.g., Spanish, Kiswahili).

**Warm-Up.** Children sat at a table with the experimenter (E). All instructions were presented as video or audio recordings in the child's native language (played back from a laptop computer). The warm-up consisted of (1) a sorting task to familiarize children with

<sup>2</sup> Hailom children occasionally moved with their parents to other settlements, and it was often unclear whether children would be present for the next testing day(s). To reduce the number of drop-outs due to absence, we decided to conduct the warm-up and the first testing session on the same day. In Germany, we could sometimes only do a limited number of visits to a kindergarten per week, and we wanted to avoid longer time-lags between sessions for comparability with the other samples.



*Figure 1.* Children played with beads on a marble run. We first assigned a color to each child (indicated by colored stickers on their hands) and then gave each child three beads, marked in the child's respective color. The marble run ended in a box ("resource pool"; here in gray) where the six beads were collected. Children retrieved their beads from the resource pool and put them into their paper bags (marked in the respective colors). The set-up shown here is for the partner-present condition. See the online article for the color version of this figure.

the dotted beads (two trials), (2) a marble-run task to familiarize children with the marble run (four trials), and (3) a bag task to familiarize children with the fact that they would take things home (one trial).

In the sorting task, E placed two small bowls on the table that were marked in two different colors (blue and green in Trial 1; yellow and red in Trial 2). Children then watched a slide show with audio instructions, in which they were told to put the beads with the colored dots (green or blue, red or yellow) in the bowl marked in the same color (for the full script, see [Supplementary Table S2](#)). Next, children were given a container with eight white beads, half of them marked in one color and the other half in the other color (see [Supplementary Figure S3](#)). E encouraged the children to sort the beads in the bowls with pointing gestures. If children did not respond, they watched the instruction slides again. If children sorted the beads incorrectly, E demonstrated the correct sorting at the end of the trial. Trials with incorrect sorting were repeated once after the initial two trials. This task assessed whether children would pay attention to the dots on the beads. We did not reuse any materials from the sorting task (including the white beads) in the main experiment, to ensure that children did not view the entire study as a sorting task.

In the marble run task, children first watched a video explaining the marble run (for the full script, see [Supplementary Table S2](#)). Next, children received two identically colored beads (e.g., green beads, no markings) to put on the marble run. E then retrieved the beads from the resource pool box at the bottom of the marble run and put them in a plastic bowl. In addition, E placed two different beads (i.e., beads the child had not played with) in a second plastic bowl. Children were asked to point to the beads they had played with via an audio recording. If children did not point, the instructions were repeated. This procedure was repeated for a total of four trials, with sides counterbalanced across trials. This task familiarized children with the marble run and assessed whether they would remember the beads they had played with.

In the bag task, E placed a bowl with some cookies (German children: stickers) and a paper bag in front of the child. We used stickers for German children as we only had consent for some German children to receive food items and wanted to keep rewards the same for all German children. Children were told via audio recordings that they could keep everything they placed in their bag and take it home (for the script, see [Supplementary Table S2](#)). They were then asked to put the cookies (stickers) in the bag, and left the room with their bag. In this task, children learned that everything in their bag was theirs to keep and to take home.

**Main experiment.** In both test conditions, we used the same set-up with each side of the marble run marked in one color (see [Figure 1](#); [Supplementary Figure S2](#)). In the partner-present condition, sides were marked in green and blue, respectively. In the partner-absent condition, sides were marked in red and yellow, respectively. On each side of the marble run, we placed a small container marked in the side's color (i.e., green on the green side). We also placed a lunch bag marked in the side's color on each side of the resource pool. Each condition consisted of three trials. In each trial, we used six identical beads, three of which were marked in green (red) and three of which were marked in blue (yellow), using small stickers. We changed the basic color of the beads from trial to trial (e.g., purple with green/blue dots in Trial 1, yellow with green/blue dots in Trial 2, red with green/blue dots in Trial 3) and ensured that the color-markings were clearly visible. We used identical beads in each trial (and not differently colored ones for each child) to avoid potential confounds due to color preferences. In each trial, the color-markings thus allowed children to distinguish the beads they had put on the marble run from the ones their partner had put on the marble run. Beads have been used in a previous cross-cultural, developmental study with similar populations ([Zeidler, Herrmann, Haun, & Tomasello, 2016](#)) and were thus considered to be appropriate rewards.

In the partner-present condition, one child stood on each side of the marble run. E showed children an instruction video explaining that one child would play on the green side and one child would play on the blue side (for the full script, see [Supplementary Table S2](#)). Next, children received a small sticker in their color: E said the words "green" and "blue" in the local language while placing the respective stickers on children's hands. E then showed three identically colored beads marked with green dots to the child on the green side (while repeating the color name) and placed the beads in the container in front of the child. This procedure was correspondingly repeated on the blue side. By handing each child its respective color-marked beads, we aimed to establish ownership without using verbal ownership labels such as "yours."

In Trial 1, children put their beads on the marble run. Once all the beads had dropped into the resource pool, children listened to an audio recording that instructed them to take their own beads out of the resource pool and put them in their own bag. Specifically, children were told, “Here is a bag for each of you. At the end of the game, you keep everything that is in your bag and take it home. Now, take your beads out of the box and put them in your bag” (Supplementary Table S2). We decided to instruct children to retrieve their own beads to avoid any ambiguity about the nature of the task (e.g., we wanted to minimize the possibility that children would perceive the task as a sharing task). We told children that everything in their respective bags was theirs to keep and to take home, to emphasize that the bags contained their property. There were no instructions requiring children to take all beads from the resource pool. E then opened the resource pool, walked to the other side of the room, and turned her back to the children (so children were not directly observed). Both children had access to the resource pool at the same time and received no instructions about how to retrieve beads (e.g., whether to take turns or not). Once children had put all of the beads in their respective bags, the next trial started. In Trials 2 and 3, E gave children a new set of color-marked beads at the start of each trial by first showing children the colored dots on the beads and then placing the beads in the respective containers in front of them. Next, children put their beads on the marble run. Once all beads had dropped into the resource pool, children were instructed to take out their beads (“Now, take your beads out of the box and put them in your bag”; Supplementary Table S2).

In the partner-absent condition, the procedure was identical to the partner-present condition, with the following exceptions. Children were alone in the room when taking beads out of the resource pool. Specifically, once all marbles had dropped into the resource pool, E took one child (child 2) outside and gave him/her a small toy to play with. The remaining child (child 1) was then asked to put his or her own beads in his or her own bag via, prerecorded audio instructions. Once finished, E asked child 1 to briefly wait outside (seated away from child 2 to prevent them from talking to each other). E then replaced the missing beads in the resource pool, so that it contained six beads in total (three marked in red and yellow, respectively). The second child then entered the room and was instructed to take his or her beads and put them in his or her bag. At the end of the trial, E removed any remaining beads from the resource pool and started the next trial. In Trials 2 and 3, new sets of color-marked beads were used that children put on the marble run in each trial.

At the end of each test session, children were instructed via prerecorded audio instructions to put their beads on a string. Children sat on stools with their backs to each other (to prevent them from exchanging beads). Once children had finished stringing their beads, E held the finished bead-string into the camera with the green/blue, red/yellow markings clearly visible. Since the basic bead color varied from trial to trial, we were able to assess which beads children had taken in each trial. The bead-string was then placed in each child’s bag for them to take home.

## Data Coding

**Warm-up.** All warm-up sessions were videotaped with one camera, and children’s responses were live-coded by the first

author. We recorded whether children responded correctly in each task or not.

**Retrieval.** All test sessions were videotaped with two cameras (one overview camera and one camera focused on the resource pool). Children’s bead-retrieval was live-coded by the first author and later checked for accuracy by another coder (coder 1)<sup>3</sup> from video. We coded how many of their own and how many of the partner’s beads children put in their own bags in each trial. Note that in some trials children put beads in their partner’s bag (11 of 222 trials, partner-absent condition) or exchanged beads with their partner at the end of the session (1 of 216 trials, partner-present condition): These beads were excluded from children’s bead count as we only scored the beads children took by themselves. For reliability purposes, a second coder scored how many of their own and how many of the partner’s beads children took for 28% of dyads (equally distributed by population, age, and gender;  $N_{AkhoeHailom} = 4$  dyads,  $N_{German} = 6$  dyads,  $N_{Kikuyu} = 6$  dyads,  $N_{Wichí} = 5$  dyads). Agreement between coders was excellent (Cohen’s weighted- $\kappa = .996$ ).

**Utterances.** We transcribed children’s utterances in the partner-present condition and categorized children’s utterances in the bead retrieval phase (i.e., from the moment E opened the resource pool box to the end of the trial). We focused on this phase because it was the most informative in terms of children’s spontaneous talk about their retrieval and allocation of the beads.

Utterances of Hailom, Kikuyu and Wichí children were first transcribed by native speakers and then translated into English (Kikuyu, Hailom) or Spanish (Wichí). Spanish translations were further translated into German to allow for scoring by non-Spanish speakers. Utterances by German children were only transcribed. All coding was performed on the bases of the English or German translations by a third coder. Children’s utterances were coded according to the following coding scheme:

- **Ownership.** Child referred to ownership of the beads using possessive pronouns (i.e., *mine*, *yours*) or other forms of explicitly stating ownership (e.g., *This belongs to me*). Utterances including the word “have” (e.g., *I have one bead, I have blue*.) were not scored, as they may indicate only temporary possession and thus do not unambiguously refer to ownership. Utterances referring to children’s bags were also not scored (e.g., *This is my bag*), as we were only interested in whether children referred to ownership of the beads. As utterances were scored based on translations, we used a conservative coding scheme for ownership to reduce potential false-positives.
- **Color.** Child referred to the color in which the beads/child/sides are marked (e.g., *I take the blue marbles; I have always blue and you have always green*). Only the colors green and blue were used in the partner present condition for marking, thus references to other colors were not scored. Utterances including the term “color” were only scored if they clearly referred to the child’s color

<sup>3</sup> All coders that are mentioned from hereon were none of the authors. They were broadly told about the study procedure to allow them to follow the videos or to contextualize children’s utterances, but were not told about any study hypotheses.

(e.g., *This is my color.*), but not if they were general statements about colors (e.g., *This is my favorite color.*).

- **Allocation.** Child referred to the quantity of beads or to how they were divided. This includes utterances with numerals (e.g., *one, two*), amounts (e.g., *all, many, few, none*), or statements of allocation (e.g., *I have three and you will also get three.*).
- **Fairness.** Child referred to fairness, using the words “fair” or ‘unfair’ (e.g., *This is unfair!*).
- **Protest.** Child protested directly against the other child’s action(s). Protest was only scored if the utterance included a negation (e.g., *no, not*) or an explicit request to stop the current action (e.g., *Stop doing this!*).
- **Off-topic.** Children’s utterances do not fall into any of the above categories. For example, *Now we are finished; Now you; Look at the mzungu [White person]; Let’s sit on the chairs; It dropped down; Look, look.*

For examples of utterances in each language, see [Supplementary Table S3](#).

Kikuyu children spoke very softly and of 48 utterances, 14 utterances (29%) could not be transcribed because they were inaudible. For the other three populations, there were 2% of inaudible utterances. To test the reliability of the transcript and translation, a second translator transcribed and translated utterances for three Haillom dyads (23%), six Kikuyu dyads (26%), and four Wichí dyads (21%); dyads were equally distributed by age and gender. Utterances were scored by the same coder who scored the main translations (coder 3). We compared the scoring of the reliability translation with the scoring of the main translation and found moderate correspondence for the three groups ( $\neq$  Akhoe Haillom: Cohen’s  $\kappa = 0.52$ ; Kikuyu: Cohen’s  $\kappa = 0.46$ ; Wichí: Cohen’s  $\kappa = 0.34$ ).

To test the reliability of the main coding, a fourth coder scored the main translations of 22% dyads for reliability purposes (three  $\neq$  Akhoe Haillom dyads, four German dyads, five Kikuyu dyads, four Wichí dyads; equally distributed by age and gender with the exception of the Haillom, where we accidentally scored three male dyads). Agreement between coders was excellent for four coding categories (ownership: Cohen’s  $\kappa = 0.95$ ; color: Cohen’s  $\kappa = 1$ ; allocation: Cohen’s  $\kappa = 0.91$ ; fairness: Cohen’s  $\kappa = 1$ ) and moderate for the protest category (Cohen’s  $\kappa = 0.60$ ).

## Data Analyses

All data analyses were conducted in R (R Core Team, 2017, Version 3.4.1.). We used generalized linear mixed models to analyze our data. The response variable was a matrix with the number of own items and the number of the other child’s items that were retrieved in each trial (a) by a dyad (partner-present condition), or (b) by the first child (partner-absent condition).<sup>4</sup> The matrix variable represents the proportion of own items<sup>5</sup> that were retrieved by each dyad (partner-present condition) or by the first child (partner-absent condition) while considering the discontinuous nature of the response variable (see Baayen, 2008, p. 197). The model estimates have the exact same interpretation as in any other logistic model. We included condition, population, and their two-way interaction as fixed effects; and mean age (of the dyad), gender, order of conditions, session number, and trial number as control predictors. We included a random intercept for dyad ID to

account for repeated measures as well as random slopes (for details, see Section 5 in the online supplemental materials). We conducted model comparisons between a full model (including population and condition and their two-way interaction) and a null model (excluding the effects of condition and population and their two-way interaction), and between a full model and a reduced model (including only the main effects of population and condition) using likelihood ratio tests. To determine the  $p$  values for each fixed effect in the full and the reduced model, we performed likelihood ratio tests. For further details on the analytical approach, see Section 5 in the online supplemental materials.

We first used an intercept optimization procedure to test whether the proportion of own items obtained by a dyad/individual differed significantly from chance levels (0.5), while controlling for all other predictors (for details, see Section 5 in the online supplemental materials). However, we found that the random effects of the models were too extreme and did not allow for reliable adjustment of the intercept. We thus calculated the average proportion of own items retrieved by each dyad/individual per condition and tested the averages of each population against chance using one-sample  $t$  tests (two-tailed).

The retrieval data is available at <https://osf.io/fnxa6/>. Transcripts of children’s utterances are available upon request from researchers at academic institutions.

## Results

### Warm-Up

In the sorting task, children had to sort beads by their color markings: The majority of children from all four populations succeeded in sorting the beads correctly within four trials ( $\neq$  Akhoe Haillom: 75% of children<sup>6</sup>; German: 98%; Kikuyu: 98%; Wichí: 95%). In the marble run task, children had to indicate which beads they had just played with: One-sample  $t$  tests showed that German children,  $t(39) = 19.46$ ,  $p < .001$ , and Kikuyu

<sup>4</sup> We only used the data from the first child in the partner-absent condition as we refilled the resource pool in between trials. The second child thus encountered a resource pool with six beads—three marked in their own color and three in the other child’s color, respectively—and may have assumed that the first child left the rewards. Comparing the behavior of first and second children in the partner-absent condition, however, revealed no significant effects (for details, see Section 5 and Table S6 in the online supplemental materials). Moreover, first children never received any feedback on second children’s performance, to prevent expectations about reciprocity from influencing first children’s behavior (Sebastián-Enesco & Warneken, 2015).

<sup>5</sup> For example, if a child in the partner-absent condition retrieved two of their own and one of the other child’s items, this would be a proportion of 2/3 (0.67). In the partner-present condition, if each child retrieved two of their own items and one of the other child’s items, this would be a proportion of 4/6 (0.67). See Table S4 in the online supplemental materials for a list of all the proportions that occurred in the study and the corresponding number of own and other items.

<sup>6</sup> We checked whether those Haillom children who failed in the sorting task took all six beads in the main ownership task. Monopolization of beads only occurred in the partner-absent condition. Haillom children who failed the sorting task took all beads in 9 trials (of 21 total; 43%), and children who passed the sorting task took all beads in 25 trials (of 63 total; 40%).

children,  $t(44)^7 = 8.27, p < .001$ , chose the correct marbles significantly above chance level. Haillom children,  $t(27) = 0.00, p > .999$ , and Wichí children,  $t(37) = -0.82, p = .420$ , performed at chance level. It is possible that Haillom and Wichí children performed at chance level because they were unfamiliar with being asked questions about the past (“Which beads did you play with?”). In the bag task, children were asked to put cookies/stickers in a bag to take them home: All children successfully completed the task.

## Retrieval

Model comparisons revealed that the full model had a significantly better fit to the data than the null model without the effects of condition and population and their two-way interaction,  $\chi^2(7) = 45.70, p < .001$ . This suggests that the effects of interest improved the model’s fit to the data (see [Supplementary Table S5](#) for details). Comparing the full model to a reduced model (with only the main effects of condition and population) showed that the more complex model did not have a significantly better fit to the data,  $\chi^2(3) = 0.88, p = .830$ . The reduced model thus emerged as the model with the best fit to the data.

Likelihood ratio tests revealed significant effects of population ( $\chi^2(3) = 40.94, p < .001$ ), condition ( $\chi^2(1) = 4.80, p = .029$ ), gender ( $\chi^2(1) = 8.25, p = .006$ ), and order of conditions ( $\chi^2(1) = 6.54, p = .013$ ) in the reduced model (see [Table 2](#) for details). Specifically, (1) German children were more likely to retrieve their own rewards than ≠Akhoe Haillom, Kikuyum, and Wichí children, (2) children were more likely to retrieve their own rewards in the partner-present condition than in the partner-absent condition, (3) girls were more likely to retrieve their rewards than boys, and (4) children were more likely retrieve their own rewards if they had first participated in the partner-present condition. There was also a trend for dyads of older children to retrieve their own rewards more often than dyads of younger children ( $\chi^2(1) = 3.56, p = .062$ ).

Next, we compared the average proportion of own rewards retrieved by children against chance (see [Figure 2](#)) using one-sample  $t$  tests (two-tailed). Children from the three rural, small-scale groups retrieved their own rewards on average significantly above chance levels in the partner-present condition (≠Akhoe Haillom:  $t(12) = 4.12, p = .001, d = 1.14, 95\% \text{ CI } [0.64, 0.94]$ ; Kikuyu:  $t(22) = 8.63, p < .001, d = 1.80, 95\% \text{ CI } [0.77, 0.94]$ ; Wichí:  $t(18) = 6.75, p < .001, d = 1.55, 95\% \text{ CI } [0.74, 0.96]$ ) and in the partner-absent condition (≠Akhoe Haillom:  $t(13) = 2.74, p = .017, d = 0.73, 95\% \text{ CI } [0.54, 0.80]$ ; Kikuyu:  $t(22) = 5.90, p < .001, d = 1.23, 95\% \text{ CI } [0.69, 0.91]$ ; Wichí:  $t(16) = 5.49, p < .001, d = 1.33, 95\% \text{ CI } [0.70, 0.94]$ ). German children always retrieved their own rewards. For details on the distributions of own and other rewards retrieved by children from each population, see [Supplementary Figures S5](#) and [S6](#).

## Reward Distribution

We also coded the reward distribution—irrespective of ownership—in the two conditions. In the partner-present condition, the majority of children from all four populations achieved an equal reward distribution (≠Akhoe Haillom: 82% of trials; German: 100% of trials; Kikuyu: 75% of trials; Wichí: 75% of trials; see [Supplementary Figure S7](#)). In the partner-absent condition, the

distribution of rewards was bimodal for the three small-scale populations: The first child either took half of the rewards (≠Akhoe Haillom: 33% of trials; Kikuyu: 62% of trials; Wichí: 61% of trials) or took all of the rewards (≠Akhoe Haillom: 52% of trials; Kikuyu: 33% of trials; Wichí: 33% of trials; see [Supplementary Figure S8](#)). German children always took half of the rewards. In all populations, first and second children behaved in a similar way (see [Supplementary Figure S8](#)).

## Utterances

In the partner-present condition, we coded children’s utterances while they were retrieving beads from the resource pool. Across populations, about half of the utterances were scored as being on-topic utterances (see [Table 3](#)). Ownership was the most frequent category for Haillom (59% of on-topic utterances) and Kikuyu children (95%), and the second most frequent category for German (28%) and Wichí children (33%). References to color-markings were the most frequent category for German (80%) and Wichí children (36%), and the second most frequent category for Haillom children (41%). There were some references to the allocation of beads (between 10% to 32% of on-topic utterances across populations). There was very little verbal protest (<9% of on-topic utterances across populations). No child referred to fairness.

## Discussion

The majority of children in our study took their own things and mostly refrained from taking the property of present peer-partners. They mentioned ownership or color-markings in their spontaneous talk during retrieval, indicating that their behavior was due to a sense of their own and the partner’s entitlement to the respective resources. Most children in all societies retrieved their own things in their partner’s absence, yet the strength of respect for their partner’s property varied across societies: German children always retrieved their own things, and only their own things, but half of ≠Akhoe Haillom children, and a third of Kikuyu and Wichí children, also retrieved the other child’s things.

At present, we can only speculate about the reasons for the observed societal variation. It may reflect societal differences in children’s familiarity with personal property and certain ownership practices. Young children from diverse societies have been shown to attribute ownership based on creation ([Kanngiesser et al., 2014](#); [Rochat et al., 2014](#)), but not based on principles such as familiarity ([Rochat et al., 2014](#)) or first possession ([Kanngiesser et al., 2015](#)). Children from the three small-scale populations in our study may have perceived color-markings as weaker ownership cues—possibly because it is not a very common practice to explicitly mark personal property. For example, in German kindergartens, children’s property (clothing, bags) is often marked with their name and children keep their things on dedicated shelves or hangers marked with symbols or pictures. Moreover, children in the three small-scale societies often own fewer personal things than children in the large-scale society. For instance, ≠Akhoe Haillom have traditionally accumulated very little personal property and, of the three small-scale societies, Haillom children showed the least re-

<sup>7</sup> Note that one Kikuyu child accidentally failed to participate in the warm-up.

Table 2  
*Outputs of the Reduced Model Predicting the Proportion of Own Items Retrieved per Dyad/Individual*

Parameter	Est	SE	CI <sub>Low</sub>	CI <sub>Up</sub>	$\chi^2$	Df	<i>p</i>
Intercept	2.647	2.402	-4.727	13.996	n/a	n/a	n/a
Population—Hailom <sup>a</sup>	-6.035	1.107	-13.812	-2.711	40.936 <sup>y</sup>	3 <sup>y</sup>	<.001 <sup>y</sup>
Population—Kikuyu <sup>a</sup>	-4.572	.989	-11.630	-1.926	n/a	n/a	n/a
Population—Wichi <sup>a</sup>	-3.928	1.002	-11.310	-.896	n/a	n/a	n/a
Condition <sup>b</sup>	.870	.378	-.479	1.921	4.802	1	.029
Gender <sup>c</sup>	-1.430	.495	-3.480	.214	8.249	1	.006
Mean age	.778	.420	-.495	2.170	3.556	1	.062
Order <sup>d</sup>	1.240	.482	-.148	2.860	6.537	1	.013
Session	-.302	.378	-1.562	1.161	.643	1	.439
z.Trial	.018	.070	-.238	.247	.080	1	.795

*Note.* The reduced model had the best fit to the data (for details on the full model, see Table S5 in the online supplemental materials). Estimates (Est) and standard errors (SE) are shown. Confidence intervals (CI<sub>Low</sub>/CI<sub>Up</sub>) were calculated via bootstraps. *p* values for fixed effects were derived from likelihood ratio tests.

<sup>a</sup> Reference category “German”. <sup>b</sup> Reference category “absent”. <sup>c</sup> Reference category “female”. <sup>d</sup> Reference category “absent-first.” <sup>y</sup> The reported test refers to the comparison of the reduced model with a model lacking the effect of population. Values indicate the overall population effect; values for each level of the factor are not available.

spect for ownership in the partner’s absence. Future studies could collect individual-level data on children’s personal property and test whether it predicts their ownership understanding.

The societal variation may also reflect different developmental trajectories of ownership understanding. In one instance, use of the first possession ownership heuristic emerged later in Kikuyu children from Kenya than in North American or German children (Friedman & Neary, 2008; Kanngiesser et al., 2015). Since we only tested a narrow age range of 5- to 7-year-olds in our study, we may not have been able to fully capture differences in developmental trajectories among populations in our study. Recent cross-cultural studies on children’s sharing behavior have revealed the benefits of sampling across a wide age range to map similarities and differences in developmental trajectories (Blake et al., 2015; House et al., 2013).

As a further possibility, the observed societal variation may be related to societal differences in conformity to social norms. Ger-

man children are socialized into a very rule-compliant society (Gächter & Schulz, 2016)—their complete respect for others’ property may thus be the exception compared to children from other societies. That is, even though norms of respect for ownership may exist in each society, children may not necessarily always conform to these rules in their everyday behavior (Smith, Blake, & Harris, 2013), and this behavioral conformity may vary across societies. Future studies could investigate how children’s or adults’ beliefs about what one should or should not do with others’ property (normative expectations) relate to their conformity to these ownership norms.

It could be argued that children’s behavior was not an expression of understanding and respecting ownership, but rather compliance with the adult experimenter’s authority or concern for fairness. However, our analyses of children’s utterances in the partner-present condition show that children mostly referred to ownership ( $\neq$  Akhoe Hailom, Kikuyu) or the color-markings (Ger-

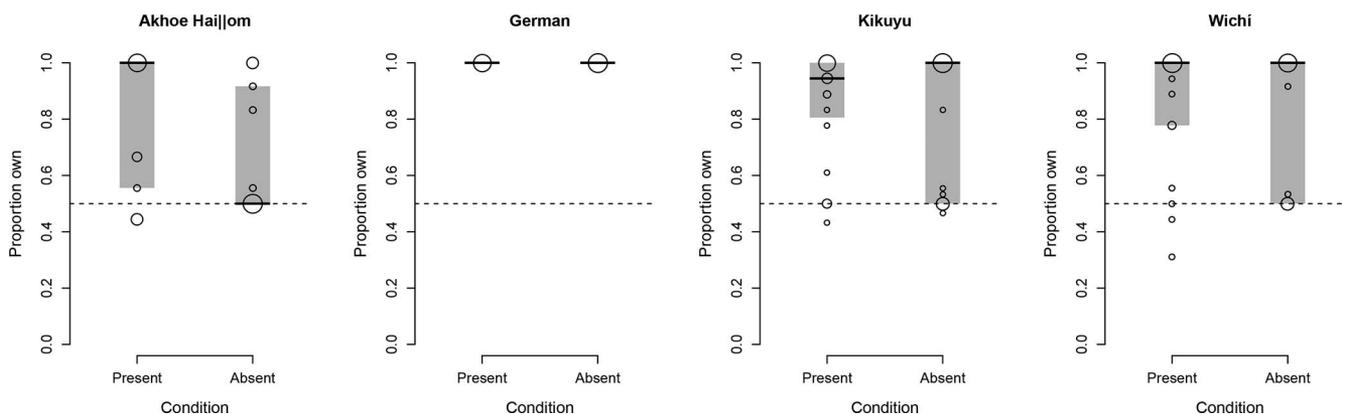


Figure 2. Average proportion of own items ( $N_{own.items}/N_{total.items}$ ) retrieved per dyad (partner-present condition) or per child (partner-absent condition) in each population. “Present” indicates data from partner-present condition, and “Absent” indicates data from partner-absent condition (only data from the first child is shown; for data from the second child, see Figure S4 in the online supplemental materials). The area of the circles represents the number of dyads/children (range: 1–20) that retrieved the indicated average proportion. Solid black lines represent medians, and gray boxes represent the second and third quartile. Dotted lines represent chance level (0.5).

Table 3  
*Number (Percentage) of Children's On-Topic Utterances While Retrieving Rewards from the Resource Pool in the Partner-Present Condition*

Population	Ownership	Color	Allocation	Fairness	Protest	Total on-topic
≠Akhoe Haillom	<b>16 (59%)</b>	11 (41%)	3 (11%)	0 (0%)	1 (4%)	27 (47%)
German	21 (28%)	<b>59 (80%)</b>	11 (15%)	0 (0%)	1 (1%)	74 (59%)
Kikuyu	<b>20 (95%)</b>	0 (0%)	2 (10%)	0 (0%)	0 (0%)	21 (62%) <sup>a</sup>
Wichí	25 (33%)	<b>27 (36%)</b>	24 (32%)	0 (0%)	7 (9%)	75 (58%)

*Note.* Utterances could be scored in multiple categories; most frequent category per population is in bold.

<sup>a</sup> Percentage of audible utterances; 14 instances were inaudible and were not included in this calculation.

man, Wichí) in their on-topic utterances. Importantly, no children referred to fairness. Taken together, this suggests that children paid attention to the color-markings and understood that the task was about ownership.

Previous developmental studies on respect for ownership in Western children have primarily focused on situations where ownership was preestablished or verbally conveyed during the study (Blake & Harris, 2009; Kim & Kalish, 2009; Ross, 1996, 2013; Ross et al., 2015; Rossano et al., 2011). Our study established a sense of ownership by assigning children to different sides of an apparatus (marble run) and by color-marking the sides and children's beads.<sup>8</sup> The color-markings allowed children to track beads and retrieve their own beads from the resource pool (see also Gelman et al., 2016; Ulber et al., 2015). There are two possibilities for how children could have tracked ownership of the beads: (a) by attributing each color to the respective owner (e.g., "green = my beads" vs. "blue = my partner's beads") or (b) by distinguishing broadly between what is theirs and what is not (e.g., "green = my beads" vs. "blue = not my beads"). While we cannot conclusively say which strategy children used based on the behavioral data alone, children's verbal utterances provide some clues (see Supplementary Table S3). Statements such as "You take blue and I take green" (German), "Let's see. You are blue, no? Green is missing. This is green. Give it to me" (Wichí), "This one is yours, and this one is mine" (Kikuyu), or "Mine is green, these ones are yours and this is mine" (Haillom) suggest that at least some children attributed colors both to themselves and to their partner or acknowledged both their own and their partner's ownership.

It has been suggested that tracing objects' history is an important component of children's ownership concept (Gelman et al., 2012; Gelman et al., 2016; Nancekivell & Friedman, 2014b) and underlies children's use of ownership heuristics such as the first possession heuristic (Friedman & Neary, 2008; Friedman et al., 2013). A previous cross-cultural study using a third-party task failed to find evidence of ownership attributions based on first possession in Kikuyu children below the age of nine (Kanngiesser et al., 2015; see also Rochat et al., 2014, for similar data with preschoolers from seven other societies). The current study found that Kikuyu children aged five and six years correctly retrieved their own color-marked objects in a first party task, suggesting that younger Kikuyu children are, in principle, able to track ownership of objects through time and space.

It is possible that younger Kikuyu children struggled in the study by Kanngiesser and colleagues (2015) because they were unable to apply their abilities in a third-party task. Their task involved videos of multiple unknown agents who passed an object

back and forth (but who did not interact verbally), and children were explicitly asked who owned what. In contrast, in the current study children interacted with familiar others and their ownership understanding was assessed through behavioral responses and spontaneous utterances. "Western-style" testing procedures such as questions about what unknown others do or think can be less familiar for children from some populations (Greenfield, 1997). Taken together, this highlights the need to carefully consider task demands when working across diverse populations.

Past research has found that children recognize owners' rights to their property both when the owner is present (Kim & Kalish, 2009; Neary & Friedman, 2014; Rossano et al., 2011) and when she is absent or even when her identity is unknown (Nancekivell & Friedman, 2014a). We found that ≠Akhoe Haillom, Kikuyu, and Wichí children retrieved their own beads at higher proportions in their partner's presence, even though there may have been more direct competition for the beads in this situation. Likely peers helped each other to retrieve their own things and/or agreed to take only their own things. The peer's presence may have also boosted respect for ownership because of reputational concerns—the presence of others has been shown to increase children's pro-social behavior in a range of situations and tasks (see Engelmann & Rapp, 2018; Warneken, 2018, for reviews). These effects may have strengthened children's mutual respect for ownership in the partner-present condition. Moreover, this could help explain why we found more respect for ownership in dyads who first participated in the partner-present condition: Once established, this mutual respect could have carried over to the partner-absent condition.

For Western middle-class children, many early social conflicts with peers revolve around possession and ownership of objects (Hay & Ross, 1982; Shantz, 1987). When parents intervene in these conflicts, they are often inconsistent in enforcing respect for ownership and rather encourage their children to share with others (Ross, 1996; Ross, Tesla, Kenyon, & Lollis, 1990; Ross et al., 1996). However, children often state their ownership, and owners frequently win fights to retain control of their things (Ross, 1996; Ross, Conant, & Vickar, 2011; Ross et al., 2015). Our finding that the majority of children across four diverse societies respected

<sup>8</sup> We cannot entirely rule out that our instructions at the end of each trial, which included a verbal reference to ownership ("Now, take your beads out of the box and put them in your bag"), also contributed to establishing a sense of ownership of the beads. However, our instruction did not explicitly refer to the assigned colors, so children still needed to infer that the color-markings were indicative of ownership.

others' property during a social interaction with a peer (partner-present condition) appears in line with these earlier findings. This suggests that interactions with peers and siblings may play an important role in how children across societies learn to respect what belongs to others.

As the main test of children's respect for ownership, we included a condition where the partner was absent from the room during reward retrieval. In all populations, at least some children respected their partner's property in their absence—with respect being complete in the German sample and being the lowest in the ≠Akhoe Haillom children, where about half of the children also took the partner's beads. It should be noted that Haillom children were frequently asked to share by other children once they left the testing room. Demand sharing is still a strong societal norm in this (now mostly sedentary) hunter-gatherer group. For example, Haillom children have been found to share rewards equally despite unequal work contributions (Schäfer, Haun, & Tomasello, 2015). Haillom children in our study may have tried to maximize their gain in the task because they expected having to redistribute their things outside the study context.

Our findings also have implications for work on prosociality. Young children across many diverse populations have been found to maximize their own gain in costly sharing tasks with windfall resources (Cowell et al., 2017; Rochat et al., 2009), which may be due to a sense of ownership of the resources. Research has shown that young children are usually very possessive and hold on to and defend their own possessions (Western children: Eisenberg-Berg, Haake, & Bartlett, 1981; Kanngiesser & Hood, 2014; Ross, 1996, 2013; Ross et al., 2015; Rossano et al., 2011). While children in our study took what was theirs, (at least) some children were able to refrain from taking what belonged to others. This suggests that children do not always appropriate everything within their reach, and recognize others' entitlements.

The study has a number of limitations. (1) We encountered some challenges when coding children's utterances. About a third of Kikuyu children's utterances were inaudible due to children speaking very softly, so the actual number of utterances per category may differ for this population. In addition, we found only moderate levels of agreement between coding categories of the main translations and the reliability translations for ≠Akhoe Haillom, Kikuyu, and Wichí children, so the utterance-scoring needs to be interpreted with some level of caution. Since we used a conservative approach for the utterance coding (e.g., "I have one bead" was not scored as an ownership-related utterance), we may have missed some of the more subtle notions of ownership. (2) We gave an equal number of rewards to each child in a dyad to avoid a conflict between norms of equality and ownership norms. Future studies could investigate whether children will also respect ownership for unequal reward distributions. (3) We only used one type of reward (beads), which we believed to be of interest and valuable to children across societies. Future studies could investigate whether respect for ownership varies with reward type (e.g., artifacts vs. natural kinds; Neary, Van de Vondervoort, & Friedman, 2012).

In conclusion, we found that children from four diverse societies tended to respect others' ownership of personal property—although the strength of respect in the owner's absence varied across societies. While we focused on ownership of personal property in our study, a variety of ownership systems exist worldwide and

there is variation in the rights and duties associated with different types of property (Cole & Ostrom, 2012).

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