Supporting Information

Guinote et al. 10.1073/pnas.1414550112

SI Methods

Overview of Status Manipulations. Participants were randomly assigned to a high- or a low-status condition. In adults, status was manipulated using previously established paradigms that reliably affect participants' perceived social standing. In the high-status condition participants' prestige and reputation vis-à-vis other individuals or groups was allegedly higher. In the low-status condition their standing was lower. In Study 1 the prestige of the participants' department was compared with other departments (1). Study 2 used a well-validated minimal group paradigm (2). In status-related minimal group paradigms participants are assigned to one of two groups allegedly on the basis of minimal evaluative differentiations between the groups, here estimation accuracy of the number of dots presented in a series of displays. In this paradigm status differences occur in a domain that has little meaning. Study 3 used a comparison between participants' arts school at their university and another similar school at another university. In children (Study 4) status was manipulated using a dominance-based paradigm (3), given that hierarchies in children are based on force (4). Participants competed for a valuable toy in pairs twice. At time (T) 1 a dominance hierarchy emerged based largely on trait dominance. At T2 participants were regrouped and competed again for the valuable toy with a participant of a similar rank level, so that half the participants were forced to change rank positions.

Study 1. Participants were run individually and read a bogus article titled "Are we ever going to get there?" about the ranking of nine departments at the University College London regarding the professional prestige that graduates attain 10 y after graduation (1). The article was comprised of a description and a table. In the high-status condition the table indicated that participants' department (Psychology) was ranked second. In the low-status condition the table indicated that participants' department was ranked eighth. The text allegedly informed participants about the latest statistics indicating that 10 y after graduating, individuals who had studied Medicine and Psychology (high-status condition; vs. Medicine and Mathematics, low-status condition) find themselves landing top professional positions, where they enjoy high prestige.

Construct accessibility. To assess construct accessibility participants completed a lexical decision task using Matlab (MathWorks) software. The stimuli consisted of 76 strings of letters: Thirty-eight strings were words related to sociality and agency (e.g., aggressive, sociable, efficient, knowledgeable), matched for length and frequency of occurrence in the language. The remaining 38 letter strings were nonwords matched in length. Participants categorized the strings as words or nonwords.

Executive functions (inhibition). The experimenter, who was unaware of participants' status positions, then administered the Hayling sentence completion test (5). First, participants' baseline speed in initiating dominant responses was assessed. To this end, participants were read out-loud a set of 15 incomplete sentences and were asked to verbally complete each sentence with an appropriate word. Subsequently, participants were asked to complete a set of 15 sentences with an inappropriate word. For example, the sentence "They went as far as they…" could be completed with the word "house." Responses and response latencies were recorded.

Helping behavior. Helping was assessed outside the laboratory after the study had allegedly finished. The experimenter, who was unaware of the status conditions, dropped a pack of 20 pens while ostensibly handling files and papers (6). She then started picking up the pens at a regulated time-rate. Unknown to participants the number of pens they helped pick from the floor was counted. Upon completion participants were thanked again, checked for suspicion, and debriefed.

Study 2. Participants first estimated the number of dots presented in eight slides. They were then given false feedback regarding their perceptual style. Participants allegedly had one of two perceptual styles (called "figural" or "background"), and their style (vs. the other style) performed better on visual dot estimation tasks. Participants were then invited to complete an unrelated task in which they made choices regarding potential apartments and roommates. This task assessed decision-making quality and was adapted from Dijksterhuis (7). Participants were presented with four apartments, each described by 12 attributes shown in random order. Unknown to the participants, one of the apartments was the most attractive choice, with eight positive and four negative attributes (vs. six–six and four–eight). Participants then did a similar task to evaluate roommates. The valence of the apartment and roommate attributes was obtained on the basis of a pretest. Upon making their choice, participants completed a self-efficacy (8) and a sense-of-control questionnaire (9). They were then invited to move and sit together with other participants of the same perceptual style, to introduce themselves, and discuss their roommate preferences. Participants were unobtrusively videotaped by hidden cameras during the group interactions. After 5 min had elapsed, participants were thanked, debriefed, and paid.

Four trained raters rated participants on traits linked to the signaling of communal and prosocial intent, competence, agency, and status signaling (supportive, friendly, approachable, affiliative, empathic, smiles, extrovert, competent, knowledgeable, knows what he/she is doing, capable, takes initiative, task oriented, and signals high status). Ratings were made in 9-point scales, ranged from "not at all" to "very much." Upon completion, participants were thanked, debriefed, and paid.

Study 3. Participants were university art students and read a bogus report about a national assessment exercise. The assessment contained an overall evaluation and ratings on 14 dimensions (e.g., facilities and equipment, institutional organization, program) of their school and another comparable art school. Participants' school was ranked higher (high-status condition) or lower (low-status condition) compared with the other school. Upon completing a filler task, participants were presented with what was supposedly a separate survey inquiring about students' interests. This survey consisted of the major life goals questionnaire (10), which asked participants to rate the importance of 26 goals organized in seven broad domains: economic goals, aesthetic goals, social goals, relationship goals, political goals, hedonistic goals, and religious goals. Participants rated the importance of each goal on 7-point scales. Participants also completed a translated short version of the Schwarz Value Survey (11) that included the universal, benevolent (seven items), and power (five items) values. Answers were given on 9-point scales ranging from −1 (opposes my values) to 7 (extremely important). Finally, participants indicated how many children they wanted to have in reality and in their fantasy, on scales from 0 to 6.

Study 4. The study was carried out in the school premises. First, the relative attractiveness of a series of toys was assessed with 20

children. A single wooden building block and an interactive, resizeable ball were then chosen as the least-valued and most-valued toys, respectively. The paradigm was pretested on eight children (four boys and four girls), with regard to clarity of instructions and the understanding of the tasks.

Forty-eight (28 male) preschool English native speakers, who did not have any identified special educational needs, took part in the actual experiment. In each session two children of the same age and sex were asked to choose among the two toys. The experimenter gave the following instructions:

> I have brought two toys with me. This [shows the block] is one and this [shows how the ball enlarges] is the other. You can play with one of the toys. But there are some rules. Only one of you can play with this toy, and one of you can play with this one [showing toys again]. You will decide which toy you want to play with, you will choose. Once you have chosen, it will be your toy for as long as we are in this room. You can't share or give your toy. It is yours and only you can play with it.

The experimenter ensured that the children understood the instructions by asking them to repeat back part of the instructions. Once the instructions were clear, the experimenter continued: "Ok, are you ready to choose your toy? When I say 1, 2, 3 you can choose your toy. You will have some time to choose. When I'll clap my hands like this [claps twice], whichever toy you are holding will be your toy." The experimenter turned away until 1 min had elapsed and then clapped her hands. All children preferred the valued toy initially and the winner of the competition was considered the high-status child. The children were given 3 min to play with their toys, and were then tested individually while their toy remained in view. They completed tasks related to helping, moral reasoning, and executive functions (see below).

To force a change in rank position children were regrouped 2 wk later in pairs with a new partner of the same rank, constituting pairs of either two dominant or two submissive children. The pairs competed again for the valuable toy, and new hierarchies emerged. The procedure and tasks were identical to those at $T1$.

Executive functions. The happy/sad task (12) (Fig. S1) is a Stroop-like task (13) that presents children with eight happy and eight sad faces in random order, and requires them to say "happy" when they see a sad face and "sad" when they see a happy face. Performance is measured by the number of errors made.

The statue task measures inhibitory control and is a subtest of the NEPSY (a developmental NEuroPSYchological assessment) (14). Children are required to maintain a specific position and keep their eyes closed for 75 s while the administrator distracts them with noise at specific time-points. Body movements, eye opening, and vocalizations are recorded.

Moral reasoning. Moral cognition and moral affect were measured with six vignettes in which children were asked to put themselves in the position of a transgressor (15). The six vignettes follow the same story line, with changing names and toys, matched with the sex of the participant (e.g., "This is Alaina. Alaina was riding a bike. Pretend this is you. Pretend you took the bike from her, and are now riding it"). The vignettes were read out loud by the experimenter, together with the presentation of pictures depicting aspects of the story. Following the story presentation, the children were asked four questions in the domains of moral cognitions and moral emotions: "Is your behavior right or wrong?" "Why?" "How would you feel?" "How would X [the other child] feel?"

Helping behavior. Participants were presented with the sticker task (16). The children were given five stickers each as reward for their participation and were told by the experimenter:

> Tomorrow I am going to the hospital to see a little boy/girl [gender matched] who doesn't have any stickers. If you want, you can give him/her some of your stickers. I will take them with me and give them to him/her tomorrow. You don't have to give any, these are yours, but you can give some if you want to. You can give 1, 2, 3, 4, 5, or none. Do you want to give any of your stickers?

1. Ouwerkerk W, de Gilder D, de Vries NK (2000) When the going gets tough, the tough get going: Social identification and individual effort in intergroup competition. *Pers Soc Psychol Bull* 26(12):1550–1559.
2. Gerard HB, Hoyt MF (1974) Distinctiveness of social categorization and attitude toward ingroup members. *J Pers Soc Psychol* 29(6):836–842.
3. Shively CA, Clarkson TB (1994) Social status and coronary artery atherosclerosis in female monkeys. *Arterioscler Thromb* 14(5):721–726.
4. Kalish C (2005) Becoming status conscious: Children's appreciation of social reality. *Philosophical Explorations* 8(3):245–263.
5. Burgess PW, Shallice T (1997) *The Hayling and Brixton Tests* (Thames Valley Test Company, Bury St. Edmunds, UK).
6. Dovidio JF, Morris WN (1975) Effects of stress and commonality of fate on helping behavior. *J Pers Soc Psychol* 31(1):145–149.
7. Dijksterhuis A (2004) Think different: The merits of unconscious thought in preference development and decision making. *J Pers Soc Psychol* 87(5):586–598.
8. Schwarzer R, Jerusalem M (1993) The general self-efficacy scale (GSE). Available at userpage.fu-berlin.de/~health/engscal.htm. Accessed December 15, 2014.
9. Mirowsky J, Ross CE (1991) Eliminating defense and agreement bias from measures of the sense of control: A 2 x 2 index. *Soc Psychol Q* 54(2):127–145.
10. Roberts BW, O'Donnell M, Robins RW (2004) Goal and personality trait development in emerging adulthood. *J Pers Soc Psychol* 87(4):541–550.
11. Schwartz SH (1992) Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, eds Zanna M (Academic, Orlando, FL) pp 1–65.
12. Lagattuta KH, Sayfan L, Monsour M (2011) A new measure for assessing executive function across a wide age range: Children and adults find happy-sad more difficult than day-night. *Dev Sci* 14(3):481–489.
13. Stroop JR (1935) Studies of interference in serial verbal reactions. *J Exp Psychol* 643–662.
14. Korkman M, Kirk U, Kemp SL (2007) *NEPSY II. Clinical and Interpretative Manual* (Psychological Corporation, San Antonio, TX).
15. Hawley PH (2003) Strategies of control, aggression, and morality in preschoolers: An evolutionary perspective. *J Exp Child Psychol* 85(3):213–235.
16. Lennon R, Eisenberg N, Carroll J (1986) The relation between nonverbal indices of empathy and preschoolers' prosocial behavior. *J Appl Dev Psychol* 7(3):219–224.

Fig. S1. The "happy" and "sad" stimuli used in the happy/sad task.