

# Subliminal exposure to national flags affects political thought and behavior

Ran R. Hassin\*<sup>†</sup>, Melissa J. Ferguson<sup>‡</sup>, Daniella Shidlovski\*, and Tamar Gross\*

\*Department of Psychology, Hebrew University, Jerusalem 91905, Israel; and <sup>‡</sup>Department of Psychology, 211 Uris Hall, Cornell University, Ithaca, NY 14853

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**Political thought and behavior play an important role in our lives, from ethnic tensions in Europe, to the war in Iraq and the Middle Eastern conflict, to parliamentary and presidential elections. However, little is known about how the individual's political attitudes and decisions are shaped by subtle national cues that are so prevalent in our environment. We report a series of experiments that show that subliminal exposure to one's national flag influences political attitudes, intentions, and decisions, both in laboratory settings and in "real-life" behavior. Furthermore, this manipulation consistently narrowed the gap between those who score high vs. low on a scale of identification with Israeli nationalism. The first two experiments examined participants' stance toward the Israeli–Palestinian conflict and the Jewish settlers in the West Bank. Experiment 3 examined voting intentions and actual voting in Israel's recently held general elections. The results portray a consistent picture: subtle reminders of one's nationality significantly influence political thought and overt political behavior.**

automaticity | nationalism | social cognition | unconscious | voting

**H**ow should the European Union handle Iran's nuclear development? Under what circumstances should the United States withdraw its troops from Iraq? Where should Israel place the new separation wall it is unilaterally building, on the 1967 borders or on Palestinian territory in the West Bank?

These are among the most crucial topics in today's international politics, with ramifications stretching from the Middle East, to the more global "war on terror," to many aspects of our daily lives. In this article, we show that the subliminal presentation of national symbols can significantly influence people's stance on issues of this type, as well as how they intend to vote, and how they actually do vote, in general elections. More specifically, in all of the experiments described below, the brief presentation of a national symbol pulled people toward the political center.

There are many reasons why nonconscious exposure to national symbols should not play a significant causal role in political thought and behavior. Chief among them is the normative perspective, which suggests that one's political agenda should be driven by two factors: one's ideology and the facts of the matter. These should form the input for an intentional reasoning process, wherein the goal is carefully thought-through political activity. Indeed, research in experimental psychology and related fields has repeatedly shown that political behavior and thought are influenced by one's ideology (as manifested, for example, in one's values and party affiliation) and by current events (1–3).

However, research in the cognitive sciences over the last three decades has repeatedly demonstrated that conscious awareness is very limited in its processing resources (4–7). This is why simple thought and routine actions are determined not solely by conscious deliberation and reasoning but also by complex cognitive and motivational processes that occur outside of conscious awareness (8–15). These findings raise the possibility that even political thought and overt political behavior may be affected by nonconscious processes (16).

The experiments in this article examine the effects of national symbols, in this case one's national flag, on various political issues of the type presented above and on significant "real-life" political behavior. The national flag of any country is one of the most pervasive cultural and ideological images, and as such it has the potential of exerting significant influence over our behavior. Symbols of this sort are known to have two functions. First, they communicate certain ideas, beliefs, and goals. Second, they bring about thoughts and behaviors that are concomitant with these ideas (17–20). Hence, given that flags are often used to express unity and patriotism (21), they are likely to be able to bring about unity (22, 23). Given the vast research on nonconscious processes succinctly described above, we argue that this effect of national flags may occur outside of conscious awareness (22).

The constant changes in the degrees of citizens' unity and partiality concerning national issues are central to the life of a nation, and understanding these dynamics has long occupied both political thinkers and politicians. In principle, there are two possible ways to foster political unity: first, by drawing people from the center and one political extreme (e.g., left wing) to the direction of the other extreme (e.g., right wing); and second, by drawing people from both extremes to the center.

Experiment 1 examined how participants' opinions toward critical issues in the Israeli–Palestinian conflict are affected by the subliminal presentation of the national flag. The second experiment examined the effects of the subliminal presentation of a national flag on another central and controversial political issue: the approach toward the Jewish settlers in the West Bank and Gaza. The experiment was conducted in the weeks that preceded Israel's withdrawal from Gaza, a point in time (August 2005) in which the role of the settlers in Israel's history and future was hotly debated. This debate emphasized the fact that the settlers are a unique group within Israeli society, thus underlining their relative outgroupness. The third experiment took the examination of the effects of nonconscious ideological symbols one step further, by examining voting intentions and actual voting behavior. This experiment was conducted in the week that preceded the last Israeli general elections (the elections were held on March 28, 2006).

In all experiments, we examine the effect of subliminal flag activation on Israelis who score either high or low on the Identification With Israeli Nationalism scale (henceforth, IWIN; see *Methods*).

## Results

**Experiment 1.** In this experiment, we examine how subliminal flag priming and IWIN interact to affect political opinions regarding

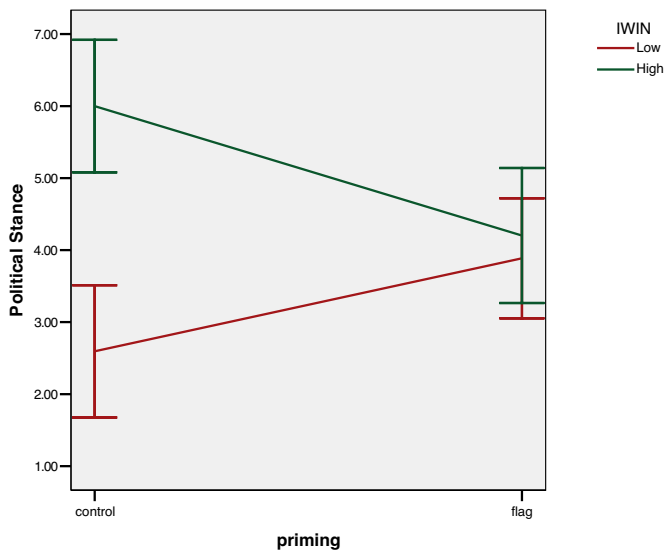
Author contributions: R.R.H. and M.J.F. designed research; D.S. and T.G. performed research; R.R.H., D.S., and T.G. analyzed data; and R.R.H. and M.J.F. wrote the paper.

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<sup>†</sup>To whom correspondence should be addressed. E-mail: ran.hassin@huji.ac.il.

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**Fig. 1.** Average responses to experimental questions as a function of priming and IWIN (high numbers indicate more nationalistic attitudes).

the Palestinian–Israeli conflict. The results of Experiment 1 are given below.

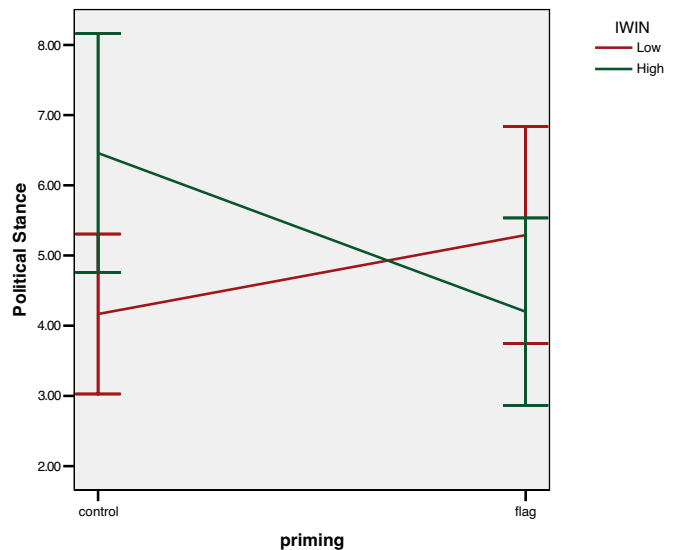
**Awareness.** None of the participants indicated awareness of the subliminal prime or suspicion of any sort. More specifically, none of the participants could report having seen the prime; they were all convinced that there was only one stimulus before each question (the mask); and no participant came close to guessing the true nature of the experiment. Hence, we report the data of all participants.

Last, although stimuli were presented for 16 msec and were immediately masked, and although debriefing data revealed no awareness of the primes (see *Methods*), we wanted to more directly assess awareness of the stimuli. To do so, we ran a simple priming experiment (Experiment 1a) in which either the flag (50%) or the control stimulus (50%) was presented for 16 msec, immediately followed by a mask. Participants were explicitly asked to indicate whether the first stimulus (i.e., the prime) had been a flag or the control stimulus. The results clearly show that accuracy ( $M = 0.48$ ) did not significantly differ from chance [ $t(41) < 1.28$ ]. In addition, although participants were consciously looking for flags and could earn money by finding them, none of them claimed they saw a flag even once. We therefore conclude that priming was indeed subliminal.

**Political stance.** Based on participants' answers to the three-item IWIN measure, they were divided into two groups, high vs. low IWINs. Identification with Israeli nationalism has been found in the past to correlate strongly with political world view, such that high IWINs are more right-wing than low IWINs (24). Participants' answers to all political questions were strongly correlated (Cronbach's  $\alpha = 0.90$ ), and so they were averaged and entered into a 2 (priming: flag vs. control)  $\times$  2 (IWIN: high vs. low) ANOVA. As one might expect, the level of IWIN highly affected participants' opinions in the control condition [ $F(1,49) = 19.70$ ,  $P < 0.001$ ].

As predicted, a significant interaction between priming and IWIN emerged [ $F(1,49) = 13.58$ ,  $P < 0.002$ ] (see Fig. 1). In the control condition, high IWINs ( $M = 6.00$ ,  $SD = 1.37$ ) expressed very different opinions from low IWINs ( $M = 2.60$ ,  $SD = 1.52$ ) [ $t(22) = 5.72$ ,  $P < 0.001$ ]. Priming brought these groups closely together ( $M = 4.20$ ,  $SD = 1.55$  and  $M = 3.89$ ,  $SD = 1.56$ , respectively) [ $t(27) < 0.6$ ].

To take a few examples, without priming, low IWINs strongly supported the formation of a Palestinian state, and high IWINs



**Fig. 2.** Average responses to experimental questions as a function of priming and IWIN (high numbers indicate more nationalistic attitudes).

strongly objected to it [ $t(22) = 7.12$ ,  $P < 0.001$ ]. Priming effectively brought these groups into alignment ( $t < 1$ ). Similarly, low IWINs in the control condition strongly supported Israel's unilateral disengagement from Gaza, whereas high IWINs objected to it [ $t(22) = 6.46$ ,  $P < 0.001$ ]. Priming united these groups ( $t < 1.1$ ). Importantly, no effects were found for the control questions that were not related to the Israeli–Palestinian conflict (all  $F_s < 1.5$ ).

The results of the first experiment provide strong support for our hypothesis. Specifically, subliminal activation of a national symbol affected participants' responses to questions regarding key national issues. This effect was moderating in nature; the ideological gap between high and low IWINs was diminished by the nonconscious exposure to the national flag.

A complementary way of examining the effects of priming is by looking at the variances of the different groups. If, as we argue, priming enhances unity, then the variance in the primed group should be smaller than that in the control condition. Indeed, Levene's test reveals this is the case ( $P < 0.05$ ).

**Experiment 2.** In this experiment, we examine how subliminal flag priming and IWIN interact to affect political opinions regarding the Jewish Settlers in the West Bank and Gaza. The results of Experiment 2 are given below.

**Awareness.** Two participants indicated they saw the prime, one participant said the mask reminded him of the Israeli flag, and one participant had lived in the U.S. for most of his life. The data of all these participants were excluded from the analyses.

**Political stance.** Participants' answers were averaged and entered into a 2 (priming: flag vs. control)  $\times$  2 (IWIN: high vs. low) between-participants ANOVA. As hypothesized, a significant interaction between IWIN and the priming condition emerged [ $F(1,38) = 6.92$ ,  $P < 0.02$ ] (see Fig. 2). This interaction indicated that, whereas in the control condition the two groups expressed different political views [ $t(20) = 2.60$ ,  $P < 0.02$ ], these differences disappeared in the priming condition ( $t < 1.2$ ).

To take a few examples, high IWINs in the control condition anticipated they will be sad on the day of the Israeli pullout from Gaza, whereas low IWINs anticipated a rather neutral mood [ $t(20) = 3.10$ ,  $P < 0.01$ ]. Priming, again, brought these two groups closer together [ $t(18) < 0.4$ ]. Another question presented participants with the (true) story of a Jewish family who moved to a settlement in the Gaza strip just before the withdrawal to

take part in the resistance. Participants were asked how fair this move was toward the family's children. In the control condition, low IWINs considered the move as very unfair, whereas high IWINs deemed it neutral [ $t(20) = 2.61, P < 0.02$ ]. Priming diminished these differences by moderating both views ( $t < 1$ ).

Last, as in the previous experiment, one may also examine the effects of priming by looking at the variances of the different groups. If priming indeed enhances unity, then the variance of the primed group should be smaller than that of the control condition. An examination of the mean variances of the different groups suggests this is indeed the case ( $M = 2.34$  and  $2.09$  for the priming and control conditions, respectively), albeit not significantly so ( $P = 0.26$ ).

The results of the second study replicate those of the first. Expressed political opinions and feelings, which relate to issues that stand at the very center of the political arena, are affected by subliminal presentation of one's national flag. Importantly, this study showed that the nonconscious effects documented here are not restricted to opinions and attitudes toward "national enemies" but rather extend to within-nation topics.

**Experiment 3.** In this experiment, we examine how subliminal flag priming and IWIN interact to affect voting intentions and actual voting. The results of Experiment 3 are given below.

**Awareness and responsiveness.** Of 221 participants, 15 reported they saw a flag at least once, 13 reported having seen other types of meaningful stimuli (there were no such stimuli), 21 indicated the mask reminded them of the Israeli flag, and one participant suspected the stimuli were supposed to affect her responses. The data of all these participants were omitted from analyses. In the weeks that followed the elections, we called all remaining 171 participants. Of these, we could reach only 122 (71%). Fourteen participants indicated they did not vote, and seven participants refused to disclose their voting. All of the reported analyses are conducted, then, among the remaining 101 participants. Degrees of freedom vary somewhat because of missing data points.

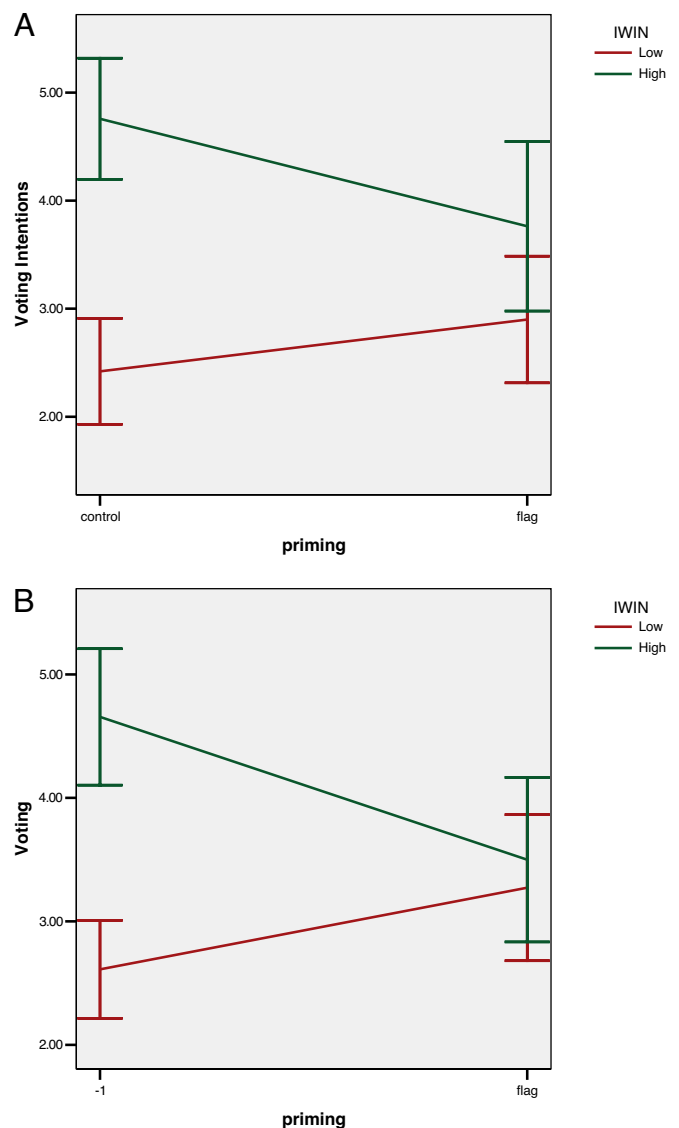
**Voting intentions.** Participants' voting intentions were transformed into a scale that ranged from 1 (very left wing) to 6 (very right wing) and subjected to a 2 (priming: flag vs. control)  $\times$  2 (IWIN: high vs. low) ANOVA.<sup>§</sup> Not surprisingly, IWIN had a strong effect on voting intentions: high IWINs intended to vote for right-wing parties, whereas low IWINs tended to vote for left-wing parties [ $F(1,89) = 29.93, P < 0.001$ ].

Confirming the current hypothesis, there was a significant interaction between priming and IWIN [ $F(1,93) = 6.36, P < 0.02$ ] (see Fig. 3a). Replicating the pattern of the previous studies, priming resulted in a reduced gap between high and low IWINs. Thus, whereas the difference in voting intentions in the control group was 2.34 units on a six-point scale ( $M_{\text{high IWINs}} = 4.76, M_{\text{low IWINs}} = 2.42$ ), priming reduced this gap to 0.86 units, a reduction of 63% ( $M_{\text{high IWINs}} = 3.76, M_{\text{low IWINs}} = 2.90$ ). Although the former gap is highly significant [ $t(52) = 6.35, P < 0.001$ ], the latter is only marginally so [ $t(37) = 1.86, P < 0.072$ ].<sup>¶</sup>

**Voting.** The results thus far show that voting intentions expressed during a laboratory session were influenced by priming, but were

<sup>§</sup>The transformation of voting intentions into a Likert-type scale was done by R.R.H. and D.S. Consensus was very high, and all disagreements were resolved in a thorough discussion of the issue. The transformation rule was: Balad, 1; Hadash, 1; Aleh Yarok, 1.5; Meretz, 2; Yerukim (greens), 2.5; Avoda (labor), 3; Tafnit, 3.5; Kadima, 3.5; Likud, 5; Shas, 5; Ihud Leumi/Mafdal, 6; Israel Beytenon, 6; and Heroot, 6.

<sup>¶</sup>The seven political questions that appeared in this study were taken from Experiment 1. Replicating the results of that experiment, there was a significant 2 (priming)  $\times$  2 (IWIN: high vs. low) interaction [ $F(1,96) = 4.23, P < 0.05$ ]. In the control condition, the average of low IWINs was 2.89 ( $SD = 1.45$ ), whereas that of high IWINs was 5.50 ( $SD = 1.73$ ). In the priming condition, the average of low IWINs was 3.27 ( $SD = 1.93$ ), whereas the average of high IWINs was 4.38 ( $SD = 2.11$ ). IWIN in itself strongly affected the responses ( $P < 0.001$ ), whereas priming in itself did not ( $P > 0.3$ ).



**Fig. 3.** Average voting and voting intentions as a function of priming and IWIN (higher numbers indicate more nationalistic right wing parties). (a) Voting intentions; (b) voting.

these effects translated into actual political behavior, or did they quickly dissipate after the experiment? To examine this question, participants' voting data were transformed to a scale that ranged from 1 (very left wing) to 6 (very right wing), using the same transformation rule we used for the voting intentions (see §). These data were subjected to a 2 (priming: flag vs. control)  $\times$  2 (IWIN: high vs. low) ANOVA.

This analysis showed that the interaction between priming and IWIN significantly affected participants' actual voting [ $F(1,97) = 11.20, P < 0.002$ ] (see Fig. 3b). Replicating the pattern of voting intentions, this interaction showed that priming resulted in a reduced gap between high and low IWINs. In other words, the primed group was less extreme in its actual voting pattern. Thus, whereas the difference in voting between high and low IWINs in the control group was 2.05 units on a six-point scale [ $(M_{\text{high IWINs}} = 4.66, M_{\text{low IWINs}} = 2.61), t(57) = 5.94, P < 0.001$ ], priming reduced this gap considerably to 0.23 units, a reduction of 88% ( $M_{\text{high IWINs}} = 3.50, M_{\text{low IWINs}} = 3.27$ ). Statistically, priming reduced the gap between high and low IWINs to zero ( $t < 1$ ).

Similar to the first two experiments, a complementary way of examining the effects of priming is to consider the variances of the different groups. If priming indeed enhances unity, then the variance in the primed group should be smaller than that of the control condition, and indeed, Levene's test reveals this is the case for both voting intentions ( $P < 0.05$ ) and voting itself ( $P < 0.01$ ).

Last, did priming, IWIN, and their interaction affect voting directly, or did they do so through their influence on voting intentions? Regression analyses were conducted to address this question. These showed that priming, IWIN, and their interaction affected both voting intentions and voting itself (all betas are significant at the 0.05 level). When intentions were added to the regression that predicted voting, though, the contributions of all other factors were reduced to zero (all  $P$ s  $> 0.35$ ). These results suggest the intentions expressed during the experiment may have mediated the effects of priming and IWIN on voting behavior, a mechanism that seems plausible given the acknowledged role of intentions in determining behavior (25). To better address this question, future research should include a group of participants who will not be asked about their voting intentions during the experiment.

## Discussion

Together, results across three studies show that the subliminal presentation of a national flag can bring about significant changes not only in a citizen's expressed political opinions within an experimental setting but also in their "real-life" overt political behavior, perhaps the most significant political behavior of all, voting, temporally and contextually distant from the experiment.

In all three studies, the subliminal presentation of national flags increased unity by drawing participants to the political center. Note that, if one makes the reasonable assumption that the flag symbolizes mainstream Zionism, then another possible way of describing the current findings is as showing the subliminal presentation of an ideological symbol draws people toward this ideology. Because mainstream Zionism, by definition, is somewhere in the political center, participants moved to the center. It is possible, then, that if one primes symbols of more extreme (but still acceptable) ideologies, people would move toward this ideology and away from the center. Another possibility is that, under certain circumstances, priming symbols may activate one's own ideology. Thus, for example, if one is an extremely left-wing Zionist, then priming of a Zionist symbol may activate her own ideology, whereas the same symbol would activate a totally different ideology for an extremely right-wing Zionist. Future research will hopefully address these issues, thus allowing us to better map the possible effects of national symbols on thought and behavior.

It may be suggested that the primes did not activate Zionism but rather activated a more general concern for the safety of Israel or a positive attitude toward it. Although, at its core, this is an empirical question that should be addressed in future research, we think this is a rather unlikely mechanism. This suggestion assumes that a move toward the political center reflects a greater concern for the safety of Israel or a more positive attitude toward it, an assumption we do not share.

The current findings also provide challenging data for cognitive scientists who investigate the mechanics of the human cognitive unconscious and its role in determining human behavior. More specifically, one may ask how do the mere presentations of national symbols affect one's opinions, voting intentions, and voting behavior? Do they change the weight we assign to relevant information, and if they do, how do they do it? Do they affect our political biases and tendencies? Do they "color" our world view? Do they activate a unity goal? In other words, the current studies focused on the phenomenon, but the processes that underlie it await further investigation.

Finally, the current studies provide stimulating data for social and political scientists who examine political behavior, and at the same time, they underscore the important function symbols play in shaping human conduct.

## Methods

**Experiment 1. Participants.** Fifty-three participants took part in this study, either for course credit or for 15 New Israeli shekels (NIS) (approximately \$3). They were randomly assigned to one of the two conditions of the study (priming vs. control).

**Procedure and materials.** Upon arrival at the laboratory, participants were assigned to private booths. They were told that questions would appear in either the upper or the lower part of the screen, and they were asked to answer these questions by pressing designated keys on the keyboard. Participants were further told that, before the presentation of every question, a visual stimulus would appear in its location, thus allowing them to anticipate the question's location. They were asked to respond to this stimulus by pressing one of two keys that indicate whether the stimulus appeared in the upper vs. lower part of the screen. Immediately after participants' responses, the visual stimulus disappeared, and a question appeared in its location. The study began with a "practice stage" of 50 trials, in which participants saw the visual stimulus and were asked to respond to it.

The task of indicating the location of the visual stimulus served to prime an image of the Israeli flag. The flag ( $3.55 \times 2.41$  cm;  $134 \times 91$  pixels) was flashed for 16 msec, and it was immediately followed by a 300-msec mask. In the control condition, a control stimulus [a "scrambled" Israeli flag; see [supporting information \(SI\) Appendix 1](#)] was flashed and it, too, was immediately followed by a mask. Overall, then, participants were primed 50 times in the beginning of the experiment and one time before each question.

There were 22 questions, 11 related to the Israeli–Palestinian conflict and 11 controls. Each question was accompanied by a nine-point response scale (see [SI Appendix 2](#) for a comprehensive list of the experimental questions). The order of the questions was randomized.

After having completed the study, participants were handed a questionnaire that assessed, directly and indirectly, their awareness of the priming manipulation and its effects. Participants were asked (*i*) what stimulus/stimuli they saw before each question; (*ii*) whether there was one or more such stimuli; (*iii*) if there were more than one, what they were; (*iv*) whether there was any connection between the visual stimulus/stimuli that appeared before the question and their responses; (*v*) whether they used a certain strategy during the experiment; and (*vi*) what they thought the study examined.

The second part of the debriefing questionnaire contained a number of personal questions. Participants were explicitly told that we know the answers to these questions might be sensitive, but we would be very thankful if they would agree to answer them. Some of these questions had to do with participants' media habits (e.g., how many newspapers they read and how frequently they watch the news on television), and others pertained to self-perception (e.g., whether they perceive themselves as capitalists vs. socialists).

The last three questions were those that assessed their IWIN. These were (*i*) when you think of yourself in general, how important to your identity is the fact that you are an Israeli? (*ii*) When you think of yourself in general, how would you define your attitude toward Zionism? (*iii*) When you think of yourself in general, how much do you identify with Israeli nationality? The correlation between *i* and *ii* was 0.77, between *i* and *iii* was 0.66, and between *ii* and *iii* was 0.83 (all  $P < 0.001$ ; Cronbach's  $\alpha = 0.87$ ).

**Experiment 1a. Participants.** Forty-two participants (30 females and 12 males) participated in this study in exchange for 15 NIS (approximately \$4).

**Procedure and materials.** We used the priming materials and procedures of Experiment 1. The stimuli appeared randomly either in the upper part or in the lower part of the screen. Similar to Experiment 1, the primes (the Israeli flag or its scrambled version) were presented for 16 ms, and they were immediately masked. Participants were instructed that before each mask, another stimulus would be briefly presented, and that this stimulus was either a flag or a scrambled version of it. Participants were asked to respond to two questions that appeared, sequentially, in the center of the screen: (i) where did the stimulus appear (the same question they were asked in Experiment 1), and (ii) whether the prime was a flag or a scrambled flag. There were 60 trials, and the order of the questions was counterbalanced. To encourage participants to do their best, we promised a lottery of 200 NIS (approximately \$50) among participants who scored at the top 10%.

There were no effects of the order of the questions, and hence we collapsed the responses and report average accuracy.

**Experiment 2. Participants.** Forty-six participants (25 females and 21 males) participated in this study either for credit or for 15 NIS (approximately \$3). They were randomly assigned to one of the two conditions of the study (priming vs. control).

**Procedure and materials.** These were identical to Experiment 1, with the following change: There were 12 questions, six of which pertained to the settlers and six served as control (see [SI Appendix 3](#) for a full list).

**Experiment 3. Participants.** Two hundred twenty-one participants participated in this study in exchange for a lottery ticket with a prize of 700 NIS (approximately \$160).

**Procedure and materials.** These were very similar to Experiment 1 (although only seven experimental questions from Experiment 1 were presented). Participants were subliminally primed with either the flag or the control stimulus and then went on to answer a number of political and control questions, after which they reported their voting intentions.

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