Electronic Supporting Materials

Subjects

Sixteen semi-free chimpanzees living at Sweetwaters Chimpanzee Sanctuary in Kenya participated in the study (see Table S1). All of the chimpanzees were born in the wild, are unrelated, and are orphans of the illegal trade in chimpanzee bushmeat, having been confiscated from poachers. See http://www.olpejetaconservancy.org/wildlife/chimpanzees/meet-the-chimpanzees/ for further details on the individual history of the chimpanzees. During the day, the chimpanzees are released to range freely in the 1.01 km^2 enclosure within the 364 km^2 area of savannah and wooded grassland in Ol Pejeta Conservancy. In the evening, the chimpanzees return to sleep in a large holding facility. Each room is approximately 3.5 x 4.6 x 4.2 meters in size and shared by four individuals. Chimpanzees are fed three times a day. Subjects could be tested in their indoor enclosure before being released into their outside enclosure each day. The subjects are not food deprived. Subjects could choose to stop participating at any time (e.g., by sitting in front of the exit to the testing room and refusing to participate in the cooperation task) and would be released for the day. The main experiments (1, 2 & 3) were conducted with ten chimpanzees (six females, four males, age 7-28 years) living in a social group of 22 chimpanzees in the eastern section (group A) of the sanctuary. All ten subjects were familiar with the collaboration task. Dyads were chosen based on their tolerance levels. All subjects except one (Eva) were also familiar transferring tools to their partner in order to succeed collaborating, as it was required in Melis & Tomasello (2013). Six additional subjects (five females, one male, age 8-26 years) belonging to the western group (group B) participated in the follow-up condition of Experiment 3.

Table S1. Chimpanzees that participated in the study. Subjects marked with * had previously participated in Melis & Tomasello (2013).

Subject	Sex	Age (years)	Place of Birth	Participation in Experiments
Alley*	F	27	Born in wild (DRC)	Experiments 1, 2 & 3
Cheetah*	F	27	Born in wild (DRC)	Experiments 1, 2 & 3
Zee*	M	14	Born in wild (DRC)	Experiments 1, 2 & 3
Amahirwe*	M	16	Born in wild (DRC/Rwanda)	Experiments 1, 2 & 3
Ali kaka*	M	12	Born in wild (DRC/Sudan)	Experiments 1, 2 & 3
Eva*	F	12	Born in wild (DRC/Sudan)	Experiments 1, 2 & 3
Julia*	F	14	Born in wild (Cameroon)	Experiments 1, 2 & 3
Victoria*	F	10	Born in wild (Cameroon)	Experiments 1, 2 & 3
George*	M	11	Born in wild (DRC)	Experiments 1, 2 & 3
Jojo*	F	30	Born in wild (DRC)	Experiments 1, 2 & 3
Amizero	F	26	Born in wild (DRC)	Follow-up Exp. 3
Dufatanya	F	24	Born in wild (DRC)	Follow-up Exp. 3
Tess	F	23	Born in wild (DRC)	Follow-up Exp. 3
Bahati	F	22	Born in wild (DRC)	Follow-up Exp. 3
Joy	F	11	Born in sanctuary	Follow-up Exp. 3
Roy	M	8	Born in wild (DRC)	Follow-up Exp. 3

Apparatus

Procedure and Design

Prior to the test phase subjects were familiarized with the following aspects of the task.

Pre-test 1: Individual introduction to the opening mechanism of the hiding boxes

In this pre-test there was only one hiding box attached to the mesh. Door between rooms 1 & 2 was open. Subjects observed while the Experimenter hid a banana piece in the hiding box and were given the opening key so that they could try to open the box by themselves. Since the box only had one

opening, it generally did not take long until subjects started inserting the key in the opening. The greatest difficulty was that the key could be inserted in two different directions, but only one of them opened the guillotine door. Subjects received sessions of 10 trials. In order to move on to the next pre-test, subjects had to open the box within 10s after first touching it in 3 consecutive trials (or 3 out of 4 trials).

Pre-test 2: Individual introduction to the two hiding boxes

There were two hiding boxes attached to the mesh between rooms 1 & 2. Subjects were familiarized with the fact that only one box was baited with food and that after opening one of the boxes (i.e. inserting the key in one of them), they could not open the second box anymore. A trial started by distracting the subject in room 3 (E2) while another Experimenter (E1) placed half a banana in one of the hiding boxes. In full view of the subject, E1 placed the key in room 1 between the two hiding boxes. The key was placed in room 1 to facilitate subjects peeking through the windows in the back of the boxes. Subjects were allowed to enter in room 2 from room 3, but the door between rooms 1 and 2 was open, so that they could walk to room 1, pick up the key, see which box was baited and then come back to room 2 to open the box. Subjects received sessions of six trials, until they opened the correct box in at least 10 out of 12 trials during two consecutive sessions. Subjects participated in an average of 4.3 sessions to reach criterion (Range=2-8 sessions). On average subjects were successful in 75% of the trials.

Pre-test 3: Metacognition

There were two hiding boxes attached to the mesh between rooms 1 & 2. The goal of this pre-test was to make sure that subjects 1) were aware that they needed information about the hiding location of the banana, and 2) they were willing and able to delay opening a box, walking some extra steps, to acquire that information. This pre-test also showed that the subjects understood that only one box had been baited, and that after opening one of the boxes they would not be able to open the second one. The procedure was similar to the one from Pre-test 2, with the only difference that subjects found the key in Room 2 in front of the hiding boxes. Despite this small difference, this was a much more difficult condition, since subjects were already in front of the boxes with the key in their hand. Therefore, to succeed they had to (1) inhibit opening any of the boxes the moment they entered into room 2 and found the key, (2) go to room 1 and check which of the hiding boxes contained the banana, and (3) go back to room 2 and open the correct hiding box.

Subjects received sessions of six trials, until they opened the correct box (after previous peeking through the back window) in at least 10 out of 12 trials in two consecutive sessions. Subjects participated in an average of 14.6 sessions to reach criterion (Range=3-28 sessions) and were on average in 54% of the trials successful. There were great individual differences in this pre-test (see SI table 1) but the same has been reported in other published metacognition studies. This metacognition task was arguably more difficult, since the probability of succeeding by chance was 50% (higher than in other metacognition studies) while at the same time the costs of checking first were higher (subjects had to walk past the boxes into the adjacent room and come back). Subjects who did not meet the criterion in 11 sessions (4 out of 10 subjects) participated in a modified procedure of the pre-test to help them start looking before opening. This consisted in placing the key in room 1 (like in Pre-test 2) and then slowly moving the key to room 2.

Pre-test 4: Metacognition and sequential tool use

There were two hiding boxes and the collaboration box attached to the mesh between rooms 1 & 2 (Figure 1b, main manuscript). The collaboration box was placed between the two hiding boxes and baited with grapes. This pre-test was similar to pre-test 3 except that now the tools necessary to empty the collaboration box were hidden in one of the hiding boxes. The door between rooms 1 & 2 was open, and subjects were allowed to move freely between the two rooms once they entered into room 2. As in the previous pre-test, they found the key to open the hiding boxes in room 2 at an equidistant position between the two hiding boxes. Therefore, they had to (1) inhibit opening any of the boxes the moment they entered into room 2 and found the key, (2) go to room 1 and check which of the hiding boxes contained the tools, (3) go back to room 2 and open the hiding box containing the raking and

pushing tools, and (4) perform both roles (raking and pushing) at the collaboration box (going back and forth to both sides of the grapes box) in order to obtain the grapes inside the collaboration box. Subjects received sessions of four trials, until they performed correctly in at least three out of the four trials in two consecutive sessions. Subjects participated in an average of 6.7 sessions to reach criterion (Range=2-25 sessions; see supplemental material for individual results). On average subjects were successful in 74% of the trials.

Table S2. Individual pretests' results. In pretests 2 & 3 subjects received 6 trials per session and in pretest 4, 4 trials per session.

Subject	Pretest 2		Pretest 3		Pretest 4	
	Sessions	%Trials correct	Sessions	% Trials correct	Sessions	% Trials correct
Julia	5	63	7	29	2	87.5
Vicky	7	74	5	63	2	87.5
Amahirwe	3	89	4	75	2	100
Zee	8	60	27	44	8	47
Eva	5	73	3	78	2	87.5
Alikaka	2	92	26	58	8	65.6
Alley	3	89	11	62	5	75
Cheetah	4	67	24	40	8	72
George	4	67	28	49	5	75
Jojo	2	92	11	42	25	47

Pre-test 5: Collaboration reminder

In this pre-test there was only the collaboration box attached to the mesh. The door between rooms 1 & 2 was closed and there was one individual in each room. Each individual in the dyad was given the correct tool necessary to perform her/his role. Subjects participated in two sessions of four trials each in which they had to collaborate with their partner to obtain the grapes in the collaboration box. The subject in room 1 (the communicator's room) was required to rake the grapes and the subject in room 2 (the recipient's room) was required to insert the pushing tool to tilt the platform with the grapes. Subjects exchanged positions (and roles) in the second session. In this pre-test we were also able to test whether the dyads from Melis & Tomasello (2013) were still tolerant enough to collaborate successfully.

Pre-test 6: Tool-transfer reminder

In this pre-test there was only the collaboration box attached to the mesh. The door between rooms 1 & 2 was closed and there was one individual in each room. One subject in the dyad was given both tools (as in Melis & Tomasello, 2013). The subject in room 1 (the communicator's room) was required to rake the grapes and transfer the pushing tool to the subject in room 2 (the recipient's room), whereas the subject in room 2 (the recipient's room) was required to transfer the raking tool to the subject in room 1 (the communicator's room) and push and tilt the platform with the grapes with the pushing tool. Which subject in the dyad (the raker or the pusher) received both tools alternated across trials. Subjects participated in two sessions of four trials each. One of the subjects (Eva) had never transferred tools to the partner before, and she needed 2 additional sessions in which E1 encouraged her to transfer the tool to the conspecific until she started doing it on her own.

Test phase

Experiment 1: Comprehension of human pointing

The two hiding boxes and the collaboration box were attached to the mesh between rooms 1 & 2. The door between rooms 1 and 2 was always closed. The 10 subjects participated in the recipient's role with a human experimenter (E1) as the communicator. The tools for the collaboration task were

hidden in one of the hiding boxes while the subject was distracted by E2 in room 3. The collaboration box was baited with grapes and placed in line following the two hiding boxes, 150cm away from the closest hiding box. The distance between the two hiding boxes was 160cm. The key to open the hiding boxes was placed at an equidistant position between the two hiding boxes in room 2 (3m away from the mesh). E1 positioned herself in room 1 at an equidistant position between the two hiding boxes 130cm apart from the mesh where the two hiding boxes were attached. A trial started when E2 allowed the subject to enter room 2. The moment the subject started entering in Room 2, E1 called the subject's name and food-grunted while she was bodily oriented, looking at and pointing (cross-point) to the baited box. After the subject obtained the tools, E1 approached to the collaboration box. Subjects spontaneously transferred the raking tool to E1, and E1 and the subject collaborated emptying the box (E1 raking the grapes and the subject inserting the pushing tool to tilt the platform with the grapes). If the subject did not open the hiding box indicated by E1, the trial was considered unsuccessful and the subject was called into room 3 to prepare the boxes for the following trial. Each subject participated in two sessions of six test trials each. Each session started with four introduction trials, in which E1 was not there and the two hiding boxes were empty. Subjects experienced in these four initial trials always failure. The position of the tools in the test trials (Left vs. Right box) was counterbalanced across trials with the only constraint that it could not be in the same box in more than two consecutive trials.

Experiment 2: Cooperative communication among chimpanzees (Focus on production)

Introductory session

All dyads participated in an introductory session of four trials to acquaint them with all the steps of the task except with the communication aspect of the task. The collaboration box was baited with eight grapes, and the two hiding boxes were also placed in position. The communicator was in room 1 and the door between room 1 and room 2 was closed. The tools were placed inside one of the hiding boxes, but since both boxes were opened, recipients did not need information from the communicator. After allowing the recipient to enter in room 2, (s)he could take the tools, transfer the raking tool to the communicator and empty the collaboration box.

Test

Each test session consisted of four different kinds of trials. Each test session started with two introduction trials, followed by two trios of trials, each trio containing one trial of each type (i.e. test, control and motivation) in a randomized order.

- Introduction trials: the collaboration box was baited with 8 grapes. The two hiding boxes were closed but empty. The subject in the communicator role was not there. The recipient was allowed to enter room 2, where she found the key to open the boxes, but since both boxes were empty she was never successful. The goal of these trials was to "slow down" the recipients. Since they had a 50% chance of being successful, these trials were introduced to reduce the "perceived probability" of success, and increase the likelihood of recipients paying attention to potential communicative cues.

- Test trials: the collaboration box was baited with 8 grapes. The two hiding boxes were closed and one of them contained the tools. The communicator was in room 1 and was able to see which of the hiding boxes contained the tools. A trial started when the recipient was allowed to enter in room 2. If the recipient opened the correct box (by chance or following the indications of the communicator), (s)he obtained the tools. She then had to transfer the raking tool to the communicator so that they together could collaborate obtaining the grapes.

- Control trials: the collaboration box was baited with 8 grapes. The two hiding boxes were closed and one of them contained the tools. The communicator was in room 1 and was able to see which of the hiding boxes contained the tools. The recipient never entered room 2, and

remained in room 3. A trial started when the human experimenters left the testing facility and ended after 2 minutes. It was important that humans left the testing area to make clear that the recipient would not join the communicator.

- Motivation trials: the collaboration box was baited with 8 grapes. The two hiding boxes were open and one of them contained the tools. The communicator was in room 1. A trial started when the recipient was allowed to enter room 2. The recipient was always able to obtain the tools for the collaboration box. She then had to transfer the raking tool to the communicator so that they together could collaborate obtaining the grapes

The key to open the hiding boxes was either given to the communicator or placed in the recipient's room (room 2). This only applies to the test and control trials, since in the motivation trials, subjects did not require the key as both boxes were open. In half of the sessions, the recipients encountered the key in room 2 at an equidistant position between the two hiding boxes (3m apart from the mesh separating rooms 1 and 2. In the other half of the sessions, the communicators had the key. All dyads participated in 6 sessions (2 trials of each type per session), after which subjects exchanged roles (i.e. communicators became recipients and viceversa) and received another 6 sessions.

Experiment 3: Cooperative communication among chimpanzees (Focus on comprehension)

Each session started with four introduction trials in which the communicators were not there. The Introduction trials, were just as the introduction trials described in Experiment 2. The test trials were like the test trials from Test 2, only that now the communicator always had the key for the hiding boxes. The communicator was in Room 1 and was able to see which of the hiding boxes contained the tools. A trial started when E1 gave the key for the hiding boxes to the communicator and E2 opened the door allowing the recipient to enter Room 2. The communicator had to transfer the key to the recipient and communicate which hiding box the recipient should open. If the recipient opened the correct box (by chance or following the indications of the communicator), (s)he obtained the tools. She then had to transfer the raking tool to the communicator so that they together could collaborate obtaining the grapes. Subjects participated in a minimum of three and a maximum of six sessions, until they completed 18 test trials.

Follow-up local enhancement control

A new group of six subjects participated in this experiment. After successfully passing Pre-tests 1 & 2 (see above), subjects initiated the test phase. Each test session started with four introduction trials (conducted in the same way as explained above), and was followed by six test trials. In the Introduction trials, the two hiding boxes were closed but empty. The recipient was allowed to enter Room 2, where (s)he found the key to open the boxes, but since both boxes were empty, independently of which box (s)he opened, (s)he was never successful. The goal of these trials was to "slow subjects down". In the test trials, the two hiding boxes were closed. The door separating Rooms 1 and 2 was closed, so that subjects could not see the back of the boxes and check which box was baited. E1 placed the reward (1/3 banana) in one of the boxes and placed the key to open the hiding boxes close to it, while E2 distracted the subject. A trial started when E2 allowed the subject to enter Room 2. The dependent measure was whether or not subjects would preferentially open the box the key was closest to. Subjects participated in a total of 18 trials.

Coding and Analyses

All trials were videotaped and a second observer independently scored 30% of the trials. The main dependent measures were: success (i.e. which of the two hiding boxes recipients opened) and communicative signals by subjects in the communicator's role. A test trial started when the recipient entered room 2 and ended after the recipient opened one of the boxes (or after a maximum of 2 minutes if recipients did not open a box). A control trial (in Experiment 2 only) started when the experimenters left the testing area (indicated with an auditory cue) and ended after two minutes. In Experiment 2 we coded as "communicative behaviour" (in test and control trials) all instances in

which the communicator positioned herself close to (or behind) one of the boxes waiting for the recipient to enter room 2, or for at least 4sec before the recipient started opening one of the boxes. In addition, communicators could touch, look at the box or transfer the key close to the box. In experiment 3, communicators always had the key for the hiding boxes, so that transferring the key close to one of the boxes was the main communicative behaviour observed and coded. Inter-observer reliability for success was excellent (Cohen's kappa = 1.00 for Experiments 1, 2, 3). Inter-observer reliability for communication was good in Experiment 2 (Cohen's kappa = 0.885, N=74, Agreement: 94%), and very good in Experiment 3 (Cohen's kappa = 0.901, N=59, Agreement: 96%). Statistics were calculated with SPSS 22.0.0. and R (R Core Team, 2016). All statistical tests were two-tailed. We used non-parametric tests (Wilcoxon exact tests) to compare subjects' performance versus a chance outcome. Furthermore, given that we had individuals in each dyad playing both roles (communicator and recipient) and all dyads received multiple trials, we also analysed the data using Generalized Linear Mixed Models (GLMM: Baayen, 2008) and included the identity of the dyad, the communicator and the recipient as random factors to control for the non-independency of the data. Since our responses were always binary (communication vs. no communication and success vs. no success) the models were fitted with binomial error structure and logit link using the function glmer of the R-package lme4 (McCullagh & Nelder, 2008; Bates, Maechler, Bolker, & Walker, 2015). Prior to running the model we z-transformed trial number to a mean of zero and a standard deviation of one to easier interpretable estimates (Aiken & West, 1991; Schielzeth, 2010). Each full model (including all fixed and random effects) was compared to a null model that included the control predictors and random effects by using a likelihood ratio test (Dobson 2002). P-values for the individual effects were based on likelihood ratio tests comparing the full with respective reduced models (Barr, Levy, Scheepers, & Tily, 2013). For the random effects (dyad, communicator, recipient), random intercepts and random slopes were considered. To rule out collinearity between the different factors, we determined Variance Inflation Factors (VIF) using the "vif" function of the R-package 'car' (Fox & Weisberg, 2011) but it was never an issue. We estimated model stability by dropping the levels of the random effects, one at a time, and comparing the estimates derived from the respective reduced data sets with those obtained from the full data set.

Results

Experiment 2

Model 1 (Communicators). To test the differential rate of communication across the test and control conditions we included communication (yes/no) as the dependent variable and as fixed factors the interaction between trial number (1-12) and condition (Test and Control) and the fixed factors: communicators' possession of key (yes/no), role order (communicator first/recipient first) and baited box (left/right). We also included the identity of the dyad, the identity of the communicator and the identity of the recipient as random factors. The full model was significantly different from a more parsimonious model without the interaction between trial number and condition, but all the fixed factors and the random intercepts and slopes (Likelihood ratio test: $\chi^2(1) = 15.717$, $p < .001$).

Table S3. Factors that influenced the likelihood of communication in Experiment 2.

	Estimate	SE	Z	P
Trial	-0.553	0.318	-1.740	0.082
Condition	1.771	0.521	3.399	0.001
Key	-0.306	0.633	-0.483	0.629
Baited box	-0.260	0.330	-0.788	0.431
Role Order	-0.160	0.554	-0.289	0.773
Trial: Condition	1.364	0.352	3.869	0.000

Model 2 (Recipients). To test the variables that affected recipients' likelihood of opening the box with tools, we conducted a GLMM in which we included "Success opening the baited box (yes/no)" as the dependent variable, and communication (yes/no), trial number, role order, communicator's possession of the key and baited box as fixed factors. We also included the identity of the dyad, the identity of

the communicator and the identity of the recipient as random factors. The full model was significantly different from a more parsimonious model that included possession of the key, role order and baited box as predictors and the random intercepts and slopes (Likelihood ratio test: $\chi^2(2) = 6.251$, $p = .044$). Recipients were more likely to be successful finding the tools when their partners communicated (estimate = 1.321, SE = 0.444, Z = 2.973, $p < 0.01$), whereas trial number had no effect.

Table S4. Factors that influenced the likelihood of success (i.e. recipient opening the box the tools) in Experiment 2.

	Estimate	SE	Z	P
Trial	-0.227	0.239	-0.951	0.342
Key	-0.003	0.417	-0.008	0.994
Baited box	0.616	0.416	1.482	0.138
Role Order	0.182	0.414	0.440	0.660
Communication	1.321	0.444	2.973	0.003

The following figure shows the number of trials with communication in which recipients were successful finding the tools or not. Alikaka, Alley, Amahirwe, Zee and Jojo were more successful than unsuccessful when their partners communicated.

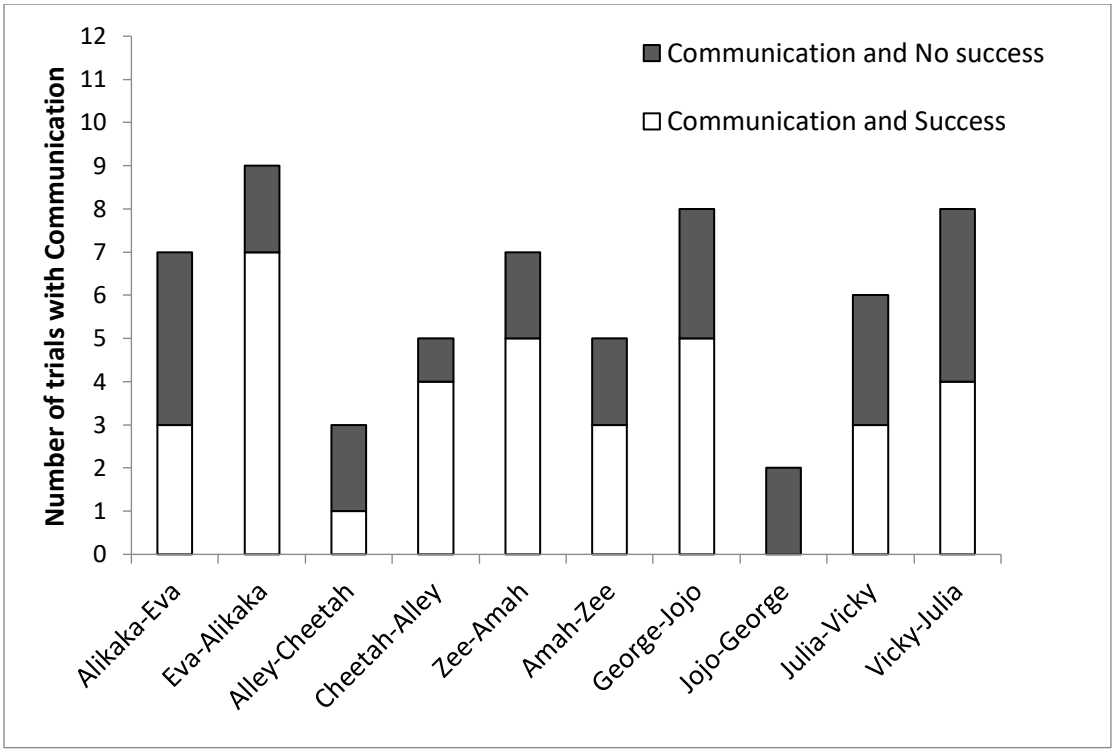

Figure S1. Absolute number of trials in Experiment 2 in which subjects in the communicator's role signalled one of the boxes and led to recipient's success or failure. On the X-axis the subjects in the communicator's role (first name) with their recipient partners (second name).

Experiment 3

Model 3 (Communicators). To test if individuals' likelihood of communicating the location of the tools increased with trial number, we conducted a GLMM that included the identity of the dyad, the identity of the communicator and the identity of the recipient as random factors, "correct communication" (yes/no) as the dependent variable (no communication or signalling the empty box were considered incorrect responses) and as fixed factors "trial number (1-18)", "role order" (communicator first/recipient first) and "baited box (left/right)". The full model was not significantly

different from a more parsimonious model that included only role order and "baited box" as control predictors and the random intercepts and slopes (Likelihood ratio test: $\chi^2(1) = 0.027$, p = .870)

Model 4 (Recipients). We ran a GLMM to test the variables that affected recipients' likelihood of opening the box with tools. Since subjects communicated at such high levels, we did not look at simple communication but we looked at "Correct Communication", where no communication or signalling the empty box were considered incorrect responses and signalling the baited box correct. As in the previous models, we included the identity of the dyad, the identity of the communicator and the identity of the recipient as random factors, "Success opening the baited box (yes/no)" as the dependent variable, and "trial number", "correct communication (yes/no)", "role order" (communicator first/recipient first), and "baited box" as fixed factors. The full model was significantly different from a more parsimonious model that included only role order and baited box as predictors and the random intercepts and slopes (Likelihood ratio test: $\chi^2(2) = 15.575$, p <0.001).

Table S5. Factors that influenced the likelihood of success (i.e. recipient opening the box the tools) in Experiment 3.

	Estimate	SE	Z	P
Trial	0.002	0.244	0.009	0.993
Baited box	0.204	0.750	0.272	0.786
Role Order	0.097	0.734	0.133	0.894
Correct Communication	1.914	0.522	3.665	0.000

Model 5 (Follow-up).

To test what variables affected subjects' likelihood of using the cue we conducted a GLMM in which we included the identity of the subject as random factor, "Success opening the baited box (yes/no)" as the dependent variable, and trial number and baited box (L/R) as fixed factors. The full model was significantly different from a more parsimonious model that included only the random intercepts and slopes (Likelihood ratio test: $\chi^2(2) = 8.081$ p =0.018). Subjects were more likely to succeed obtaining the reward when the left box was baited (estimate = 2.786, SE = 0.802, Z = -3.472, p = .001), whereas trial number had no effect on levels of success (see also Figure S4). Side biases in object-choice tasks have also been reported previously (Hare & Tomasello, 2004; Erdőhegyi et al. 2007). When individuals do not have a causal reason for switching sides, sticking to one side it is probably a simpler (and on average 50% -correct) strategy.

Table S6. Factors that influenced the likelihood of success (i.e. subject opening the baited box) in the follow-up control

	Estimate	SE	Z	P
Trial number	-0.029	0.050	-0.587	0.557
Baited box	-2.786	0.802	-3.472	0.001

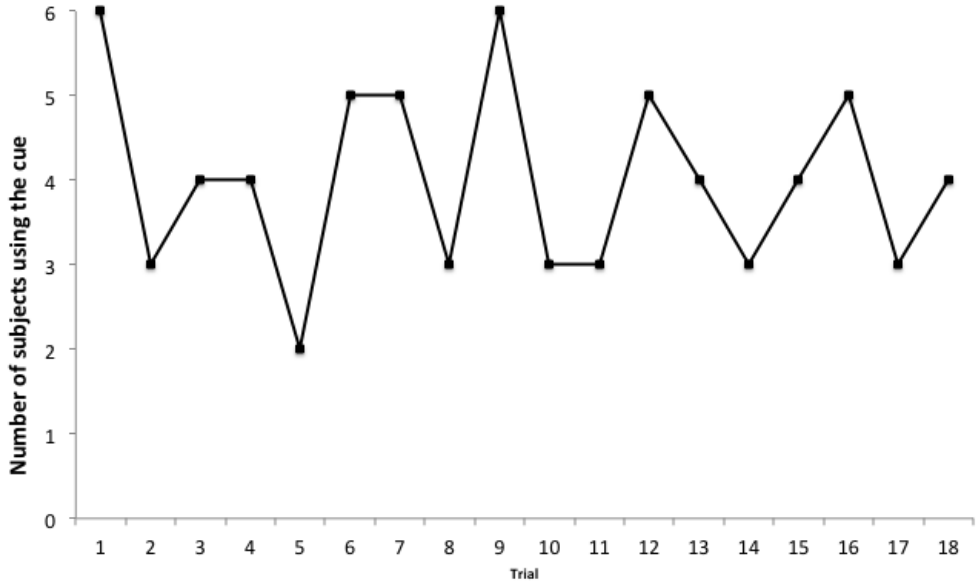

Figure S4. Number of subjects, on a trial-by-trial basis, using the spatial cue in the follow-up control of experiment 3 (key close to the baited box)

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Video 1. Metacognition pretest. Subject has the key for the hiding boxes in his hands but he first goes to room 1 to check the content of the boxes peeking through the back windows of the hiding boxes. He returns to room 2 and opens the box containing the tools. He then performs both actions (raking and pushing) to obtain the grapes in the collaboration box.

Video 2. Human pointing. Human experimenter calls the subject's name, food-grunts and uses a cross-point while looking at the box with the tools. Subject finds the key for the hiding box at an equidistant position between the two boxes and he opens the box indicated by the experimenter. Experimenter moves to the collaboration box, and subject gives her the raking tool, so that each can perform the necessary action on each side of the box.

Video 3. Failed Communication. Trial starts when the experimenter gives the key for the hiding boxes to the communicator (Zee) in room 1. The communicator positions himself behind the box with the tools (right box). The recipient (Amahirwe) is allowed to enter room 2 at 9sec and finds that the communicator is offering him the key close to one of the boxes (right box). However, the recipient opens the empty left box.

Video 4. Successful Communication. Trial starts when the experimenter gives the key to the communicator (Zee) in room 1. The communicator positions himself behind the box with the tools (left box). The recipient (Amahirwe) is allowed to enter room 2 at 6sec and the communicator gives him the key at 8sec (left box) while looking at the box. This time the recipient opens the box containing the tools. The recipient takes out the two tools and both individuals move together to the collaboration box. The recipient transfers the raking tool to the communicator and they both perform their role obtaining the grapes.