

# Attachment to land: The case of the land of Israel for American and Israeli Jews and the role of contagion

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## Abstract

This is a first study on attachment to national and sacred land and land as a protected value. A measure of attachment to the land of Israel is developed and administered to two groups, Jewish college students in Israel and the United States. Levels of land attachment are high and not significantly different in the two groups, with a great deal of variation. Land may become more important through being inhabited by a group over centuries. This is a positive contagion effect, and is opposed in some cases by negative contagion produced when the “enemies” live on the land for some period of time. We demonstrate a significant correlation of positive contagion sensitivity with attachment to the land of Israel. Unlike many other cases of the interaction of positive and negative contagion, negative contagion does not overwhelm positive contagion in the domain of land attachment. We also present evidence for linkages between political positions, religiosity, importance of Israel, Arab aversion, and vulnerability of Israel with attachment to land, but these do not fully account for the contagion effects. A number of significant differences between Israelis and Americans are described.

Keywords: political, ethnic, land, attachment, tradability, contagion.

## 1 Introduction

People often care deeply about their personal land, for example, the land which their family has owned and lived on for decades to centuries. This may be linked through evolution to territorial defense. But people also seem to care about land that is relevant to their group, rather than their own person or family. This land “attachment” may be considered in two distinct ways: an attachment to “place,” that is, specific locations of particular historical significance, and attachment to “space,” a more abstract type of attachment to a larger parcel of land that has some sociopolitical significance, such as the land defined by the borders of a country (Deudney, 1996). The “place” attachment (“sacred land”) probably has a history of thousands of years, whereas the attachment to land as “space” is much more recent. National land is the newest aspect of land, since nations and states are relatively new inventions in human history (Weber, 1977). As nations and states developed, borders came to define territories, and were defended and expanded. The personal land

attachment “system” may have been extended to sacred land, and later to national land, by a process of cultural preadaptation (Mayr, 1960; Rozin, 1999).

Land is often thought of as untradable, which would not be the case if it was just a source of resources. The French word *terroir* captures a broader perspective, and refers to the land including its human capital and cultural history. None of these strong attachments has been systematically studied by psychologists.

Land plays a central role in many current political and ethno-political conflicts, including Northern Ireland, Iraq, Taiwan, Palestine/Israel and Sri Lanka. States very rarely give up land voluntarily, even if that land is inhabited by people who are despised by, and despise, the host country. This fact is emphasized by Lustick (1993), as he explores three of the very few cases in which a country “voluntarily” gave up land in the 20<sup>th</sup> century.

The concept of *protected values* (Baron & Spranca, 1997) is relevant to land attachment. Protected values are those “unfungible” values or entities which people resist trading for anything. It is morally offensive for at least some people to even consider exchanging one’s children, one’s religion, and one’s land; such potential exchanges have also been described as “taboo tradeoffs” involving sacred values (Fiske & Tetlock, 1997; Tetlock et al., 2000). Land may also be considered part of the person’s (or nation’s) extended self, and hence have a

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particularly close relation to the person (or nation) (Belk, 1988). Finally, land is perhaps the most important manifestation of the symbolic value of property in reinforcing group identity (Ledgerwood, Liviatan & Carnevale, 2007).

In this exploratory study, we develop a measure of attachment to national land (space) and sacred land (place), in the context of the attachment to the land of Israel by Israeli and American Jews. As we developed this measure, we came to realize that the space/place distinction, may be difficult to instantiate and differentiate. Although we believe it is worth attention as one analyzes relationships to land, in the present study we have employed a single composite measurement of attachment to the land of Israel.

The focus of this paper, in addition to measuring degree of attachment to land and individual and cultural differences in this variable, is to explore one interesting potential determinant of land attachment, and that is contagion beliefs. Contagion beliefs are based on the sympathetic magical law of contagion: "once in contact, always in contact" (Frazer, 1922/1890; Mauss, 1972/1902; Tylor, 1974/1871). When two objects are in physical contact, they pass "essences" between them, such that basic properties of each are embedded in the other. This process, originally believed to be present only in the minds of people in traditional cultures, is now recognized as a universal part of adult thinking (Rozin, Millman & Nemeroff, 1986; Rozin & Nemeroff, 1990; Nemeroff & Rozin, 2000). Contagion effects are typically permanent, and can be accomplished with minimal physical contact. The transfer of "essence" that psychologically characterizes contagion effects can be mentally represented in at least two ways (Nemeroff & Rozin, 1994). In one conception, the essence is material, and can be eliminated by physical processes. In the other, the essence is spiritual, and is resistant to erasure by physical processes.

Negative contagion is much more common and more potent than positive contagion (Rozin et al., 1989; Rozin & Royzman, 2002). Many people do not show positive contagion, whereas everyone shows negative contagion. Furthermore, for individuals who experience both, a combination of the two (e.g., a food touched by a cockroach and one's favorite personal memento, or a sweater worn by Adolph Hitler and Mother Teresa) almost invariably results in a strong negative outcome. When a group has lived and died on a particular area of land for years, decades, or centuries, one can imagine that their essence is passed into the land. This could form the base for a land attachment based on positive contagion. On the other hand, if "one's land" was occupied by the "enemy" for some period of time (or if it was conquered from the "enemy"), there could be a strong negative contagion effect. It appears that land may be one of the rare cases where

positive contagion may trump negative contagion; at least there are many examples in the world of groups very attached to land that they think was once theirs, but which has been occupied by the "enemy" for centuries. In this study, we explore the relation between attachment to the land of Israel and measures contagion. We also consider some other aspects of land attachment, including its relationship to political views about Israel, religiosity, the personal importance of Israel, aversion to Arabs, views on the vulnerability of Israel, and attachment to personal land.

We examine attachment to the "land of Israel" for Jewish college students in both Israel and the United States. There have been important studies on the land disputes in Israel-Palestine, particularly from the perspective of history and political science (e.g., Lustick, 1993), intergroup attitudes (e.g., Bogardus, 1955) and acceptable and unacceptable tradeoffs (Ginges et al., 2007). Land is central to this particular conflict, with both sides considering the land to be "theirs." In many cases, the contested land is predominantly populated by members of the opposing group. Issues of claim over sacred land — that is, sites with biblical or historical significance such as the Temple Mount — come into conflict as well.

Personal land attachment is also relevant to and confounded with national land attachment in Israel-Palestine. It is customary for Palestinians who were displaced to wear the key from their former homes in order to remember their specific villages and the land on which they lived (Khalili 2005). There is evidence that for many Arabs and Jews, national land or particular sites in Israel constitute sacred, and hence protected values (Ginges et al., 2007).

Although American Jews do not live in Israel, as part of the Jewish Diaspora, they often have strong feelings about the land of Israel. As a major force in the support of Israel (functioning like many other diaspora), understanding the degree and nature of this type of land attachment is of relevance to understanding ethnopolitical conflict.

## 2 Method

Israelis were 187 psychology, sociology, business administration, and education students from the Hebrew University in Jerusalem, and psychology students from the Open University in Givat Ram, recruited as volunteers from their classes. They received research credit for their participation. We eliminated anyone with more than 25% missing values (3 participants). The resulting sample size was 184. The average age was 25.1 years, ranging from 12–58, and 66% of the sample was female. The American sample was 143 Jewish students from the University of Pennsylvania, reduced to 134 by the elimination criteria. The American questionnaire was posted on a website,

where students could complete it as one option to fulfill a research participation requirement in introductory psychology. The study was restricted to students who had at least one Jewish parent. The sample was 51% female, and the average age was 19.8 years, ranging from 18–32.

The questionnaire employed in the study was anonymous. It consisted of twelve demographic questions such as gender, citizenship, age, and where the participant had lived since birth. We also assessed contagion sensitivity, religiosity, the importance of Israel, political views about Israel, aversion to Arabs, perceived vulnerability of Israel, and attachment to personal land. The particular items are described along with the results. The questionnaire was originally written in English and two separate and independent Hebrew translations were made by native speakers of both languages. The two translations were compared and combined to form a final Hebrew version. When the translations were discrepant, a third party, native speaker of both languages, resolved the difference. The substantive questionnaire items are presented in the results and tables.

### 3 Results

A substantial proportion of participants endorse untradability of land. For example, 65% of Israelis and 86% of Americans answer “No” to the question “Is there any land anywhere for which you would trade a parcel of East Jerusalem?” and 65% of Israelis and 53% of Americans answer “No, I would not be willing to trade this” in reference to the proposed trade of “A piece of land on the border of your country (referring to Israel) for a similar piece just across the border.” In response to the question “Is there any piece of land in Israel that you would never be willing to trade under any circumstance?”, 59% of Israelis who answered this question specifically nominated “Jerusalem” or the “old city.” In response to an item about the tradability of Har Hertzal, a cemetery in Jerusalem that holds the remains of some major figures in the history of Israel, 83% if Israelis and 70% of Americans agreed that they “would never trade it for other land or anything else.” All of these responses suggest the existence of protected values.

#### 3.1 The measurement of group land attachment: GROUPLAND7

Our measure of land attachment was seven questions about willingness to trade national or “sacred” land. The first five, answered as yes (scored 0) or no (scored 10) referred to (1) the Temple Mount or (2) “Is there any land anywhere for which you would trade a parcel of East Jerusalem?”; trading non populated Israeli land with ei-

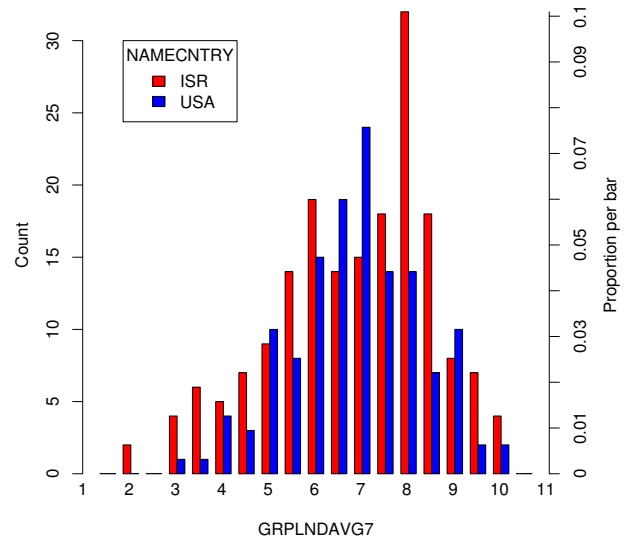


Figure 1: Distribution of GROUPLAND7 by GROUP.

ther (3) Syria or (4) Jordan (two separate items) for equivalent land owned by Syria or Jordan, with the end of straightening out the border; and (5) willingness to make this type of trade in the abstract (without specifying the precise location of the land). The sixth item was a 108 mm line, anchored at the left by the words “easily tradable, e.g. your couch” and at the other end by “never tradable, e.g., your child”: participants were asked to mark on the line where the tradability of the land of Israel would go on that line (the score was millimeters from the left point divided by 10). The seventh item was a summary willingness to trade score for the land of Har Hertzal (a cemetery in Jerusalem, where a number of individuals of importance in the history of Israel are buried), averaged across three items (discussed below and converted to a 0 to 10 scale).

These seven items might be sorted conceptually into four involving national land (“space,” items 3–6 above), and three about sacred land (“place,” items 1, 2 and 7 above). The mean of the four national (space) items correlated .50 with the mean of the three sacred (place) items for the Israeli sample, and .42 for the American sample. A factor analysis of the seven items revealed a first unrotated factor that accounted for 38% of the variance, with the lowest of the seven items loading .52 on this factor. A varimax rotation revealed two factors, but they did not sort on the space/place variable. These findings justified making a single score, GROUPLAND7. We adopt the custom of following any averaged variable with the number of component items that contribute to it — based on the average of the scores on each of these seven items (each one adjusted to be on a 0–10 scale). Thus, although we see conceptual differences between national and sacred land, the statistical analysis suggests combining the

Table 1: Major variables and predictors of attachment to group land.

Item	Israel Mean (s.d.)	US Mean (s.d.)	r (all Ss) <sup>1</sup>	r (Israel) <sup>1,2</sup>	r (USA) <sup>1,3</sup>
GROUPLAND7	7.02 (1.79)	7.08 (1.39)			
PVD5	5.67 (1.56)	6.24 (1.42)**	.16***	.18	.14
NEGCON3 <sup>4</sup>	7.30 (2.95)	5.59 (2.66)**	.26***	.20	.43***
POSCON6	6.98 (1.70)	7.15 (1.54)	.31***	.29***	.36***
POSCONNOLND4	7.22 (2.05)	6.96 (1.84)	.26***	.22**	.34***
POLITICS5	5.43 (2.16)	4.94 (1.51)	.60***	.61***	.59***
POLINOLAND2	5.78 (2.41)	3.93 (2.03)***	.31***	.38***	.27**
ARABAVR3	4.68 (2.79)	3.80 (2.50)**	.31***	.38***	.20
RELIGIOS	2.18 (2.74)	4.73 (2.99)***	.28***	.28***	.33***
IMPISRAEL	8.77 (1.54)	7.44 (2.53)***	.37***	.45***	.40***
VULNER9	6.64 (1.46)	8.17 (1.64)***	.21***	.08	.46***
PERSONALLAND					
A: TLANDFAM	6.20 (3.70)	7.65 (3.17)***	.35***	.36***	.38***
B: MMFAM <sup>5</sup>	7.62 (2.67)	7.35 (2.38)	.37***	.40***	.30**

\*\* difference significant at  $p < .01$ , two tailed; \*\*\*  $p < .001$

<sup>1</sup> Correlation between GROUPLAND7 and each of items below. Given the ns involved, correlations of .23 or more are significant at  $p < .01$  (2-tailed), and .29 at  $p < .001$

For combined data ( $N=268$ ),  $r=.16$ ,  $p < .01$ ;  $r=.21$ ,  $p < .001$

<sup>2</sup>  $N=182-184$ , except 84 MMFAM and 123 NEGCON3

<sup>3</sup>  $N=134$  for USA, except 102 for MMFAM and 113 for NEGCON3

<sup>4</sup> Only 123 Israelis and 113 Americans received a negative contagion score because we excluded any subject who rated either Hitler or Cockroach contagion as positive.

<sup>5</sup> Only 84 Israelis and 102 Americans answered this question

measures of these two aspects of land. The Cronbach alpha for this 7-item scale was .66. There was no significant difference in GROUPLAND7 between Israelis and Americans (Table 1). The variation in GROUPLAND7 is quite high for both samples (Table 1, Figure 1).

### 3.2 Measuring contagion with respect to land and other entities (PVD5, NEGCON3, POSCON6, POSCONNOLAND4)

There is no existing scale for contagion sensitivity. Eighteen contagion sensitivity items were collected from Schaller's work on perceived vulnerability to disease (Faulkner, Schaller, Park & Duncan, 2004) and our own work on contagion (Rozin, Fallon & Mandell, 1994; Rozin, Markwith & Nemeroff, 1986; Rozin et al., 1989) with a few items created for this study. A principal component factor analysis of the correlation matrix for the combined Israeli-American sample with a varimax rota-

tion yielded 6 factors, with a clear break in the Scree plot after 3 factors. We forced a three factor solution, and recovered three varimax rotated factors that mapped quite well onto the concepts of: 1) concern about infection and interpersonal contact, 2) positive contagion, and 3) negative contagion. We included the 14 of the 18 items which loaded at least .44 on one of the factors.

The first factor includes only items derived from Faulkner et al.'s (2004) perceived vulnerability to disease scale. The five items that loaded at least .44 on this factor, all answered on a 1 to 5 strongly disagree to strongly agree scale, were (R = reverse scored): "It really bothers me when people sneeze without covering their mouths. I don't like to write with a pencil someone else has obviously chewed on. I prefer to wash my hands pretty soon after shaking someone's hand. I dislike wearing used clothes because you don't know what the past person who wore it was like. My hands do not feel dirty after touching money (R)." This factor score, PVD5, was the average of the scores of each of these items, adjusted to be on a 0 to 10 scale.

A second factor dealt with positive contagion. Three of the six items were (rated on the 5 point agree-disagree scale): "1. If land was owned in a single family for generations, there would always be something of their ancestors on that land, even after it has changed ownership. 2. If I wear my great grandmother's wedding ring, I am able to keep some of her spirit with me. 3. A piece of land on which my ancestors are buried contains something important of them, whether spirit or something else." A fourth item was: "use the . . . scale ( -100, worst imaginable thing, to +100, best imaginable thing) to rate the following scenarios. Imagine that sitting in a chair is rated as zero. . . . Rate sitting in that same initial chair after you were told that David Ben-Gurion (the founding president of Israel) owned and sat in this chair in the 1940s." The remaining two items were from a set of items on untradability (choices: willing to trade, uncertain, not willing to trade) dealing with an original family photo album and a great grandmother's wedding ring. The combined variable, POSCON6, was the average of the six scores, each converted to a 0 to 10 scale, with 10 indicating the maximal positive contagion score.

The third factor, negative contagion, included three items, all in the same format as the Ben Gurion item described above, and rated on the same -100 to +100 scale. They were aversion to juice contacted by a cockroach [1] or sterilized cockroach [2] and aversion to a chair that had been used and owned by Adolph Hitler [3]. The combined variable, NEGCON3, was the average of the three scores, each converted to a 0 to 10 scale (but see note 4 of Table 1).

The positive contagion scale contains two items that refer specifically to positive contagion about land. We created a fourth measure, POSCONNOLAND4 without these two items, so that land measures would not appear in both the land attachment and contagion variables.

The four scales created correlate between .04 and .36 with each other (except for POSCON6 and POSCONNOLAND4, which have overlapping items), considering the set of pairs for the Israeli and American samples separately. The correlations are sufficiently low that we continued to use the three separate factor measures. Americans were significantly higher on PVD5 (essentially, fear of infection), Israelis were significantly higher on negative contagion (NEGCON3), and there were no significant country differences for positive contagion (POSCON6) or positive contagion with land factored out (POSCONNOLAND4) (Table 1).

### 3.3 Relation of contagion to attachment to Group Land

The correlations between the four measures of contagion and the group land measures for both the Israeli

and American samples are presented in Table 1. Correlations for GROUPLAND7 with PVD5 are low, and significant only for the combined sample (Israel .18, USA .14; combined groups .16). Correlations with NEGCON3 (note the smaller *n* for this variable because of eliminated participants as described under method) were larger and significant for Americans and the combined groups (Israel: .20; USA: .43, combined .26). The correlations with POSCON6 were all significant (Israel: .29; USA: .36; combined .31). Positive contagion without Land (POSCONNOLAND4) was significantly correlated with GROUPLAND7 (Israel: .43; USA: .22; combined: .26). Since, in the small contagion literature, negative contagion effects are always more powerful than positive contagion, the closeness of the positive and negative contagion correlations are notable.

### 3.4 Other predictors of group land attachment

#### 3.4.1 Political attitudes (POLITICS5, POLINOLAND2)

Attitudes to the land of Israel are a major aspect of Israeli politics. The Israeli "right" considers the land of Israel as non-negotiable as a political position. It is very difficult to separate and causally align land attachment and political views. We measured political views in terms of agreement on the standard 5-point agree-disagree Likert scale with five statements: "All of ancient Judah and Samaria, up to the Jordan river, must be part of Israel. Israel should respond each time there is a terrorist attack with a more powerful attack against the Palestinians. Israel is a country that should only be for Jews. In order to complete a peace treaty, I would be willing to give up control of the Temple Mount and the Western Wall to neutral international control (reverse scored). Israel should remove west bank and Gaza settlements (reverse scored)." We averaged the scores on the five items, calling it POLITICS5 (Cronbach  $\alpha = .62$ ). There was no significant difference between Israelis and Americans (Table 1).

Of all the variables we examined, POLITICS5 correlates most highly with GROUPLAND7 ( $r = .61$  for Israelis,  $r = .59$  for Americans, combined  $r = .60$ ) (Table 1). Two of the five political items (on terrorism and on Israel only for Jews) do not directly involve land. We averaged just these two items as a measure of political views "independent" of attitudes to land, per se (POLINOLAND2). Israelis were significantly higher on this item (Table 1), and the correlations of this item with GROUPLAND7 were significant ( $r = .38$  for Israelis,  $r = .27$  for Americans and  $r = .31$  for the combined groups (Table 1).

### 3.4.2 Aversion to Arabs (ARABAVR3)

Negative attitudes (aversion) to Arabs could also be expected to be related to land attachment. Arab aversion was measured using the framework provided by Bogardus (1933), as modified by our previous measure for the study of aversion to Germans by Jews (Cherfas et al., 2006). Respondents rated agreement (on a standard 5 point scale) with 3 items (ARABAVR3): "I would be uncomfortable living next door to a Muslim family from Saudi Arabia; I would be uncomfortable living next door to a Palestinian family; I would be uncomfortable living next door to a Christian Arab man from Lebanon."

Cronbach's  $\alpha$  was .83. Israeli and American samples did not differ significantly (Table 1). ARABAVR3 correlated significantly (.31) with GROUPLAND7 for the combined sample and for Israelis ( $r=.38$ ), and non-significantly for Americans ( $r=.20$ ). Not surprisingly, POLITICS5 correlates highly with ARABAVR3 (.36 for USA, .41 for Israel, .40 for combined sample).

### 3.4.3 Religiosity and importance of Israel (RELIGIOS, IMPISRAEL)

We employed two items to assess identity: "1. How religious are you? (0 = not at all, 1 = slightly, 2 = moderately, 3 = extremely); 2. "How important to you is Israel" (rated on a 7-point scale from 1 = not at all important to 7 = extremely important). These two items correlated .52 for Americans, but only .09 for Israelis. For this reason, we did not combine the items, and instead treated each separately.

RELIGIOS is much higher for Americans, while IMPISRAEL is higher for Israelis (Table 1). RELIGIOS correlates significantly with GROUPLAND7, .28 for Israelis and .33 for Americans, as does IMPISRAEL (.45 for Israelis, .40 for Americans) (Table 1). Not surprisingly RELIGIOS correlates with POLITICS5 (.42 for Americans, .38 for Israelis) and IMPISRAEL also shows substantial correlations with POLITICS5 (.33 for Americans, .38 for Israelis).

### 3.4.4 Danger/vulnerability/distrust (VULNER9)

We included 9 items to measure the degree to which participants felt that Israel was vulnerable and felt distrust towards other countries with respect to their support of Israel. Six of these items are modifications of two core beliefs (vulnerability and distrust) described by Eidelson and Eidelson (2003). The items, all rated on the standard 5-point agreement scale, all referred to Israel. The items are: "My country has been the victim of force and violence by other nations. My country's right to its homeland has not been adequately recognized by the rest of the world. I believe my country should be suspicious

of other countries' intentions. I believe that my country must be constantly alert for possible danger. I believe that other countries will try to deceive my country if given the chance. I believe that the things most important to my country are at risk. I believe my country generally should not trust other countries. I believe other countries are often unfair to my country. I believe my country is criticized by other countries more than it should be."

A factor analysis (varimax) indicated that these 9 items could reasonably be represented in a single factor, so we averaged the scores on these items to create VULNER9 (Cronbach's  $\alpha = .88$ ). VULNER9 is rated significantly higher by Americans than by Israelis (Table 1). For the combined sample, VULNER9 correlates significantly .21 with GROUPLAND7, but strikingly less for the Israeli sample ( $r=.08$ ) than for the American sample ( $r=.46$ ). This difference is highly significant ( $p<.001$ ). VULNER9 correlates .20 ( $p<.001$ ) with POLITICS5 for the combined sample ( $r=.24$  [ $p<.01$ ] for Israelis and  $r=.37$  [ $p<.001$ ] for Americans).

## 3.5 Assessment of predictors of GROUPLAND7

We have identified eight variables (Table 1) that are candidates for explaining GROUPLAND7. These are: PVD5, POSCON6, NEGCON3, POLITICS5, ARABAVR5, RELIGIOS, IMPISRAEL and VULNER9.

A straight linear regression of the eight predictor variables on GROUPLAND7 was carried out for the entire sample. (The  $n$  for this sample was only 235 [as opposed to the full  $n$  of 318] primarily because we did not have NEGCON3 for many subjects, because of positive scores on Hitler or cockroaches). The analysis yielded a squared multiple  $R=.46$ . Significant beta values, in decreasing order, are POLITICS5 (beta = .459;  $P<.001$ ), IMPISRAEL (.159,  $P<.01$ ) and POSCON6 (.107,  $P<.05$ ). No other variable showed an effect significant at  $p<.05$ . The relative independence of the influence of politics and contagion is reflected in the fact that the correlation, for the full sample, between POLITICS5 and NEGCON3 is .20 ( $p<.01$ ), and POLITICS5 and POSCON6 is .12 (n.s.). In contrast to contagion, some of the other variables correlated substantially with POLITICS5, and hence did not emerge as significant in the regression (e.g., ARABAVR3:  $r=.40$ ).

The results of any regression are, of course, a function of the variables entered. We now consider three reasonable modifications of this regression. First, we eliminated NEGCON3, because it reduced the  $n$  from 315 to 236. In this regression, which still had a squared multiple  $r$  of .46, POSCON6 emerged as the second best predictor, after POLITICS5. POSCON6 showed a beta of .219 ( $p<.001$ ).

Overall, the most reasonable regression might be one in which individual items that directly dealt with land were eliminated as predictors. To accomplish this, we carried out a regression using 7 predictors (not including NEGCON3), but used as the political variable POLINOLAND2, composed of two political beliefs neither of which dealt directly with land. Correspondingly, we left out the 2 of 6 positive contagion items that dealt with positive contagion in land (the variable POSCONNOLAND4). For the combined sample, in this regression ( $R^2 = .31$ ), RELIGIOS had the highest beta (.211,  $p < .001$ ), with POSCONNOLAND4 slightly behind (.205,  $p < .001$ ). With this set of variables, for the USA sample alone ( $R^2 = .32$ ), there were only two major predictors: VULNER9 (beta = .281,  $p < .001$ ) and POSCONNOLAND4 (.231,  $p < .001$ ). For Israelis ( $R^2 = .41$ ), the four best predictors (all significant at  $p < .01$  or better) were, in order, IMPISRAEL (beta = .288), RELIGIOS (.227), ARABAVR3 (.207), and POSCONNOLAND (.193). There is evidence in these regressions that positive contagion without land in its measurement remains a predictor of land attachment, independently of other major predictors.

### 3.6 Relation of group land and personal land attachments

A link between group and personal land would support either of two hypotheses: (1) personal land may be the evolutionary foundation for feelings about group land, or (2) The culturally derived concept of property lies behind both types of land attachment. Our measures of personal land attachment in this study were quite preliminary, and compromised by the idea that personal land ownership can be conceived as occurring over much longer time periods (biblical) or much shorter periods (founding of the state of Israel) for Israelis than for Americans. Home and personal land ownership is probably considerably higher in Americans. Also, college students are not the ideal informants on the subject of personal land.

We included two items that measured attachment to personal land. One (A) employed a hypothetical situation, using the scale: "Yes, I would be willing to trade this (coded as 0); Uncertain; I would need more details about the trade (coded as 5); No, I would not be willing to trade this (coded as 10)" as responses to "Your family-owned piece of land that has belonged to your family since the establishment of the state of Israel for a somewhat larger and better piece of land nearby." The second item (B) was parallel to the sixth item described above for GROUPLAND7, and employed the same 108 mm long analog scale. Participants were asked to mark on the line the tradability of "the piece of land that is of most personal value to you (e.g. the land on which you

grew up, your family's land, etc)." (The tradability line was anchored at the left by the words "easily tradable, e.g. your couch" and at the other end by "never tradable, e.g., your child"). The score was millimeters from the left point divided by 10. Participants were instructed not to mark this line if there was no personal land that qualified; 84 (47%) of Israelis and 106 (79%) of Americans completed this item.

The two personal items correlated .53 for the Israelis and .14 for the Americans. Given the low correlation for Americans, and the large difference in number completing the two personal land items, we performed separate analyses with each item. As indicated in Table 1, the A item correlated .36 ( $p < .001$ ) with GROUPLAND7 for Israelis, and .38 ( $p < .001$ ) for Americans. Americans showed a higher degree of attachment to this personal land (mean = 7.62) than Israelis (mean = 6.00; table 1,  $t(268) = 3.856$ ,  $p < .001$ ). The relation between item A and GROUPLAND7 was not entirely mediated by religiosity and politics, since when we regressed GROUPLAND7 against PERSONAL LAND A, RELIGIOS, and POLIT5 for Israelis and Americans separately, in both cases the contribution of item A remained significant.

The B item, with a much smaller number of respondents, rated on the 108 mm line, did not show a significant difference between Israelis and Americans (Table 1). Personal land B correlated .40 with GROUPLAND7 for Israelis and .30 for Americans. We conclude that there is a significant and moderately large relationship between personal land and group land attachment, supporting the evolutionary hypothesis. However we recognize that these findings are very tentative, since personal owned land was not a relevant measure for about half of the Israeli students.

### 3.7 Israeli vs. American differences

For the mean scores on the 14 variables in this study, there are significant differences ( $p < .01$  by two group  $t$ -tests) in eight cases (displayed with significance levels in Table 1). Notably, the groups do not differ in GROUPLAND7. Israelis are significantly less sensitive to infection contagion, but significantly more sensitive to negative contagion. Americans show more attachment to personal land (A version of question), and Americans report Israel as much more vulnerable than do Israelis (Table 1). Israelis rate the importance of Israel as significantly higher, but Americans score much higher on religiosity. The difference between the groups on religiosity is the largest difference between the groups. RELIGIOS and IMPISRAEL are closely linked for Americans ( $r = .52$ ), and much (and significantly) less so for Israelis ( $r = .09$ ). The only significant difference between the groups in correlations with GROUPLAND7 is the higher correlation

Table 2: Tradability of site of Har Hertzal, percent responding.

	Israel will- ing	Israel possi- ble	Israel unwill- ing to trade	USA will- ing	USA possi- ble	USA unwill- ing to trade
Hertzal	2	13	85	5	26	68
Quake	19	42	39	14	60	26
Prison	36	36	28	33	54	13

N=178 Israel, 133 USA;  $\chi^2$  is significant at  $p<.001$  for both transitions (Hertzal to Quake and Quake to Prison) for both Israelis and Americans.

between vulnerability and GROUPLAND7 for Americans (.46) than Israelis (.08). In general, for Americans, vulnerability is closely linked to RELIGIOS ( $r=.40$ ) and IMPISRAEL ( $r=.59$ ). The equivalent values for Israel, both .15, suggest a much weaker linkage for Israelis, as well as a lower sense of vulnerability.

### 3.8 Indications of the nature of land contagion

To explore what aspects of land motivate an attachment to it, participants were asked to use the following scale to answer three questions: "*Glad to trade it for equivalent land (coded as 0); might consider trading it for land of a greater monetary value (coded as 5); would never trade it for other land or anything else (coded as 10).*"

"1. The tradability of Har Hertzal (a cemetery in Jerusalem, wherein are buried many major figures from the history of Israel, including Theodore Hertzal and Prime Minister Itzak Rabin)."

"2. Now imagine the following: There has been an earthquake in Israel. All of the graves on Har Hertzal have been uncovered and the first 50 feet of topsoil on the mountain has been destroyed. The government decides to move all those who were buried on Har Hertzal to a different burial site. Tradability of site of Har Hertzal."

"3. After the earthquake and the removal of the graves, a prison is built on Har Hertzal to hold Palestinians convicted of violent political crimes. The prison is built and has been established in this location for ten years. Tradability of site of Har Hertzal."

Israelis are significantly more reluctant to trade this land, in its present form, or after degradation, than Americans (Table 2). While Har Hertzal itself was untradable for 85% of Israelis, this drops to 39% after the earthquake, and 28% after the prison. Equivalent values for Americans are 68%, 26% and 13%, respectively. Across

all respondents, there are significant drops in untradability with the earthquake, and again with the prison ( $\chi^2_4$ ,  $p<.001$  in all cases). A minority of individuals holds to untradability even after the land is "contaminated" by presence of "the enemy." For most respondents, it is the topsoil, which contains the remains of some major figures in the history of Israel, which is the only untradable entity.

## 4 Discussion

We have developed a measure of attachment to land, and find that for many Israelis and Americans, land is an untradable entity, a protected value. The tradability of Israeli land does not differ between Israelis and American. We have presented preliminary evidence that attachment to personal land is related to tradability of group land. One possible interpretation of this link has evolutionary implications, insofar as territory, a feature of nonhuman animals, may be preadapted for attachment to land represented as something more than a source of resources. Alternatively, attachment to land may be a manifestation of the concept of property, which applies to a wide range of human activities, and may or may not be linked to kin or territory in non-human primates.

Our most interesting finding is that both positive and negative contagion beliefs are related to land attachment. Two of the four items in the positive contagion scale refer specifically to positive contagion transmitted through land, by ownership or burial of ancestors in the land. The other four items refer to contagion through a ring, family album, or contact with David Ben Gurion. Correlations with group land are nonsignificantly higher for the POSCON6 (.31) than for POSCONNOLAND4 (.26), suggesting that, although there may be some specific contribution of positive land contagion, some general positive contagion sensitivity is also involved. The results on Har Hertzal suggest that land attachment and positive contagion effects are principally resident in the top 50 feet of the land, but that for some, the attachment may go deeper, and even survive negative contagion effects. Although land attachment is clearly related to political views and Jewish religiosity or importance of Israel, we present evidence that the positive contagion contribution to land attachment cannot be entirely mediated by these other beliefs and attitudes.

Our analysis reveals an interesting contradiction in our data, and in the real world. Land that has been inhabited primarily by one's "enemies" (such as, from the Israeli point of view, Gaza or parts of the West Bank, or in our Har Hertzal example, the land which for ten years housed a prison for Palestinians) should become more negative to those more sensitive to negative contagion. Negative



and positive contagion sensitivity are modestly positively correlated ( $r=.30$  in this study, for the combined sample). Our previous work on contagion (e.g., Rozin, Nemeroff & Millman, 1986; Rozin et al., 1989; Nemeroff & Rozin, 1994; summarized in Rozin and Nemeroff 1990 and Nemeroff & Rozin, 2000), clearly indicates that negative contagion dominates positive contagion. Yet many Jews (and many of our Har Hertzal prison scenario respondents) maintain a strong attachment to enemy-occupied land. One possible account for this, not previously studied, is that, if certain things are initially positive (e.g., originally possessed by the self or an admired other), subsequent negative contacts are less contaminating. That is, there may be a priority principle in contagion. None of our examples in our previous studies involved a clear long-term temporal sequence, in which the positive contact was for a long period and preceded the negative contact. Thus, we know a sweater worn by both Hitler and Mother Teresa would be rated as negative, but we don't know that a sweater worn and owned by Mother Teresa for years would be rendered negative if Adolph Hitler later wore it once. For the present case of the land of Israel, land believed to be originally "yours" is relatively resistant to negative contagion effects. Furthermore, in the general domain of "property," at least for Western-developed cultures, it is our sense that a valued entity that belonged to a person and then *illegitimately* becomes the possession of another, remains the valued and legitimate property of the original owner. This issue, with respect to land and other forms of property, requires further empirical study.

Our measure of contagion (negative or positive) is not a valid scale — there is none, at this time — and further refinement might facilitate further investigation. As it turns out, negative contagion sensitivity, operating in terms of occupancy of land by the "enemy," should encourage reductions in land attachment. It may be that those who show a negative contagion effect from land occupied by the "enemy" may also show more positive contagion with reference to prior ownership, as would be expected since positive and negative contagion sensitivity are positively correlated. However, the underlying positive contagion belief, based on origin, may be more important, in the case of land, than the direct negative contagion effect.

Our results on Jewish Americans suggest about the same amount of attachment to the land of Israel as for Israelis (Table 1). On the other hand, American Jews see Israel as substantially more vulnerable than do Israelis, and while American judgments of vulnerability correlate substantially and positively with land attachment ( $r=.46$ ), the correlation for Israelis between perceived vulnerability and land attachment is near zero ( $r=.08$ ). Israeli-American similarities and differences, after further exploration, may help inform us about the important in-

fluence of Diasporas in ethnopolitical conflict and their approaches to conflict resolution.

This study is merely a first step. We examined only one locale, Israel-Palestine, and only college students. It is possible that some respondents answered some questions to support their political beliefs, since in Israel the issue of the land of Israel is central in politics. Further research would be facilitated by development of reliable and valid positive and negative contagion sensitivity scales. Follow-up studies should include older adults, and both Arabs and Jews (see Ginges et al., 2007, for an excellent example of selection of relevant samples). Similar explorations would be desirable in other cases of land contestation, including Iraq, Northern Ireland, and Sri Lanka.

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