Supporting Information

Vizioli et al. 10.1073/pnas.1005751107

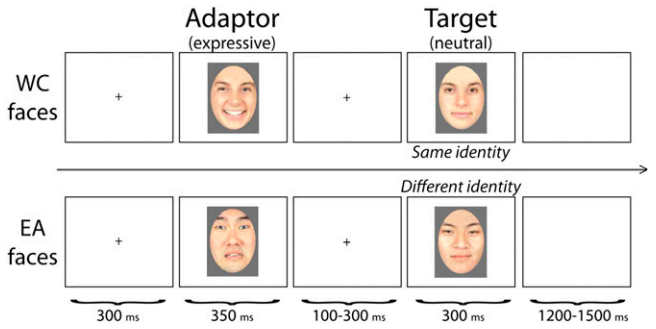

Fig. S1. Example of the face stimuli used in the experiment and the time-course of the experimental design. [© Matsumoto 1993. Reproduced with permission from Humintell, LLC.]

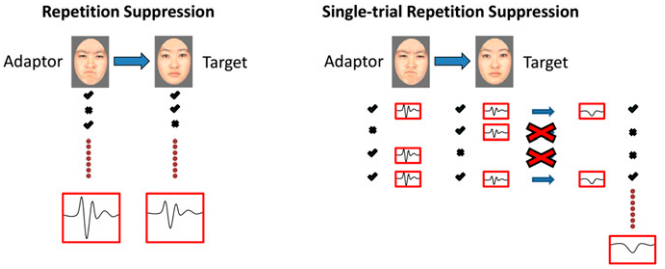

Fig. S2. Conventional and single-trial repetition suppression (stRS) analyses. For both analyses, the same artifact rejection criteria are used to remove noisy trials. However, in conventional repetition suppression (RS) analyses (*Left*), adaptor and target trials are processed independently, whereas in stRS (*Right*), adaptor and target trials are processed as dependent pairs. Concretely, in conventional RS, the trial rejection criterion is applied independently for adaptor and target (rejected trials are marked as "**x**"). The remaining trials (marked as "✓") are then averaged separately for the adaptor and the target conditions. This procedure breaks the association between adaptor and target trials, which would not be problematic if no trials were rejected. Because there are always some noisy trials in EEG recordings, a different strategy is necessary to preserve the association between adaptor and target trials. Hence, in stRS, the trial rejection criterion is applied to pairs of events: we reject both adaptor and target trials if artifacts contaminate any one of the two epochs. We then subtract the signal elicited by target to adaptor faces for each single-trial before averaging the differences. Formally, averaging independently the adaptor and target signals and then performing a subtraction would lead to the same results because of the associative and commutative properties of the average. The average of series of numbers is simply the average of the numbers, no matter what order in which they are inputted. Performing a subtraction does not compromise the commutative property of the average. To sum up, the stRS procedure relies on a paired-trial rejection criterion, which effectively preserves the paired nature of the RS design, in keeping with the definition of RS as a stimulus-specific reduction of neural activity. [© Matsumoto 1993. Reproduced with permission from Humintell, LLC.]

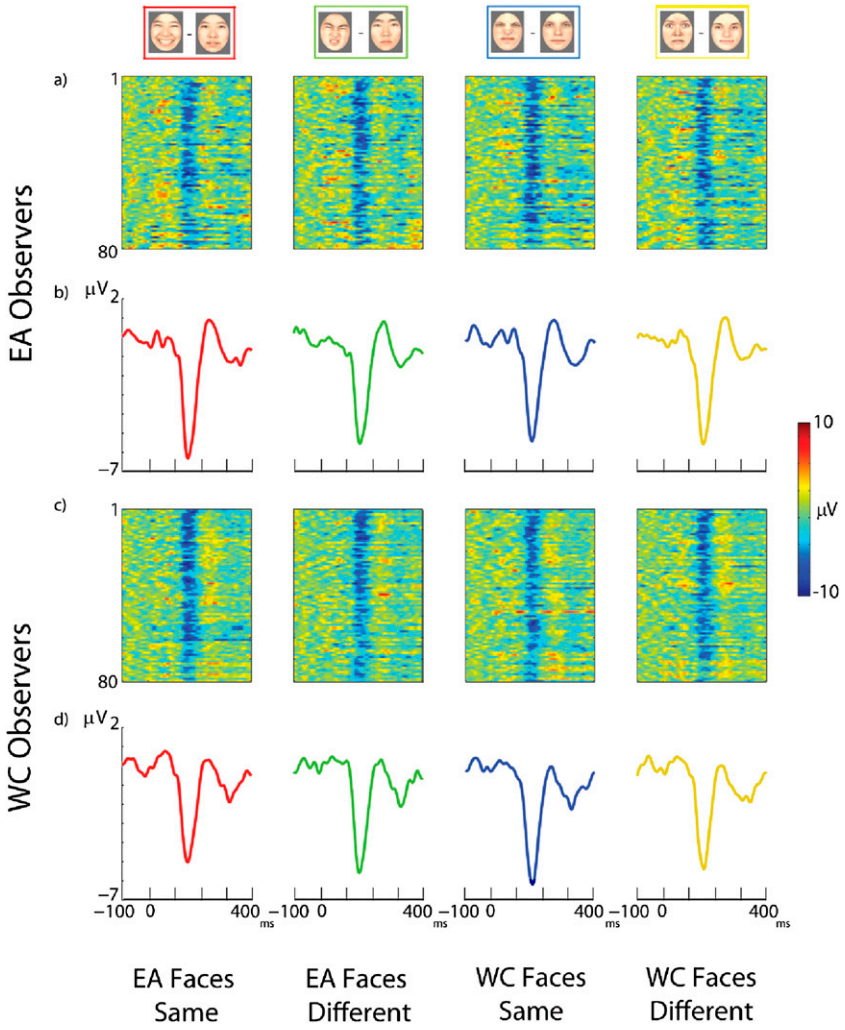

Fig. S3. ERP image for Western Caucasian (WC) (*A*) and East Asian (EA) (*C*) observers at electrode PO8h. For each condition, each horizontal line shows the single trials averaged across subjects (i.e., row 1 shows the average across subjects of their first trial). Red represents positive activity and blue negative activity. The number of subjects used for averaging varied from 9 to 12 across trials, depending on the single-trial's rejection as explained in the *Methods*. (*B* and *D*) The stRS responses for WC and EA observers at electrode PO8h. [© Matsumoto 1993. Reproduced with permission from Humintell, LLC.]

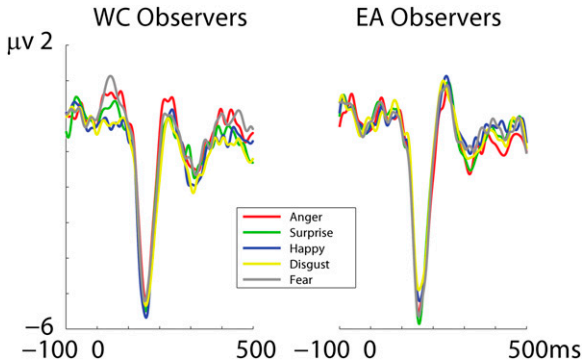

Fig. S4. The stRS responses at PO8h, the electrode with the largest N170, for WC and EA observers. The stRS responses were obtained by averaging the single-trial differences between adaptor and target faces. Here, stRS responses are displayed for each facial expression of emotion portrayed by the adaptor face (all target faces had a neutral facial expression). The stRS responses were not modulated by facial expressions.

Table S1. Mean amplitudes and latencies

			N170 Adaptor (RS)				N170 Target (RS)				N170 (stRS)			
Group of observers	Condition	Electrode	Mean Amp (μV)	SD	Mean Lat.(ms)	SD	Mean Amp(μV)	SD	Mean Lat.(ms)	SD	Mean Amp (μV)	SD	Mean Lat.(ms)	SD
Western Caucasian	Asian same	PO8h	−4.2	0.72	171	12	−1.96	0.51	185	12	−5.03	3.33	154	9
	Asian different						−2.07	0.66	187	11	−5.58	3.17	154	12
	Caucasian same		−4.32	0.83	170	9	−1.62	0.5	189	11	−6.17	3.24	159	11
	Caucasian different						−1.96	0.58	188	13	−5.38	3.19	158	10
	Asian same	PO7h	−2.86	0.66	173	6	−1.14	0.75	188	15	−3.78	2.8	160	13
	Asian different						−1.26	0.4	189	16	−3.74	2.86	159	14
	Caucasian same		−2.87	0.71	172	8	−0.76	0.53	184	13	−4.3	3.26	160	11
	Caucasian different						−1.22	0.49	190	11	−3.71	2.86	163	8
Eastern Asian	Asian same	PO8h	−5.12	0.6	165	8	−1.85	0.22	172	11	−6.3	3.77	153	7
	Asian different						−1.98	0.23	172	15	−5.54	3.58	155	9
	Caucasian same		−5.1	0.6	166	8	−2.22	0.4	171	16	−5.41	3.34	156	12
	Caucasian different						−2.07	0.33	173	11	−5.57	3.19	155	11
	Asian same	PO7h	−3.73	0.69	163	14	−1.5	0.45	170	12	−4.37	4.1	152	11
	Asian different						−1.43	0.41	172	12	−4.36	3.4	150	12
	Caucasian same		−3.78	0.71	164	12	−1.67	0.41	170	13	−3.95	3.33	152	11
	Caucasian different						−1.66	0.4	171	15	−4.41	3.89	148	14

Mean amplitudes (Amp.) and latencies (Lat.) with their respective SDs for the N170 component on the PO8h, PO7h electrodes for the ERPs elicited by the adaptor face (*Left*), the conventional RS analysis (*Center*), and for the stRS (*Right*). It is worth noting that the electrophysiological signals used in both analyses are different (*Methods*) and, therefore, there is not a linear relationship between the RS and the stRS analysis.