

# Rational moral intuitions

María Teresa Barbato<sup>1</sup>, Leda Cosmides<sup>2</sup>, Daniel Sznycer<sup>2</sup>, Ricardo Andrés Guzmán<sup>1</sup>

<sup>1</sup>Social Complexity Research Center (CICS), Universidad del Desarrollo, Santiago, Chile

<sup>2</sup>Center for Evolutionary Psychology, University of California Santa Barbara, Santa Barbara, California

## Abstract

Moral concepts and values are part of our evolved architecture. Situations arise that activate several competing moral values, yet a decision must still be made about which course of action is right. Adaptive decision-making requires psychological machinery designed to make tradeoffs between moral values when they are in conflict. A useful criterion of good design has been developed in economics: When making many decisions in which values are in conflict, are the tradeoffs people make mutually consistent (transitive)? I.e., do they respect GARP, the generalized axiom of revealed preferences? We used this criterion of “rationality” to see whether there is evidence of good design for making tradeoffs between competing moral values.

## Methods

Warfare taps an ancestral domain in which moral values often conflict (e.g., don’t harm innocent people vs. save the most lives). To test whether people make rational (GARP-respecting) moral tradeoffs, we created a carpet bombing scenario, in which the decision to bomb civilians would save the most lives in total, whereas conventional warfare between combatants would save the most innocent lives, but sacrifice more lives in total. The subject, an impartial third-party, makes decisions about 21 scenarios. The number of civilian and soldier lives at stake were varied quantitatively and continuously across these scenarios, which is required to test for rational choice. We also varied morally relevant parameters across three conditions.

1. All Innocent condition: The soldiers were drafted and are desperate to return to their families; the peace-loving civilians did not want the war. 2. Bellicose civilians: Same, except the civilians wanted the war and encouraged it. 3. Volunteer soldiers: Same as all innocent, but the soldiers volunteered to fight for their country and wanted the war.

### All innocent condition

Two foreign countries, A and B, have been at war for several years (you are not a citizen of either of these two countries). The war was initiated by the rulers of country B, against the will of the civilian population. The war has been bloody: Millions have died during the conflict, which so far had been deadlocked. Recently, the military equilibrium has broken, and it is now certain that Country A will win the war sooner or later. The question is how, when, and at what cost.

Country A has two strategies available. Country A could use one, the other, or a combination of both.

The first strategy is to attack the opposing army with conventional weapons, preventing civilian casualties almost completely. If Country A applies this strategy, the war will continue for some time (perhaps years). The delay in the end of the war will cause the deaths of a great number of soldiers of both sides. Of the soldiers that die, about half will be from country A and half from country B. Nearly all are young soldiers who were forced to join the army against their will, and are desperate to return to their families.

The second strategy available to Country A is to bomb cities of Country B, killing civilians (who opposed the war from since the beginning) and almost no soldiers. This strategy would demoralize Country B and force it to surrender quickly. The war would end soon.

There is a third approach. Country A could bring the war to an end by using both strategies, resulting in the deaths of some civilians and some soldiers. The more civilians are sacrificed (killed) during the bombings, the sooner Country B will surrender, and the fewer soldiers will die on the battlefield.

### Bellicose civilians

The war was initiated by the rulers of country B, with the support of the civilian population... killing civilians (who supported the war from the beginning)

### Volunteer soldiers

The war was initiated by country B, against the will of the civilian population... Nearly all are young soldiers who volunteered, and are willing to fight for their country

**Scenario 2**

- If no civilians are sacrificed, 7 million soldiers will die on the battlefield.
- To end the war and save all the soldiers, 5 million civilians would have to be sacrificed.
- For every 5 civilians sacrificed during the bombings, approximately 7 soldiers less will die on the battlefield, approximately.

Remember that half of the soldiers who die are from each country, and that you are not citizen of either country. Given the above scenario, choose the combination of dead soldiers and sacrificed civilians that feels morally right to you.

- 7 million soldiers / 0 civilians (1)
- 6 million soldiers / 1 million civilians (2)
- 5 million soldiers / 2 million civilians (3)
- 3 million soldiers / 3 million civilians (4)
- 2 million soldiers / 4 million civilians (5)
- 0 soldiers / 5 million civilians (6)

**Scenario 5**

- If no civilians are sacrificed, 5 million soldiers will die on the battlefield.
- To end the war and save all the soldiers, 2 million civilians would have to be sacrificed.
- For every 2 civilians sacrificed during the bombings, approximately 5 soldiers less will die on the battlefield, approximately.

Remember that half of the soldiers who die are from each country, and that you are not citizen of either country. Given the above scenario, choose the combination of dead soldiers and sacrificed civilians that feels morally right to you.

- 5 million soldiers / 0 civilians (1)
- 3 million soldiers / 1 million civilians (2)
- 0 soldiers / 2 million civilians (3)

Figure 1: In each condition, subjects chose the option that “feels most morally right” for 21 scenarios. Across scenarios, we varied how many soldiers would be saved per civilian sacrificed, and the maximum number of lives that could be lost. Two scenarios are pictured above.

## Participants

1,746 subjects were recruited from the Amazon Mechanical Turk platform. Subjects were randomly assigned to condition. Order of scenario was randomized across subjects.

## Results

### What feels most morally right?

- Most subjects made tradeoffs (intermediate solutions): they said that some but not all civilians should be killed to save some but not all soldiers.
- Everything else being equal, subjects said that fewer civilians should be killed if the soldiers were volunteers instead of drafted. They also said that more civilians should be killed if the civilians were bellicose instead of peaceable.

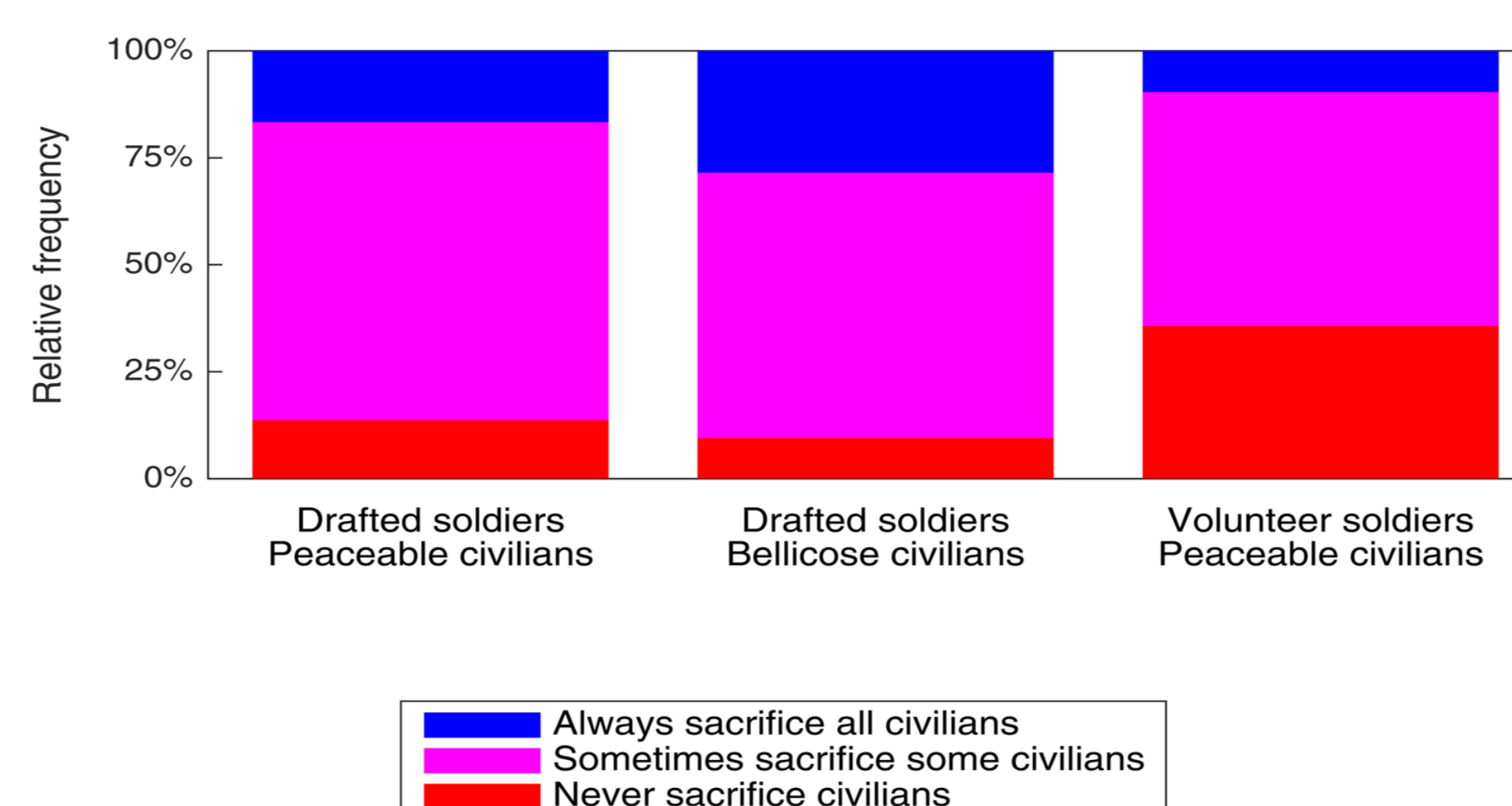


Figure 2: The distribution of moral judgement types in each condition. When the civilians were bellicose, the subjects biased their judgements toward total lives saved (they sacrificed more civilians). When the soldiers were volunteers, the subjects biased their judgements saving civilians (they sacrificed more soldiers).

### GARP Violations: Most Subjects are highly consistent

- All choices respect GARP when they are fully transitive: When A is preferred to B, and B to C, then A should also be preferred to C when they are both options. Making a choice implies a preference. Zero violations means that no choice the person made was inconsistent with any of the other preferences that are implied by the 20 other choices.

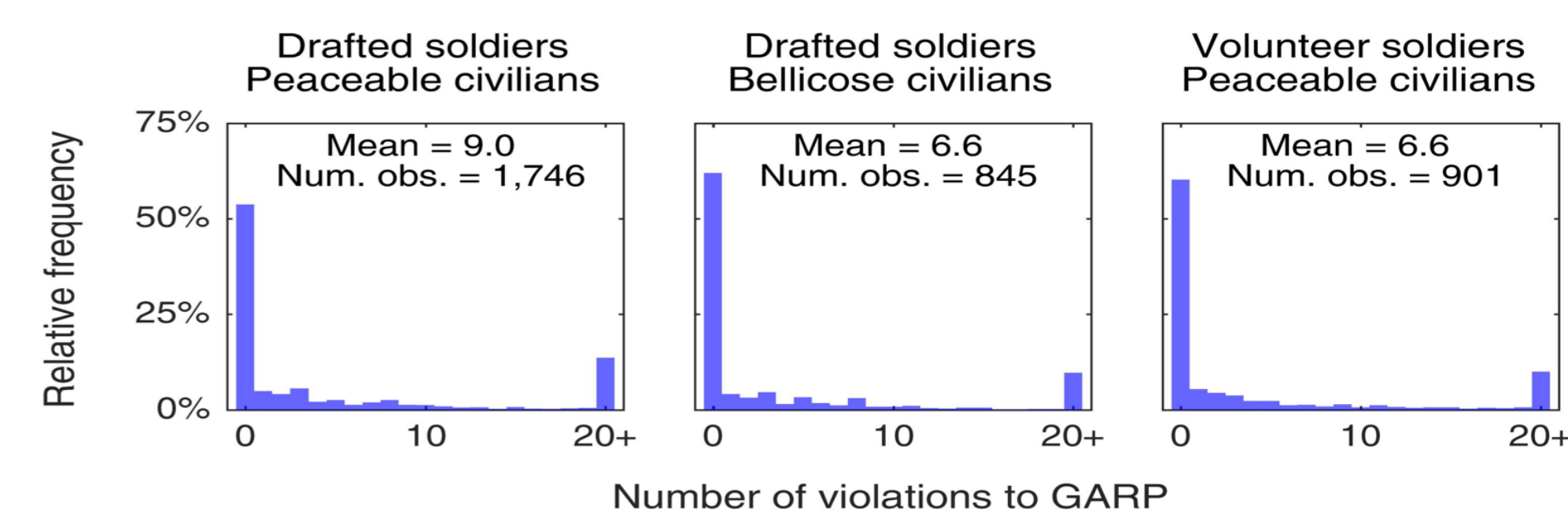


Figure 3: The moral judgments of subjects were highly consistent; their choices respected GARP.

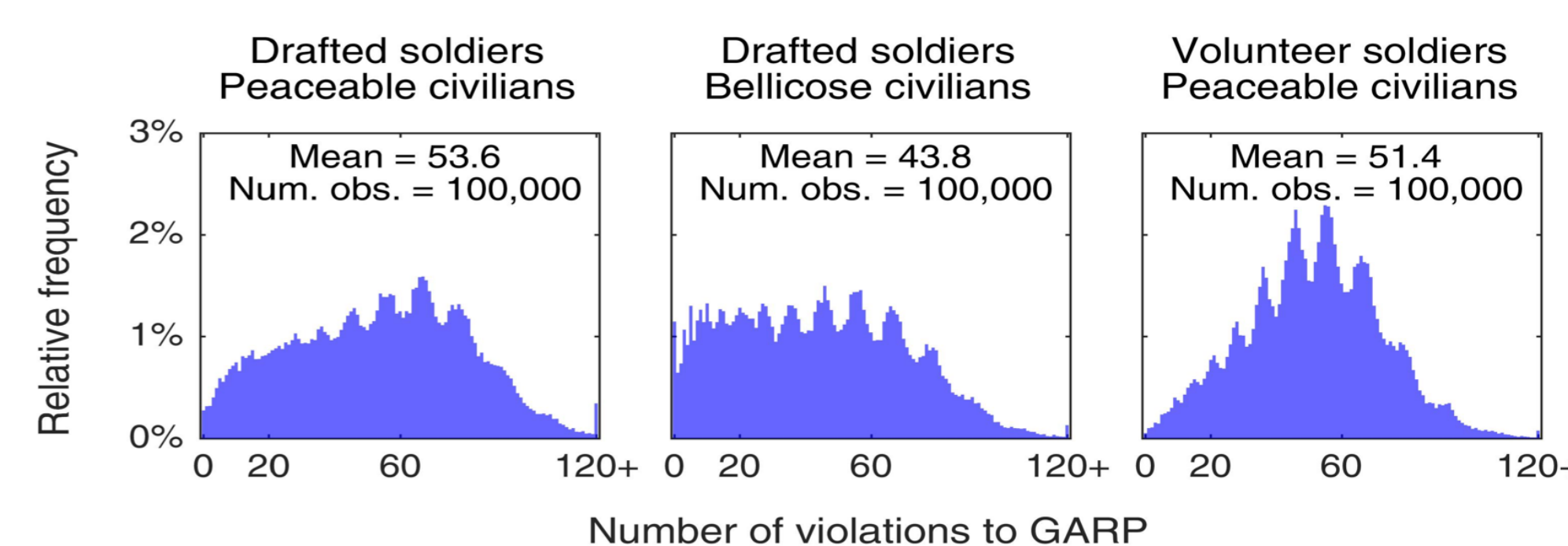


Figure 4: What random looks like. Using the data, we conducted bootstrap simulations to see what a random sample of choices would look like (shown in Fig 4). Random choices violate GARP 50 times on average. By contrast, there were no GARP violations at all for 49 and 64% of subjects (unwilling conscripts vs. willing warriors). Of the >250 subjects who sacrificed some, but not all, civilians, 55% and 62% made 3 or fewer GARP violations. Fewer civilians were sacrificed when soldiers had volunteered.

## Conclusion

In making tradeoffs between the lives of civilians and soldiers, subjects were asked which tradeoff feels most morally right. The results show that their moral choices were rational: they respected GARP. GARP consistency implies more than logical consistency: The preferences people spontaneously generated were consistent in the way they would be if an adaptation was maximizing some internal value. This is a signature of good design. It suggests that moral tradeoffs in warfare—an evolutionarily-important domain of social interaction—are made by an evolved system specialized for that function.

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