

## SUPPLEMENTAL MATERIALS

These Supplemental Materials present more detailed and new analyses from Studies 1, 2, and 3, as mentioned in the main text. Tables S1 and S2 present the descriptive statistics for each conventional and unconventional condition in Study 1 (Table S1) and Studies 2 and 3 (Table S2). Appendix A and B present example materials that describe the tribe and alien contexts used in Studies 1, 2, and 3.

### *Did Role or Intergroup Relations Cues Have Greater Influence?*

All three studies allowed us to test whether the role or intergroup manipulations had greater influence when they had opposing implications for group stereotypes. These tests involved calculating effect sizes for the relevant contrasts of means between the inconsistent pairing of role and intergroup relations and the component (a) role only and (b) intergroup relation only conditions. In the main text we report a meta-analysis of the absolute value of these effect sizes for each stereotype dimension. In these supplemental materials, we report the comparisons individually for each study via t-tests and effect sizes and use a Z-test to indicate whether the stereotype for each inconsistent pairing was more similar to the stereotype produced by roles or intergroup relations. In Study 1, the inconsistent conditions were created by collapsing across the third variable. See Table S3 for effect sizes and statistics and Figures S1, S2, and S3 for graphs of the multifactor results.

*Study 1.* For the status manipulation, high-status caretakers were less communal, more agentic, and equally competent than caretakers as well as more communal, less agentic, and more competent than high-status persons. Low-status warriors were equally communal, less agentic, and less competent than warriors as well

as less communal, more agentic, and equally competent as low-status persons. In comparing the effect sizes, the high-status caretakers were more similar to caretakers than to high-status persons on communion. For all other stereotypes, both pairings were equally similar to the matching role and status conditions.

For the interdependence manipulation, competitive caretakers were less communal and more agentic than caretakers as well as more communal, and less agentic than competitive persons. Cooperative warriors were more communal and less agentic than warriors, as well as less communal and more agentic than cooperative persons. Cooperative caretakers (the pairing with inconsistent consequences for competence, see Footnote 5) were equally competent as caretakers but more competent than cooperative persons. Competitive warriors were equally competent as warriors and competitive persons. In comparing the effect sizes, the cooperative warriors were more similar to cooperative persons than to warriors on communion. For all other stereotypes, both pairings were equally similar to the matching role and status conditions.

*Study 2.* For the status design, high-status child caretakers were less communal, more agentic, and less competent than caretakers as well as more communal, less agentic, and less competent than high-status persons. Low-status business workers were equally communal, less agentic and less competent than warriors as well as less communal, more agentic, and more competent than low-status persons. In comparing the effect sizes, on communion, both pairings were more similar to the matching role than status conditions. On agency, the high-status child caretakers were more similar to child caretakers than to high-status persons, but low-status business workers were

equally similar to business workers and low-status persons. On competence, high-status child caretakers were equally similar to child caretakers and high-status persons, but low-status business workers were more similar to business workers than to low-status persons.

For the interdependence design, uncooperative child caretakers were less communal, more agentic, and less competent than child caretakers as well as more communal, less agentic, and equally competent than competitive persons. Cooperative business workers were more communal, less agentic, and equally competent than business workers, as well as less communal, more agentic, and more competent than cooperative persons. In comparing the effect sizes, on communion and competence, both pairings were equally similar to the matching role and interdependence conditions. However, on competence, cooperative business workers were more similar to business workers than to cooperative persons, whereas uncooperative child caretakers were more similar to uncooperative persons than to child caretakers.

*Study 3.* For the status design, high-status healers were equally communal and more agentic than healers as well as more communal and less agentic as high-status persons. Low-status hunters were equally communal and less agentic than hunters as well as less communal and more agentic than low-status persons. High-status hunters (the pairing with inconsistent consequences for competence, see Footnote 5), were equally competent as hunters but less competent than high-status persons. Low-status healers were less competent than healers and more competent than low-status persons. In comparing the effect sizes, on communion, the high-status healers were more similar to healers than to high-status persons, and the low-status hunters were

more similar to hunters than to low-status persons. For agency and competence, both pairings were equally similar to the matching role and status conditions.

For the interdependence design, competitive healers were less communal, more agentic, and equally competent than healers as well as equally communal, less agentic, and equally competent as competitive persons. Cooperative hunters were more communal, less agentic, and equally competent than hunters, as well as equally communal, more agentic, and equally competent than cooperative persons. In comparing the effect sizes, on communion, the cooperative hunters were more similar to the cooperative persons than to hunters, and competitive healers were more similar to competitive persons than to healers. On agency, competitive healers were more similar to competitive persons than to healers. For all other stereotypes, both pairings were equally similar to the matching role and interdependence conditions.

#### *Descriptive Analysis of Individual-level Data*

In the main text, we report a meta-analysis of similarity of the inconsistent conditions to its matching roles only and intergroup relations only conditions. However, averaging stereotypes across participants obscures whether in the inconsistent conditions (a) most participants averaged the role and intergroup information, (b) most participants used only role information or only intergroup relations information, resulting in an average overall, or (c) the results fell between these two extremes. To address this question, we treated the means in the one-way designs as the standard and analyzed whether each participant's stereotype on communion, agency, and competence was within half a point of the corresponding roles only or intergroup relations only group mean. As a basic test of this idea, we then counted the number of

participants who rated the inconsistent pairing (a) within half a point of the roles information but more than half a point away from the intergroup relations information (showing that they favored roles in creating the stereotype), (b) within half a point of the intergroup relations information but more than half a point away from the roles information (showing that they favored intergroup relations in creating the stereotype), and (c) more or less than half a point away from both component pieces of information (showing combining the two pieces of information). These descriptive results give some insight into how individual participant reactions related to the group means.

This analysis could not be computed for Study 1, given the  $2 \times 2 \times 2$  design, but the results for Studies 2 and 3 are given in Table S4. This analysis suggested that a high proportion of participants were, in fact, using both pieces of information to inform their stereotypes. When the inconsistent pairings consisted of role and status information (in the status designs), participants used either role information to create their communal stereotype or both pieces of information, consistent with the meta-analysis results. To create agency and competence stereotypes, participants most often appeared to use both component pieces of information and sometimes used role information more than status information. When the inconsistent pairings consisted of roles and interdependence information (in the interdependence designs), participants again most often appeared to use both pieces of information. This result is especially common in Study 2, with the exception of competence stereotypes for cooperative business workers, where most participants' ratings were closest to the role only information. In Study 3, interdependence information was also more often used to create stereotypes of communion.

Overall, based on this descriptive analysis, individual participants often appeared to be using both pieces of information to create stereotypes, given that their ratings were frequently more than half a point away from the ratings of either piece of component information.

Table S1

*Study 1: Means, Standard Deviations, and Confidence Intervals for Communion, Agency, and Competence Stereotypes*

Intergroup and role manipulations			Communion			Agency			Competence		
			<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI
High-status	Cooperative	Warriors	4.71	1.00	[4.35, 5.08]	4.69	0.82	[4.39, 4.98]	5.67	0.81	[5.38, 5.96]
		Caretakers	5.42	0.84	[5.42, 6.03]	3.72	1.03	[3.34, 4.09]	5.67	1.00	[5.30, 6.03]
	Competitive	Warriors	2.63	0.96	[2.24, 3.01]	6.24	0.65	[5.98, 6.50]	5.37	0.93	[5.00, 5.75]
		Caretakers	4.09	1.14	[3.68, 4.50]	5.13	1.11	[4.73, 5.53]	5.35	0.84	[5.05, 5.66]
Low-status	Cooperative	Warriors	5.21	0.91	[4.84, 5.58]	3.33	1.34	[2.79, 3.87]	4.77	1.42	[4.19, 5.34]
		Caretakers	5.88	0.85	[5.52, 6.25]	1.69	0.58	[1.44, 1.94]	4.35	1.44	[3.72, 4.97]
	Competitive	Warriors	2.59	1.32	[2.02, 3.16]	5.64	0.87	[5.27, 6.02]	4.26	0.97	[3.84, 4.68]
		Caretakers	3.77	1.03	[3.38, 4.15]	4.31	1.33	[3.81, 4.80]	4.16	1.02	[3.78, 4.54]

*Note.* Stereotypes were rated on a 1-7 scale, with higher numbers indicating stronger stereotypes.

Table S2

*Studies 2 and 3: Means, Standard Deviations, and Confidence Intervals for Communion, Agency, and Competence Stereotypes in the Status and Interdependence Latin Square Designs*

Intergroup and role Manipulations		Communion			Agency			Competence		
		<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI
<u>Study 2</u>										
Status design										
High-status	Business workers	3.10	0.79	[2.83, 3.36]	5.50	0.85	[5.22, 5.77]	5.65	0.95	[5.33, 5.96]
	Child caretakers	5.40	0.86	[5.12, 5.68]	4.13	0.93	[3.83, 4.43]	4.83	0.86	[4.55, 5.11]
Low-status	Business workers	3.49	1.04	[3.15, 3.82]	3.43	1.08	[3.08, 3.78]	5.18	0.94	[4.88, 5.48]
	Child caretakers	5.62	0.87	[5.33, 5.90]	2.72	0.76	[2.47, 2.97]	4.63	0.90	[4.34, 4.93]
Interdependence design										
Cooperative	Business workers	4.65	0.76	[4.40, 4.90]	3.74	0.92	[3.44, 4.05]	5.71	0.64	[5.50, 5.92]
	Child caretakers	6.31	0.40	[6.18, 6.44]	2.94	0.64	[2.73, 3.14]	4.99	0.73	[4.76, 5.23]
Uncooperative	Business workers	2.53	0.72	[2.30, 2.76]	5.91	0.49	[5.75, 6.07]	5.65	0.68	[5.43, 5.87]
	Child caretakers	3.83	0.93	[3.53, 4.14]	4.87	0.94	[4.56, 5.18]	4.38	1.09	[4.02, 4.73]



Intergroup and role Manipulations		Communion			Agency			Competence		
		<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI	<i>M</i>	<i>SD</i>	95% CI
<u>Study 3</u>										
Status design										
High-status	Hunters	3.28	0.85	[2.99, 3.57]	5.88	0.88	[5.58, 6.18]	4.73	1.05	[4.37, 5.09]
	Healers	5.14	1.04	[4.78, 5.50]	4.39	1.14	[3.99, 4.79]	5.66	0.86	[5.36, 5.96]
Low-status	Hunters	3.34	0.98	[2.99, 3.68]	4.78	1.11	[4.40, 5.17]	4.28	1.28	[3.83, 4.73]
	Healers	5.48	1.19	[5.07, 5.89]	2.84	1.03	[2.48, 3.20]	4.86	1.26	[4.42, 5.29]
Interdependence design										
Cooperative	Hunters	5.42	0.84	[5.13, 5.71]	4.20	1.25	[3.77, 4.63]	4.59	1.07	[4.22, 4.96]
	Healers	5.68	1.10	[5.28, 6.08]	2.84	0.68	[2.59, 3.09]	5.21	1.19	[4.77, 5.65]
Competitive	Hunters	2.71	0.86	[2.39, 3.03]	5.80	1.11	[5.39, 6.21]	4.85	1.10	[4.45, 5.26]
	Healers	3.15	0.96	[2.82, 3.49]	5.29	1.04	[4.93, 5.64]	5.26	1.01	[4.91, 5.60]

*Note.* Stereotypes were rated on a 1-7 scale, with higher numbers indicating stronger stereotypes.

Table S3

*Comparison of the Effect Sizes (d) Representing the Difference between the Inconsistent Condition and the Roles Only and Intergroup Relations Only Conditions*

		Similarity to Role		Similarity to Intergroup Relations		Test of Difference	
		<i>t</i>	<i>d</i>	<i>t</i>	<i>d</i>	<i>Z</i>	<i>p</i>
Study 1							
Status (collapsing across interdependence)							
Communion	High-status caretakers	2.51*	-0.63	5.46***	1.44	2.11	.02
	Low-status warriors	1.71	0.46	2.12*	-0.58	0.31	.38
Agency	High-status caretakers	3.90***	0.97	2.81**	-0.74	0.61	.27
	Low-status warriors	3.43**	-0.92	4.10***	1.12	0.49	.31
Competence	High-status caretakers	1.40	0.35	3.33**	0.88	1.42	.08
	Low-status warriors	2.34*	-0.62	1.75	0.48	0.37	.35
Interdependence (collapsing across status)							
Communion	Competitive caretakers	6.57***	-1.64	6.17***	1.67	0.07	.47
	Cooperative warriors	6.68***	1.75	4.02***	-1.03	1.77	.04
Agency	Competitive caretakers	4.84***	1.21	2.73**	-0.74	1.21	.11
	Cooperative warriors	5.38***	-1.41	3.96***	1.02	0.98	.16
Competence	Cooperative caretakers	0.16	-0.04	2.04*	0.57	0.63	.26
	Competitive warriors	1.47	-0.39	1.06	-0.27	0.45	.32

		Similarity to Role		Similarity to Intergroup Relations		Test of Difference	
		<i>t</i>	<i>d</i>	<i>t</i>	<i>d</i>	<i>Z</i>	<i>p</i>
Study 2							
Status design							
Communion	High-status child caretakers	2.50*	-0.62	8.48***	2.17	3.77	< .001
	Low-status business workers	0.06	0.01	3.76***	-0.95	2.56	.005
Agency	High-status child caretakers	3.12**	0.79	7.73***	-1.96	2.90	.002
	Low-status business workers	7.67***	-1.92	5.02***	1.27	1.58	.06
Competence	High-status child caretakers	2.30*	-0.57	4.31***	-1.09	1.39	.08
	Low-status business workers	3.85***	-0.96	8.65***	2.19	2.96	.002
Interdependence design							
Communion	Uncooperative child caretakers	9.01***	-2.26	6.74***	1.74	1.20	.12
	Cooperative business workers	5.68***	1.43	8.06***	-2.08	1.53	.06
Agency	Uncooperative child caretakers	6.44***	1.62	4.93***	-1.27	0.87	.19
	Cooperative business workers	7.13***	-1.79	5.53***	1.42	0.89	.19
Competence	Uncooperative child caretakers	3.82***	-0.96	1.03	-0.27	1.87	.03
	Cooperative business workers	1.74	-0.44	4.07***	1.05	1.63	.05
Study 3							
Status design							
Communion	High-status healers	1.61	-0.41	6.18***	1.60	3.00	< .001
	Low-status hunters	1.19	0.30	3.61**	-0.94	1.67	.048
Agency	High-status healers	4.10***	1.04	4.53***	-1.18	0.34	.37

		Similarity to Role		Similarity to Intergroup Relations		Test of Difference	
		<i>t</i>	<i>d</i>	<i>t</i>	<i>d</i>	<i>Z</i>	<i>p</i>
Competence	Low-status hunters	5.15***	-1.31	6.39***	1.66	0.84	.20
	High-status hunters	0.11	-0.03	0.87	-0.22	0.53	.30
	Low-status healers	2.33*	-0.59	4.08***	1.05	1.22	.11
Interdependence design							
Communion	Competitive healers	10.61***	-2.70	2.62	0.74	4.24	< .001
	Cooperative hunters	9.85***	2.46	1.47	-0.43	4.54	< .001
Agency	Competitive healers	7.73***	1.95	3.08**	-0.86	2.54	.006
	Cooperative hunters	6.91***	-1.74	4.13***	1.16	1.37	.09
Competence	Competitive healers	1.07	-0.27	1.59	0.45	0.45	.33
	Cooperative hunters	0.63	-0.16	0.11	0.03	0.34	.37

*Note.* A positive *d* indicates that the inconsistent pairing was higher on that attribute than the role or intergroup relations alone condition; a negative *d* indicates that the inconsistent pairing was lower on that attribute than the role or intergroup relations alone condition. However, the Z-test compares the absolute value of these two effect sizes because we were interested in which only condition was most similar to the inconsistent condition, regardless of whether it was higher or lower.

Table S4

*Number of Participants with a Stereotype in the Inconsistent Condition Greater than .5 away from the Mean Stereotype in the Roles only or Intergroup Relations Only Conditions*

	<i>n</i>	Communion			Agency			Competence		
		Role	Intergroup relations	Averaged	Role	Intergroup relations	Averaged	Role	Intergroup relations	Averaged
Study 2 status design										
Low status business workers	39	19	7	13	6	11	22	14	3	22
High status child caretakers	39	16	2	21	11	5	23	6	1	32
Study 2 interdependence design										
Cooperative business workers	38	6	5	27	4	8	26	23	12	3
Uncooperative child caretakers	38	1	4	33	6	13	19	6	9	23
Study 3 status design										
Low status hunters <sup>a</sup>	34	11	11	12	10	4	20	4	0	31
High status healers	34	10	3	21	10	7	17	12	5	18
Study 3 interdependence design										
Cooperative hunters	35	1	18	16	8	6	21	0	0	35
Competitive healers	35	2	14	19	3	12	20	10	11	14

<sup>a</sup> For ratings of competence, the consistent pairing was used because this was the pairing with inconsistent implications for stereotypes in Study 3 (see Footnote 5 in the main text).

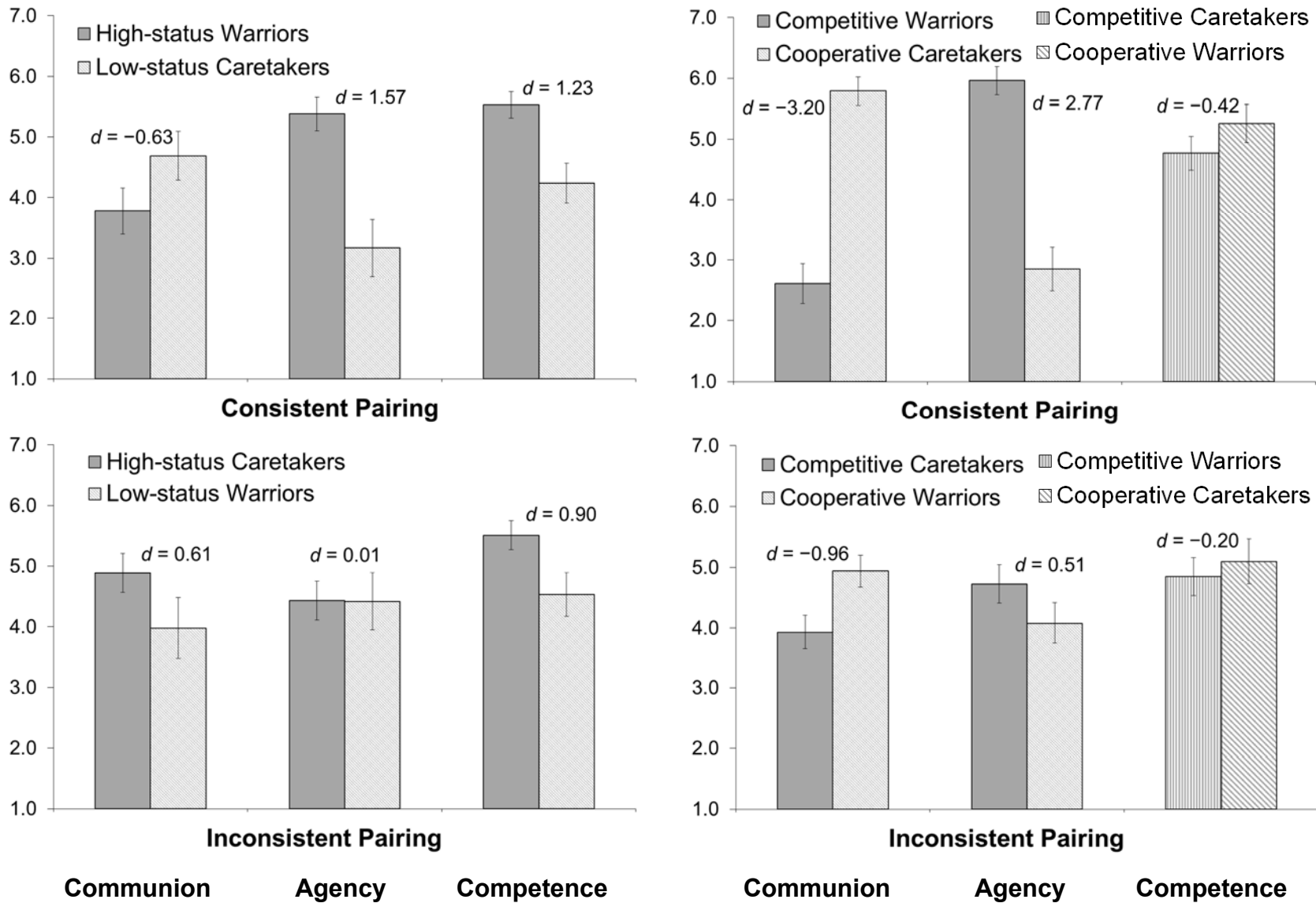
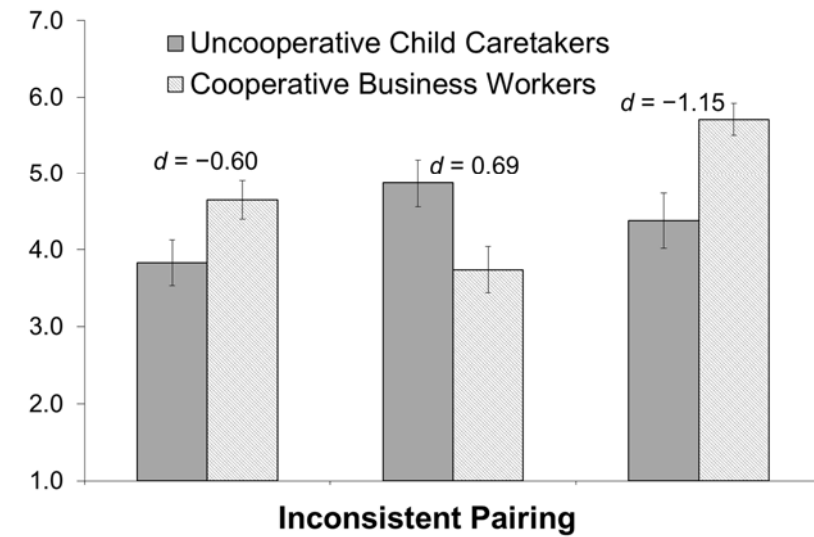
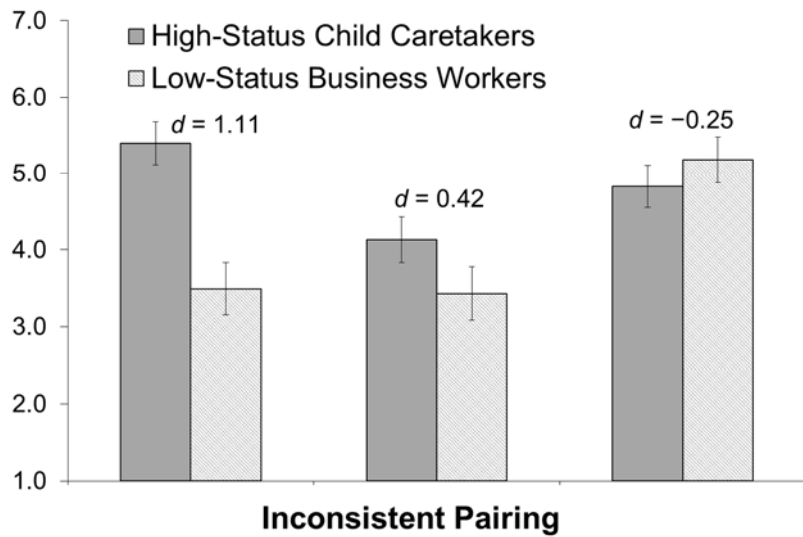
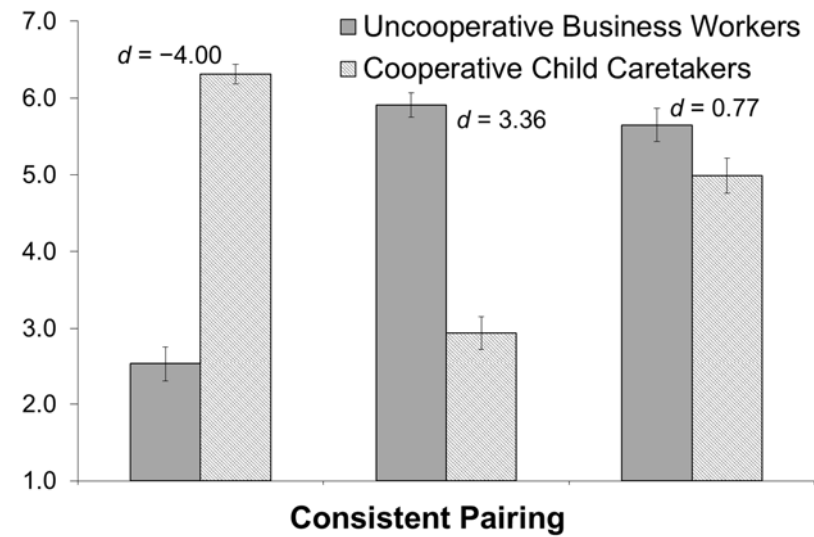
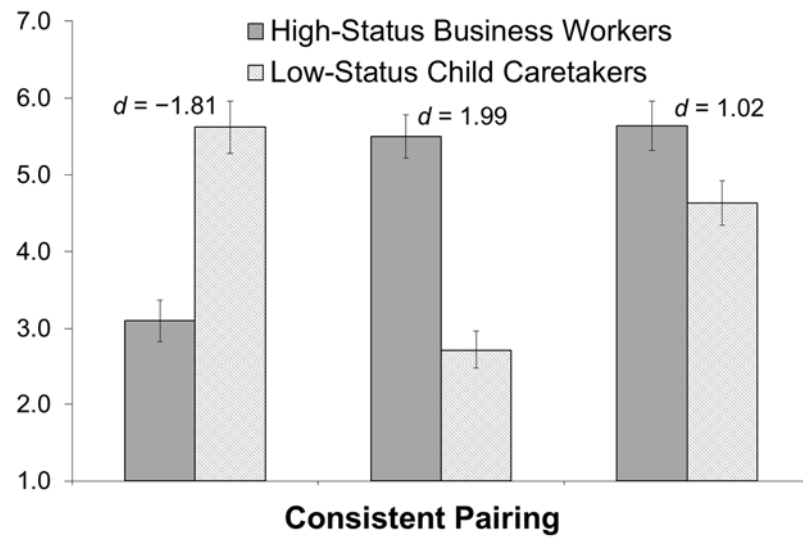
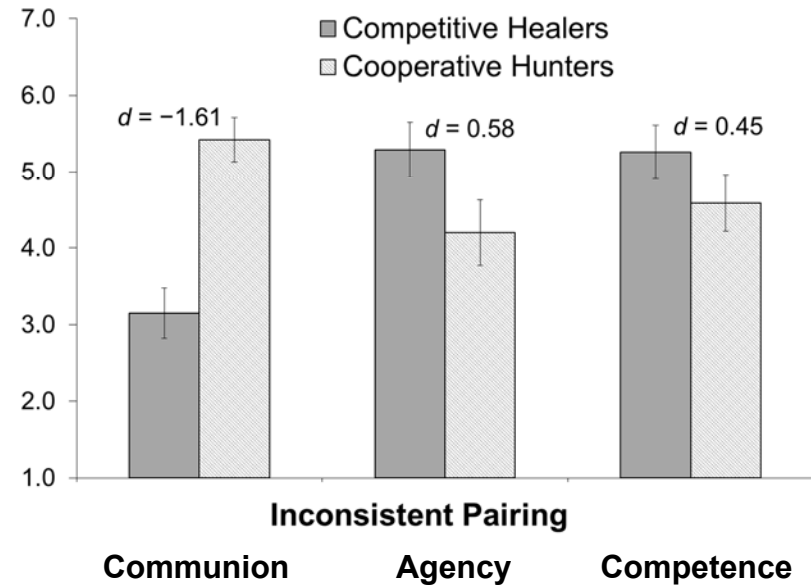
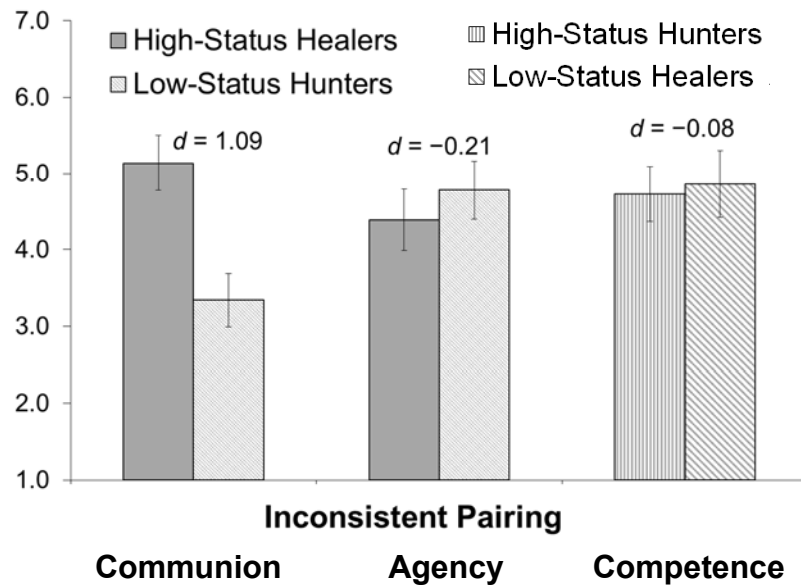
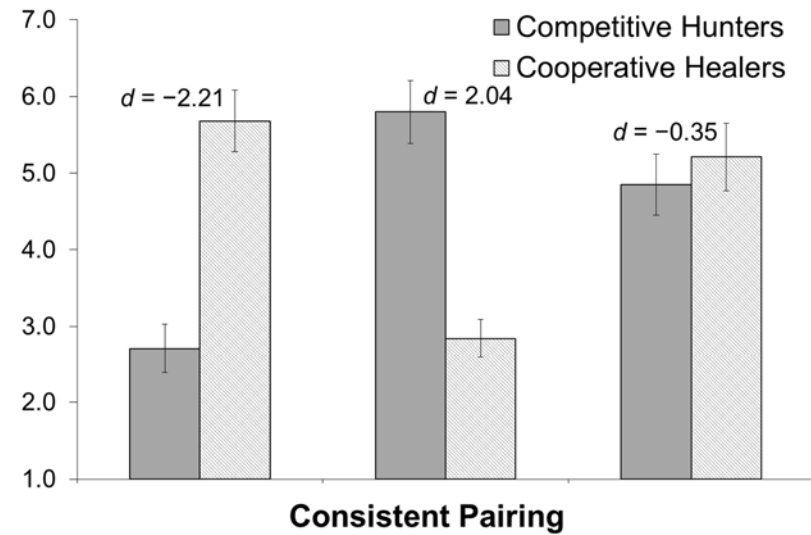
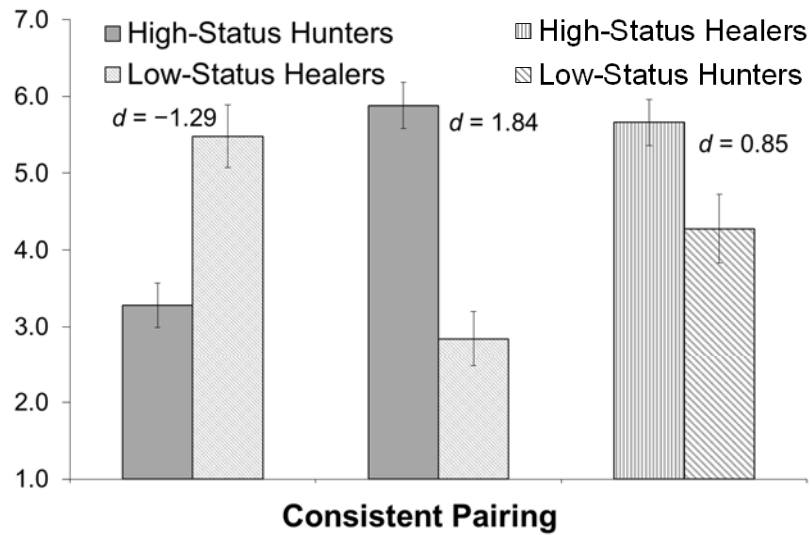


Figure S1. Stereotypes of communion, agency, and competence in the factorial design of Study 1 collapsed into consistent and inconsistent role pairings. Error bars represent 95% confidence intervals.



*Figure S2.* Stereotypes of communion, agency, and competence in the consistent and inconsistent role pairings in the status design (left column) and interdependence design (right column) of Study 2. Error bars represent 95% confidence intervals.





*Figure S3.* Stereotypes of communion, agency, and competence in the consistent and inconsistent role pairings in the status design (left column) and interdependence design (right column) of Study 3. Error bars represent 95% confidence intervals.

## Appendix A. Materials for Study 1

The survey instructions and information about a tribe from a remote and nonindustrialized region of the Amazon jungle in Study 1 read as follows:

This survey is investigating how people form initial impressions of other cultural groups. First you will read some information about a tribe from a remote and non-industrialized region of the Amazon jungle. Then you will learn more about one specific group in this tribe. Please read over the information about the tribe and the different types of people in this tribe and form an impression of the group to the best of your ability based on the information given.

The tribe is made of several different groups of people intermixed in a series of interconnected villages in the Amazon jungle, just beyond the borders of Brazil, where the flooded lowlands begin to rise slowly towards the mountains. In this area, torrential rains occur frequently in the early morning and mid-afternoon, but despite the dampness, the heat is not excessive. Fresh breezes, frequent thunderstorms, and heavy evaporation maintain the temperature at an average 83° F. Technology is not very advanced: Items such as utensils, containers, and bowls are either fashioned from animal teeth, wood, leaves, and shells of wild fruits and nuts or are acquired from outside the villages. The community in general engages in some commerce with the local government and traders, exchanging their woven baskets and other handcrafts for fabric, metal pots, and leather goods. The members of the villages obtain food from farming maize, yams, sweet potatoes, peanuts; hunting medium-sized game (such as deer and tapirs) with spears and machetes; fishing in the nearby river; and collecting various wild fruits, plants, and small animals from the jungle.

Below is some information about just one group within this tribe. Please read over the information and create an impression of what this group may be like.

One group in the tribe is called the Patzi. Compared to other groups, the Patzi...

- [are primarily caretakers. The Patzi generally look after young children while others are busy, teach children the rules and morals of the tribe, and discipline children who misbehave.
- have high status. The Patzi generally have power and influence and control over resources in the tribe, and they live in the central area of each village.
- are cooperative. The Patzi generally try to avoid conflicts with other groups and help others achieve goals, and they live together with members of other groups in the villages.]

Now please think about the Patzi and form an impression of them as a group. Take a minute to describe in your own words what you think the Patzi do day-to-day, what they are like, and how they are viewed by others.

## Appendix B. Materials for Study 2

The survey instructions and information about the alien plants used in Study 2 read as follows:

This survey investigates how people come to understand the structure of social groups by using a type of “make-believe” procedure that is sometimes used in research of this kind. Therefore, we are asking you to imagine that scientists have been observing a group of individuals in a society from a newly discovered planet named Erion. Below is some information about the society and individuals from Erion. Please read over this information and create an impression of Erion and groups that live there.

### **Planet Erion:**

Although scientists do not yet fully understand the culture of this planet, they have made some observations of individuals on Erion. In general, scientists have noted that the culture on this planet is very different from that on Earth. For one, the members of this society live in community homes in the countryside near large cities. The city is where all of the business, industry, technology, and higher education are concentrated. Individuals of all kinds live together in each of the community homes, although members of what appear to be different groups have different tasks in the community. Some individuals stay at the community homes during the day and perform duties there, whereas others commute to the city during the day and return to the community home in the evening. In addition, there are no male or female sexes on Erion—any individual can mate with any other, causing both to have offspring.

Scientists have been classifying individuals from Erion into groups based on differences in the physical appearance of adults. Throughout childhood all individuals have a yellowish tint, but as individuals on Erion mature they become distinguishable by the tint of their skin. Adults can have a red, gray, blue, green, orange, or purple tint to their skin. Scientists have not yet figured out how to predict who becomes what color, but they have been studying each of these groups. Below is some information about two of these groups (the Greens and the Blues). Please read over the information and create an impression of what these two groups may be like.

### **Green Group:**

Scientists have observed that, compared to other groups, Greens are primarily business workers. That is, Greens spend most of their time working in the nearby cities, where they are organizers of the economic entities of the society. Scientists have also reported that Greens seem to have high status. Greens are well paid, have control over property and other resources, and have a lot of power and influence on Erion.

**Blue Group:**

In contrast, Blues are primarily child caretakers. That is, Blues spend most of their time at the community home, where they take responsibility for the care and teaching of the society's young. Scientists have noted that Blues seem to have low status. Blues are poorly paid, do not have control over property and other resources, and do not have a lot of power or influence on Erion.

Now please take a minute to think about the Greens and Blues and form impressions of them as groups. Turn the page over to describe your impressions.