Early Understanding of Merit in Turkana Children

P. Liénard*¹, C. Chevallier², O. Mascaro³, P. Kiura⁴ and N. Baumard⁵,⁶
* Department of Anthropology, University of Nevada, Las Vegas, 4505 South Maryland Parkway, Las Vegas, NV 89154-5003, USA
² Center for Autism Research, Children’s Hospital of Philadelphia, 333 S. Market Street, Philadelphia, PA 19104, USA
³ Department of Cognitive Science, Central European University, Frankel Leó út 30–34, H-1023 Budapest, Hungary
⁴ Archaeology Section, Earth Sciences Department, National Museums of Kenya, Museums Hill, P.O. Box 40658-00100, Nairobi, Kenya
⁵ Center for Cognitive and Evolutionary Anthropology, Oxford University, 64 Banbury Road, Oxford OX2 6PN, UK
⁶ Philosophy, Politics and Economics Program, 313 Cohen Hall, 249 South 36th Street, Philadelphia, PA 19104, USA
*Corresponding author, e-mail: pierre.lienard@unlv.edu

Abstract
Fairness has been identified as a psychological adaptation to share the benefits of cooperation: unfair agents disproportionately favoring their own interests indeed decrease their chance of being recruited in future collaborations. Given the potential benefits of cooperation, it has been argued that fairness should become functional early in ontogeny as the child acquires more independence and expands her social network and collaborations. More importantly, fairness should appear universally, independently of the specific cultural settings. We study the distribution of the benefits of a collective action in five-year-old children in a non-western tribal society, the Turkana of Kenya. Our results reveal that Turkana children demonstrate a clear understanding of merit and that they take individuals’ contribution into account when distributing a resource collectively produced.

Keywords
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Introduction
Human cooperation is characterized by an identity as well as a conflict of interest (Rawls, 1971). Cooperators have an identity of interest because they all benefit from cooperative interactions. But cooperators also have a conflict of interest because, individually, they would be better off with a bigger share
of the resources. How can this conflict be solved? When individuals cannot choose their partners, dominant individuals exert control on the allocation of resources while subordinates endure the inequitable distribution. The distribution of benefits is biased towards dominant individuals and considerations of fairness are fundamentally absent (Schelling, 1960). When partner choice is an option, however, the advantage of dominants is counter-balanced by the possibility for subordinate partners to join other individuals. In this context, the bargaining power of each partner is not defined by their strength in a given interaction, but by the cooperative opportunities offered by all other potential partners. In such a situation, even if an agent is dominant in a particular context, that agent should not blindly exploit her local advantage to avoid being shunned. Recent models show that, in this situation, fairness appears to be the sole evolutionarily stable strategy: individuals who take a bigger part of the benefits than their partners risk being left out for more generous partners, while individuals who take less risk being exploited.

At the ultimate – evolutionary – level, fairness is thus construed as an adaptation to the market of cooperative partners: by balancing the temptation to take as much as possible with the risk of being left out, fairness allows for optimal resource sharing (André and Baumard, 2011). At the proximate – cognitive – level, fairness biases individuals toward sharing more impartially the benefits of a given interaction (Baumard et al., in press). When individuals contribute equally to the cooperative interaction, the benefits of this interaction should be shared equally, no matter the individuals’ physical strength or political might. When social agents do not contribute equally, fairness commands them to proportionate the benefits of the cooperative action to each agent’s contribution. Indeed, if an individual A brings three “units of resources” to a cooperative interaction whereas B invests only one unit, A’s payoff should be exactly three times greater than B’s, otherwise B would have benefited more from the interaction than A. The net benefit individuals receive should therefore be proportional to the amount of resources they invested. This principle of fairness predicts a universal tendency to distribute the benefits of cooperation according to merit.

So far however, developmental studies have been limited to Western children. These studies have successfully demonstrated an early emergence of a sense of justice, in the form of spontaneous sharing in 3 year olds (Hamann et al., 2011), early sensitivity to simple features, such as respect for equality in basic distributive situations in toddlers (Geraci and Surian, 2011; Schmidt and Sommerville, 2011) and to more complex features, such as fairness-based judgments in 3 year olds. As social-constructionists have long claimed however, such early development of a norm of fairness might be associated to specific
European and North American cultural norms (Durkheim, 1893; Shweder et al., 1987). Indeed, culture-specific norms of fairness have been shown to be inter-connected with market integration, world religions and penal institutions, all three of which are ubiquitous in Western societies (Henrich et al., 2010). In terms of development, these important cultural factors could play an essential role in children’s understanding of fairness: Market integration would create an environment where people are bound by legal contracts and endowed with property rights that the child is encouraged to respect; World religions would expose children to the existence of moralizing gods and transcendental laws (e.g., the Golden Rule: “do as you would be done by”); State institutions, via their monopoly on violence, would provide extrinsic incentives to abide by the law and to respect others.

The experiment presented in this paper focuses on merit-based judgments and was conducted in a tribal population in which the influence of world religion, market economy and penal institutions is still relatively weak. Children were asked to distribute three units of a batch of cookies to two fictional characters who did not work equally hard to produce the cookies. The task involved two phases: a free distribution phase and a forced distribution one. The free distribution phase allows children to distribute any number of cookies they want, in any way they want. In the forced distribution phase, however, children are asked to distribute any remaining cookie (and are, thus, forced to favor one character over the other). Using the same design, Baumard et al. (2012) found that western preschoolers’ spontaneous modal response was to give each character one cookie and, when prompted to give the remaining cookie, to favor the greatest contributor. These results demonstrate that, while children sometimes favor equality, they nonetheless have an underlying capacity to understand that the greatest contributor has a right to a greater share than the other contributor. This task therefore provides a simple measure of children’s moral preferences as well as of their underlying capacity to take merit into account.

Methods

Participants

Twenty-two children participated in our experiment, two of whom were excluded because they failed to respond to the prompt questions. Twenty 5-year-old children (mean 61 months, range 55–64 months, 11 girls) were retained for the analyses. Children were recruited by word-of-mouth. Upon arrival in the camps, word was passed around that the experimenter was
interested in running an experiment with 5-year-old children. Mothers would come with their child to a quiet designated place in the shadow of a tree. Ages were appraised by asking mothers to count in reverse from the present the number of dry and wet seasons that the child had been through, cross-referencing with other marking events that took place in the last 6 years (national elections, important relief food campaigns, visit of prominent political figures, etc.).

The study population belongs to highly mobile cattle and camel camps of the Ngilukumong territorial section, which occupies semi-arid rangelands in northwestern Kenya near the international border with Uganda in the Northwest of the Turkana County (see Fig. 1). In this segment of the Turkana population, at the time the experiment was run, the typical cultural forces that have been found to be interconnected with fairness were at best very weak (e.g., Henrich et al., 2010).

**Market Integration.** Resources mainly originate from the livestock herding economy (meat, milk, blood). The livestock is generally not traded and traditional rules of exchange still primarily organize their circulation. Smaller livestock (goats and sheep) are periodically bartered or sold in exchange for basic consumables such as maize flour, sugar, tea, alcohol and tobacco.

**World Religions.** Due to its highly mobile life, the study population segment has remained largely isolated from world religion proselytism until now. Traditionally, Turkana recognize the existence of a major remote supernatural being (Akuj). Other smaller beings populate the environment of the living (Ekipe, spirits, and Ngikaram, collective of the deceased). Though these supernatural entities can sometimes be held responsible for misfortune, disease, and sickness, they do not typically adopt a moralistic stance in their relations with humans (Shelley, 1985).

**Penal Institutions.** The segment of the Turkana society we studied is still highly decentralized and there is no traditional penal institution. Polygynous families associate in grazing units (adakar) sharing pastures, organizing regional defense networks against neighboring enemy tribes and managing their internal affairs (Gulliver, 2003).

**Material and procedure.** The procedure was approved by the local Institutional Review Board (IRB) as indicated in Federal regulatory statutes 45 CFR 46 and local Human Research Policies and Procedures. The consent was read aloud to the parents of the participants from a pre-established script. Consenting was documented by having the parents appose either their personal clan mark or
Figure 1. The experiment was carried in a cattle camp (blue) and a camel camp (yellow) north of the Turkana County (A). Gathering of women in the cattle camp where the experiment took place (B). This figure is published in colour in the online edition of this journal, which can be accessed via http://booksandjournals.brillonline.com/content/15685373.
any other mark they wished on the verbal consent form. Consent was obtained from parents of all participants. Children gave informed assent prior to the beginning of the procedure. Children listened to a story about two girls who decide to bake cookies (ngabiskito) together. The experimenter told the story in Ngaturkana (Turkana language) using supporting vignettes. First, the fictional characters were introduced: “See, this is Asekon, and this is Apuu (culturally-appropriate names). Asekon and Apuu are very good friends. Can you show me Apuu? Can you show me Asekon? Very good!” The experimenter ensured that the child had memorized both characters’ names by asking the child to point to them. The name order of the characters was counterbalanced. The experimenter then said: “Today, Asekon and Apuu have decided to bake cookies. See, they’re in the kitchen ['ekeno', hearth, kitchen], they’re making cookies ['ngabiskito']! After a little while, Apuu is bored of making the cookies. Asekon says: “Yes, it’s tiring to bake cookies but I’m OK to finish on my own.” The experimenter then said: “Apuu goes to play with her doll ['ikideed']. Yippee! It’s fun to play dolls!” At this point, the first control question was asked: “Does Apuu find it fun to play dolls?” If the child provided a correct answer, the experimenter proceeded: “In the meantime, Asekon is finishing the cookies. She says: ‘Phew! This is such hard work! It’s so tiring to make these cookies!’ The second control question was then asked: “Does Asekon find that it’s a lot of work to bake the cookies?” If the correct answer was provided, the experimenter went on with the final part of the script: “That’s it! Asekon is done! The cookies are ready! Mom says: ‘You can have some!’ She puts three small cookies on a plate. You can give cookies to Asekon and Apuu.” Three cookies on a plate (printed and laminated) were given for the child to distribute.

Two measures were recorded: the initial distribution in which children were free to allocate as few or as many cookies as they wished, and the final distribution in which they were asked to distribute any remaining cookies. The initial distribution was considered complete when the child provided a clear sign that she had finished distributing. If the child had not distributed all the cookies, the experimenter went on saying: “Well done! Very nice! Oh, look, there’s some left. Who do you want to give it to? To Asekon or to Apuu?” (Order of names counterbalanced) and repeated the procedure until all cookies were given out (children could thus distribute the cookies in one, two, or three steps). The final distribution was recorded at this point.

This simple design allows us to study children’s moral preferences and their capacity to take merit into account. For example, children might prefer to give each character one cookie in the initial phase but if they have the underlying capacity to take merit into account, they should favor the big contributor once forced to distribute the remaining cookie(s) in the final phase.
Results

In the initial distribution, children’s modal response (9 out of 20 children, $p=0.01$, nine-choice binomial, OR=4.10) was to give one cookie to each girl (see Fig. 2A). Beyond this modal response, however, the overall initial distribution favored the big contributor: of the 60 cookies available (all 3 cookies for each of the 20 participants), 46 cookies were immediately distributed in the first round, 30 of which were allocated to the big contributor, $p=0.05$, two-choice binomial, OR=1.88.

After completion of the final distribution, the big contributor was favored by 16 children out of 20, $p=0.01$, two-choice binomial, OR=4.00 (see Fig. 2B) and received a total of 39 out of 60 cookies, $p=0.03$, two-choice binomial, OR=1.86.

Discussion

Evolutionary models construe fairness as an adaptation to regulate cooperative interactions and predict that a sense of fairness should display the characteristic logic of proportionality, that it should be functional early in development when dealing with the social world becomes essential and that it should be largely independent of cultural influences (hence the important difference between universal intuitive sense of fairness and culture-specific norms of fairness). In our study, the logic of fairness was apparent in that Turkana children were able to take merit into account when distributing resources and gave more to the character who contributed more. Importantly, this pattern emerged in young children, despite the fact that important cultural forces, such as market...
integration, world religion, or penal institutions, were quite weak or absent in the segment of the Turkana population we studied.

Whether such merit-based intuitions match children’s actual behavior in decisions that impact them directly remains to be determined. If children were to distribute cookies between themselves and other children, they might be reluctant to be fair while still being aware that this would be the right thing to do. In other words, it is possible that children’s moral behavior departs from their moral judgments. In apparent contrast with our results, for instance, recent studies in developmental psychology have shown that children as old as 7 were reluctant to distribute tokens equally when they had the option to get more for themselves (e.g. Fehr et al., 2008; Moore, 2009; Rochat and Dias, 2009). Children thus appeared to be biased to serve their own interests. However, when children have a stake in the decision, amoral factors – such as immature self-control – may prevent children from following what fairness commands them to do. Similar discrepancies between judgment and behavior have indeed been found in adults, e.g., in cases of moral hypocrisy (Batson et al., 1999) or in situations where individuals lack the self-control to refrain from acting in a way they know is wrong (Baumeister and Juola Exline, 1999).

Another limitation of the present study is that the scenario only manipulates merit and neutralizes other important factors guiding distribution, such as the contributors’ respective levels of need, pain, or skills. It would therefore be interesting to investigate whether children, just like adults, take factors like talents, handicap and privileges into account when distributing goods (Almaas et al., 2010) and the extent to which these factors are sensitive to cultural influences. Similarly, it would be interesting to assess the influence of the presence of the experimenter, i.e., an authority figure, on children’s behavior. It is indeed possible that reputation management impacts children’s distribution choices and that these effects are more or less powerful depending on the cultural context.

As far as merit-based fairness is concerned, our results suggest that early understanding of merit is, at least in part, independent of cultural influences. Importantly, Turkana children typically receive much less parental input and guidance than western children of the same age. Our fieldwork observations indicate that parents do not explicitly teach the norm of fairness; parental supervision is often lax and involves little more than checking on the child from time to time. In fact, when parents do intervene, they typically encourage their children to defend their belongings forcefully if needed and to ascertain independently their social position. At the age of four or five, children spend much time on their own, away from any tight supervision. Fathers are away with animals or at the tree of men and mothers are busy for long stretches of time with the daily household chores. Little girls typically spend time going
to the wells while little boys hang around the camp in small, unsupervised bands. It is only later on that children get more systematically included in the adults’ social network and receive more explicit guidance about their role in the camp.

Finally, we do not yet know whether the sense of fairness arises from an adaptation that evolved for this function. Although vertical norm transmission appears unsystematic in Turkana children this age, it is very possible that horizontal transmission, through same- or close-age peers, plays a larger role in Turkana culture. Whether fairness arises from an evolved adaptation has perhaps been more readily addressed in recent studies showing that more basic moral principles, such as sensitivity to inequality or the general ability to share, are grasped from the preschool years onward. Looking time experiments have shown that 12 to 18 months old infants are sensitive to inequity (Geraci and Surian, 2011; Schmidt and Sommerville, 2011) and active behavioral paradigms have shown that 3-year-olds share mostly equally after having worked together to obtain rewards in a collaborative task (Hamann et al., 2011, 2011). More recently, fairness based judgments have been observed among three-year-olds using behavioral tasks (Baumard et al., 2012) and among toddlers using looking time (Sloane et al., 2012). These findings, together with ours, suggest that humans might be endowed with a universal sense of fairness enabling the progressive acquisition of culture-specific norms of fairness and are adapted to respond to an environment pervaded with conflicts of interests.

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References


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