

# Watching Sports Causes People see Group Relationships as Zero-sum Competitions

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## Abstract

When people believe a group they are a member of is in competition with another group, they are less likely to support policies that help the other group and more likely to support policies that hurt the other group. Where do these perceptions of group conflict come from? In this study I examine the role of entertainment media, specifically sports, in promoting perceptions of group conflict. I measure perceptions of whether international trade, racial discrimination, the distribution of wealth, and group relationships in general are zero-sum competitions. Using a nationally-representative survey I show that watching zero-sum sports predicts believing that group relationships are also zero-sum. Additionally, in a survey experiment asking people to write about winning and losing in sports made them think that group relationships were more zero-sum. When confronted with group relationships where it is unclear whether the sides are competing against each other, people appear to use sports as a cognitive shortcut by assuming those relationships are similar to sports competitions. These findings show how seemingly apolitical "entertainment" media can influence politically-relevant attitudes, by influencing beliefs about how the world works.

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# 1 Introduction

A major barrier to cooperation on an issue is perceiving that cooperation is not possible and that any agreement will inevitably have a winner and a loser. In a “zero-sum game” (Von Neumann and Morgenstern 2007), the total amount of success available is fixed, and thus one player’s gains come inevitably at another player’s expense. In game theory, analysis of zero-sum games often focuses on identifying optimal play given that two sides are engaged in a zero-sum game. However, in many group relationships it is not obvious whether they are zero-sum games or not. People may fail to realize a situation is a zero-sum game or conversely incorrectly believe a non-zero-sum situations is zero-sum (Meegan 2010). If people mis-perceive a situation as zero-sum, they may miss opportunities to find common ground with others and productively cooperate. Worse, they may view others with suspicion or hostility, as opponents to be defeated.

Across a variety of group relationships, people who believe the groups are engaged in zero-sum competition endorse greater desire to harm the other group and lower desire to help. For example, natives who see immigration as zero-sum are less supportive of policies that help immigrants (Esses, Jackson and Armstrong 1998) and men who see gender relations as zero-sum are less supportive of policies to increase equity in the workplace (Kuchynka et al. 2018). By contrast, people who endorse positive-sum beliefs are more likely to support collective action to improve the position of members of another group (Stefaniak, Mallett and Wohl 2020). When people think the relationship between their own group and an out-group is zero-sum they are more likely to endorse strategies of hurting the other group to improve the relative standing of their own - even when this does not improve the well-being of their own group in absolute terms (Andrews-Fearon and Davidai 2023; Wilkins et al. 2021; Wellman, Liu and Wilkins 2016). Worse, people are often willing to *harm their own group* if they think it will hurt an opposing group more, rather than pursue a strategy which benefits both groups (Gershon and Fridman 2022). Perceiving that groups are engaged in zero-sum competition can therefore lead people to support lose-lose policies which harm all groups. For example, the push to desegregate public spaces in the 1950s and 1960s led to a wave of closures of parks, zoos, and swimming pools as White city councils decided to deny access to everyone rather than allow access to Black residents (McGhee 2021).

Most research on perceptions of group conflict examines the factors causing people to view a relationship between two specific groups as competitive. However, recent research has examined the propensity to view relationships as zero-sum *in general* (Różycka-Tran, Boski and Wojciszke 2015; Andrews-Fearon et al. 2021). This contends that **zero-sum thinking** represents a generalized belief that social relationships are inherently competitive, desirable material or symbolic resources are limited, and any gain for one party must come at another party’s expense.

In this paper I propose a novel factor which influences zero-sum thinking: media consumption. Specifically, I examine how watching “zero-sum sports” - sports where two parties compete against each other, with a clear winner

and a clear loser - promotes zero-sum thinking. I find that watching more zero-sum sports is associated with higher levels of zero-sum thinking. Additionally, making zero-sum sports more cognitively accessible increases levels of zero-sum thinking. This implies that people, especially sports fans, use sports as a cognitive shortcut to understand politically important issues by assuming group relationships are similar to sporting contests.

## **2 Zero-sum Thinking and Zero-sum Sports**

### **2.1 Zero-sum Thinking**

Studies have examined the extent to which people perceive group relations as zero-sum in a variety of contexts. For example, a White person who believes race relations are zero-sum is more likely to oppose policies that benefit Black people; not necessarily due to conventional racial prejudice, but because they believe any success for Black people hurts White people (Bobo 1999; Goldman 2017; Norton and Sommers 2011). Scholars have observed zero-sum perceptions of group relations in numerous other domains, such as beliefs about international trade, where one country always “wins” a trade agreement while the other “loses” (Mutz and Lee 2020; Mutz 2021); gender relations where if women are treated better, men must be treated worse (Kuchynka et al. 2018; Wellman, Liu and Wilkins 2016); immigration, where if immigrants do better natives must do worse (Brader, Valentino and Suhay 2008a; Esses et al. 2001; Landmann, Gaschler and Rohmann 2019); and religion, with greater acceptance of gay rights is equivalent to increased persecution against Christians (Wilkins et al. 2021).

People who believe that the relationship between their group and another group is zero-sum are more likely to oppose policies that benefit the other group, even if those policies do not negatively affect their own group (Wilkins et al. 2015; Esses, Jackson and Armstrong 1998; Kuchynka et al. 2018; McGhee 2021). Worse, zero-sum thinking predicts a broader willingness to flout democratic norms in order to defeat political opponents. People higher in zero-sum thinking are less supportive of voting rights, less committed to democratic processes over political goals, and more likely to endorse hostile rather than cooperative behavior towards political opponents (Andrews-Fearon et al. 2021).

Existing work on the causes of zero-sum thinking has focused on three factors. The first is personal experience with resource scarcity, where poverty or deprivation makes people assume that other material or symbolic resources are scarce and limited too (Foster 1965; Ongis and Davidai 2021). The second is feelings of being threatened by another group, where perceiving that another group is threatening increases perceptions that one is competing against members of that group (Dover, Major and Kaiser 2016; Esses, Jackson and Armstrong 1998). Finally, a third factor is motivated reasoning; zero-sum thinking may serve as a justification for taking actions against others or an explanation for why resources such as wealth are unevenly distributed (Roberts and Davidai 2021; Chernyak-Hai and Davidai

2022)<sup>1</sup>.

However, one unexplored factor influencing zero-sum thinking is the media that people consume. When determining whether a group relationship is zero-sum, people may be thinking of a different relationship they are more familiar with. Media consumption provides a source of these comparisons.

A common cognitive strategy to make rapid judgements about a situation which is unfamiliar or ambiguous is to assume that it is similar to another situations which is familiar or unambiguous (Holyoak and Thagard 1996; Steen 2011). When reasoning about political questions, respondents often make references to topics on which they are highly knowledgeable even if those topics are only tangentially related to the specific question posed to the respondent (Cramer and Toff 2017). This sort of thinking is a cognitive shortcut, where people opt to make a judgment using information they are familiar with that is easily accessible in memory rather than information which may be more topically relevant but which is harder to recall (Bougher 2015).

For many group relationships, there is a great deal of variation in whether people see those relationships as zero-sum, implying that the nature of these relationships is ambiguous or unfamiliar to many people. If the nature of the relationship was obvious, we would likely see minimal variation in perceptions. By contrast, many popular sports are unambiguously zero-sum competitions, where any success for one side corresponds to a failure for the other side. Zero-sum thinking may be a strategy to enable decisive action by making the simplifying assumption that any unknown party is hostile to one's own interests (Andrews-Fearon et al. 2021). Similarly, assuming that an unfamiliar group relationship is analogous to a familiar one (the relationship between competing sides in a sporting match) allows for rapid judgment and decision making with minimal cognitive effort.

## 2.2 Zero-sum Sports

In contemporary America, sports are one of the most popular forms of entertainment. 69% of American adults describe themselves as sports fans, 12% report that they watch sports daily, and a majority of adults say that they watch sports at least once a month (Consult 2020). Sports are the last remaining genre of television watching that is universally popular across demographics in the current fragmented media landscape. In 2005, 14 out of the top 100 most watched broadcasts in America were sporting events; by 2015, 93 out of the top 100 were sporting events (Nielsen 2015). Last year, 94 out of the top 100 were sporting events; for the second year in a row, zero episodes of scripted narrative television made the top 100 (Crupi 2023). Sports are also major topic of discussion and talk. On Facebook, pages devoted to athletes are among the most liked and most engaged-with (Newswhip 2022). Sports consumption is also cross-party, with members of both parties widely engaging with sports pages on Facebook (Praet et al. 2022).

Sports watching may be highly influential to an individual's world view. Political attitudes are often developed

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<sup>1</sup>I am extremely skeptical of this motivated reasoning argument but that is a different paper

early in life during an individual's formative years, generally thought to be teenage years and early 20s (Jennings and Niemi 1981; Erikson, MacKuen and Stimson 2002) and persist over time (Sears and Funk 1999). Similarly, people are socialized into sports viewing and sports fandom from a young age (Earnheardt, Haridakis and Hugenberg 2012). Among children ages 10-17, professional athletes rank only behind family members as the people they admire most (Foundation 2000).

Existing work has found that sports fans express viewpoints that imply that they believe the world works similarly to how it does in a sporting event. For example, in sports competition is typically portrayed as meritocratic, where the winning side is victorious due to their superior skill and ability rather than due to unearned privilege (Sage 1998). Sports viewing predicts higher belief that economic success is due to individual effort (Thorson and Serazio 2018), implying that sports fans are using competitive sports (something they are familiar with) as an analogy to understand the economy (something abstract and confusing).

In many sports, relationships are strictly and unambiguously zero-sum games. In football, one team gains yards at the expense of the other team giving up yards; in tennis each player either wins a point or loses a point. Sports are so intuitively zero-sum that indexes measuring whether a person sees a situation as zero-sum often ask whether the respondent views the situation as analogous to a sports match (Różycka-Tran, Boski and Wojciszke 2015; Ongis and Davidai 2021; Andrews-Fearon et al. 2021). The obvious zero-sum nature of many sports makes them an intuitive metaphor for understanding group relationships. The popularity of sports means that sports may be a popular and influential metaphor.

Because metaphorical thinking is used as a shortcut to save cognitive effort, I expect sports are more likely to be used as a metaphor when the cognitive effort required is lower. Zero-sum sports are likely more cognitively accessible among people who watch zero-sum sports more frequently. Therefore, I hypothesize that first, people who watch more zero-sum sports are higher in zero-sum thinking; second, making zero-sum sports more cognitively accessible increases zero-sum thinking.

## **3 Measures**

### **3.1 Zero-sum Thinking**

To measure zero-sum thinking, I adapted items from a common scale measuring whether people believe individual relationships are zero-sum and modified them to ask about group relationships (two items for the cross-sectional analysis, three items for the experimental analysis) (Różycka-Tran, Boski and Wojciszke 2015; Andrews-Fearon et al. 2021). I supplemented these with three items asking whether people saw group relationships as zero-sum for relationships where existing work has identified variation in perceptions of whether the relationship is zero-sum: International

trade (Mutz 2021), economic wealth (Ongis and Davidai 2021), and racial relations (Bobo 1999). For all questions, the “winner” versus “loser” of the relationship was kept ambiguous to avoid contaminating the measure with whether the respondent identified more with the winning versus losing group (Roberts and Davidai 2021; Smithson and Shou 2016). These indexes has an  $\alpha$  of .83 in **study 1** and .84 in **study 2**, implying that they are tapping a unitary underlying concept.

Importantly, for my analysis it is not relevant whether or not these group relationships are in actuality zero-sum competitions. Because zero-sum thinking is about *perceiving* that relationships are zero-sum, I selected group relationships where perceptions vary. I assume that in such situations where people differ in whether a situation is zero-sum, the situation is somewhat ambiguous or unclear to many people. These sorts of group relationships are the ones where I expect the unambiguous nature of sports to have the largest impact because opinions on ambiguous relationships should be more malleable than opinions on unambiguous relationships.

### **3.2 Watching Zero-sum Sports**

To measure sports watching I used an index of seven sports which are popular in the United States and are zero-sum competitions (sports where two sides compete directly against each other, with an unambiguous winner and an unambiguous loser): Football, Baseball, Basketball, Hockey, Soccer, Tennis, and Boxing/MMA. I used a list-frequency measure (Andersen, de Vreese and Albæk 2016) asking how often a respondent watched each of the seven sports when they were in season, from “more than once a week” to “never”. I then averaged the value for each sport to form an index from 1 (representing a respondent who said they never watched any of the sports) to 5 (representing a respondent who said they watched every sport listed more than once a week when the sport was in season). The index held together well, with an  $\alpha$  of .78. This means that watching one zero-sum sport predicts watching other zero-sum sports<sup>2</sup>. Full question wordings are in Appendix B.

## **4 Study 1: Watching Zero-sum Sports Predicts Zero-sum Thinking**

### **4.1 Data and Research Design**

Data comes from a set of nationally-representative panel data collected by Amerispeak. Respondents were recruited using address-based random sampling. Zero-sum thinking was measured in the November 2022 wave of the panel, while sports watching was recorded in the June 2021 wave. As such, I perform cross-sectional analyses among respondents who were present in the panel in both of those waves. I make the assumption that sports watching and zero-sum thinking are relatively constant over time.

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<sup>2</sup>That in itself is a kinda big claim stay tuned for chapter 2 of dissertation yadda yadda.

Table 1: Watching more Zero-sum Sports Predicts higher Zero-sum Thinking

	Model 1	Model 2	Model 3	Model 4
Zero-sum Sports Viewing	0.069 (0.022) **	0.082 (0.022) ***	0.083 (0.022) ***	0.086 (0.029) **
Includes Demographics?		✓	✓	✓
Includes Political Attitudes?			✓	✓
Includes Competition/Interest?				✓
Num.Obs.	2358	2358	2358	1339

Of the respondents in the June 2021 wave, 61% also answered questions in the November 2022 wave. In Appendix A I compare the composition of each wave to the gold standard Current Population Survey conducted by the census bureau in March 2022 to identify potential non-random attrition across demographics and to verify that the intersection of respondents in the June 2021 and November 2022 waves remained representative of the US population. Across all demographics, the combined waves appear to remain largely representative of the population as a whole.

I used OLS regression to model the relationship between sports watching and zero-sum thinking in several models using varying levels of controls. In the **model 1**, I used no controls to show the direct association between zero-sum sports and zero-sum thinking. In **model 2**, I included common demographic controls for gender, age, race, education, and income. These were measured in November 2022, at the same time as the zero-sum thinking scale. In **model 3** I incorporate measures of political attitudes; party identification, ideology, and affective polarization, also measured in November 2022. Finally, in **model 4** I incorporate other variables potentially related to the causes of either zero-sum thinking or zero-sum sports watching - personal enjoyment of competition and interest in politics. For all models, my independent variable of interest is watching zero-sum sports, and my dependent variable of interest is zero-sum thinking.

## 4.2 Results

Table 1 shows the results for the four models. In all four cases, higher levels of zero-sum sports watching predicts significantly higher levels of zero-sum thinking. The magnitude of the relationship increases as more variables are added, from .069 in **model 1** to .086 in **model 4**. This means that someone who was one standard deviation higher on the zero-sum sports watching scale would be expected to be .065 to .081 standard deviations higher on the zero-sum thinking scale, depending on the model used. While this may seem to be a significant but small relationship, the popularity of sports in America means even a numerically small relationship can have a large substantive impact.

### 4.3 Sensitivity Analysis

One concern is the relationship between zero-sum sports and zero-sum thinking may be an artifact of another variable. Using observational data, I cannot test for all potential confounders. However, I can set bounds for how influential an unobserved confounder would need to be to alter my research conclusions. For a variable to be a confounder, it must predict both the independent variable and dependent variable of interest. In this case, it must predict both watching zero-sum sports and zero-sum thinking. By adding a fictitious variable that predicts both zero-sum sports and zero-sum thinking, I can test how predictive this hypothetical confounder would need to be to substantively alter my results.

To more easily understand the relative impact of such a hypothetical confounder, I measure its impact in terms of the best overall predictor of sports watching and zero-sum thinking in my models: Gender. Gender is an intuitive confounder, as women are known to watch fewer sports than men (Consult 2020) and are expected to see relationships as less zero-sum than men (Mutz 2021). To conduct the sensitivity analysis, I used **model 3** as a baseline<sup>3</sup> and measured the relationship between zero-sum sports viewing and zero-sum thinking including a series of increasingly predictive hypothetical confounders, from one which was as predictive as Gender to one which was three times as predictive as Gender.

Figure 1 shows the effect of incorporating a hypothetical confounder on the significance of the relationship between zero-sum sports and zero-sum thinking in model 3. Absent this hypothetical confounder, the relationship between zero-sum sports and zero-sum thinking has a t-value of 3.8. Even with a hypothetical confounder *three times* as predictive as gender, zero-sum sports would have a t value of 1.968 ( $p = .049$ ). While I cannot rule out the existence of unmeasured confounders using observational data, these results indicate that the relationship is robust to all but the most serious omitted variable threats.

### 4.4 Summary

**Study 1** demonstrates a clear positive association between watching zero-sum sports and perceiving group relationships as zero-sum competitions. However, it does not show that watching zero-sum sports causes increased zero-sum thinking. In fact, one might expect a causal relationship in the opposite direction, where viewing group relationships as zero-sum competitions causes people to watch more sports. To establish that sports causes zero-sum thinking, in **study 2** I use a survey experiment to test if making sports more cognitively accessible increases zero-sum thinking.

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<sup>3</sup>I use model 3 as a baseline rather than model 4 because while model 4 has more parameters it also has a substantially smaller sample size.

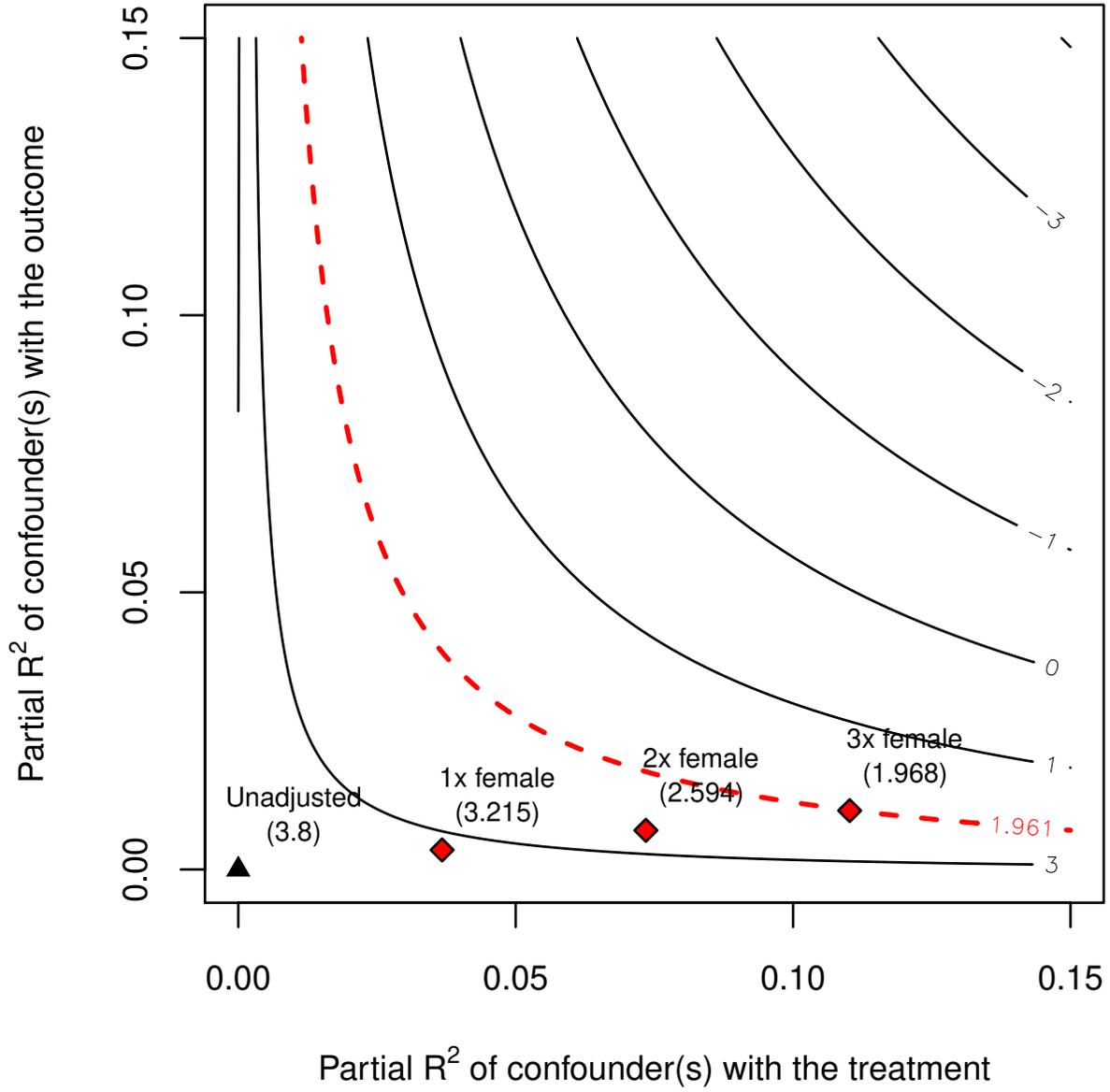


Figure 1: Sensitivity of Model 3 to Hypothetical Confounder.

## 5 Study 2: Thinking About Sports Wins and Losses Induces Zero-Sum Thinking

### 5.1 Data and Research Design

In **study 2** I experimentally manipulate respondents to think about the competitive, winner-versus-loser aspect of many sports. 1873 respondents were recruited from CloudResearch in January 2022. Respondents were randomly assigned to one of five conditions. In all conditions, respondents were told to write at least twenty words in response to a prompt. Two of these conditions presented prompts related to the zero-sum winner-versus-loser aspect of many sports, asking respondents to write about a memorable sports victory or a memorable sports defeat. Two conditions asked respondents to write about a happy memory or a sad memory. The final, control condition, asked respondents to write about their day. After the writing exercise, respondents were asked the six-item zero-sum thinking index.<sup>4</sup>

To evaluate the effect of watching sports on zero-sum thinking, I combined the two sports conditions and the three non-sports conditions. I then used a simple difference-in-means test to compare the level of zero-sum thinking among those two groups.

### 5.2 Results

The comparison between those tasked to write about sports and those tasked to write about non-sports topics is displayed in figure 2. Respondents in the sports condition reported average zero-sum thinking of 2.54 versus those in the non-sports condition who reported an average of 2.40 ( $p < .001$ ). This indicates that making winning and losing in sports more cognitively accessible increased zero-sum thinking among respondents. Respondents who wrote about sports subsequently interpreted group relationships in terms of winners versus losers, analogous to sports.

A line of work in political science has argued that sporting events cause people to feel powerful emotional reactions that can in turn influence political attitudes even though sports ought to be “irrelevant events” for political decision making (Healy, Malhotra and Mo 2010). In other words, this work argues that is the emotional influence of sports which influences political attitudes, not the content of the matches. Negative valence emotions such as deprivation (Ongis and Davidai 2021) or threat (Brader, Valentino and Suhay 2008*b*; Kuchynka et al. 2018) can increase perception that one is engaged in a zero-sum game. By asking respondents to write about sports I may be inadvertently influencing their emotional state which in turn influences their level of zero-sum thinking, independent of the competitive nature of sports.

To guard against this possibility, I compare the influence of writing about winning and losing in sports to the influence of happy or sad memories. To do this, I compare the differences between the control condition, where

<sup>4</sup>Preregistration available at [https://aspredicted.org/blind.php?x=339\\_XP7](https://aspredicted.org/blind.php?x=339_XP7)

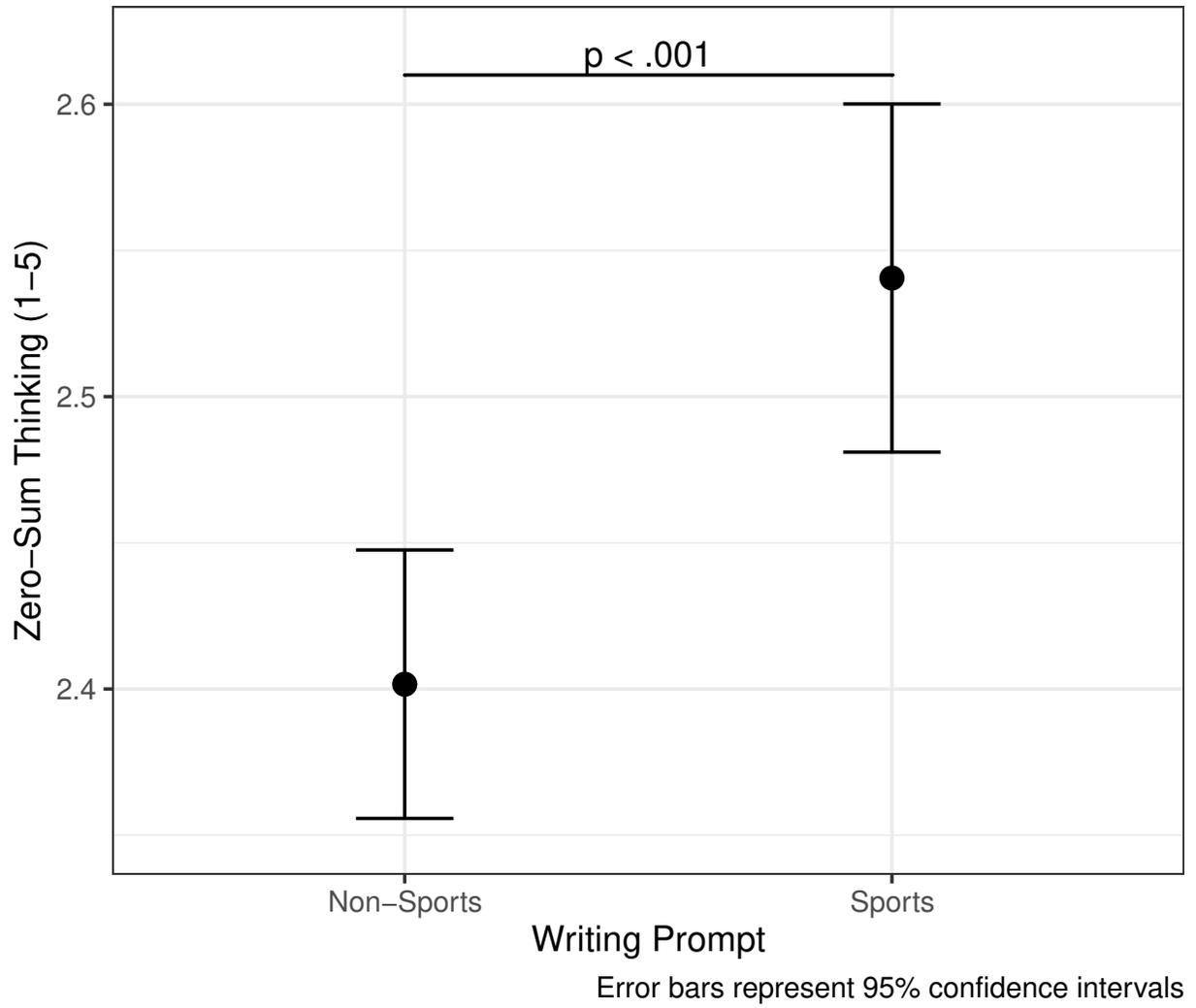


Figure 2: Writing about Sports Increases Zero-sum Thinking.

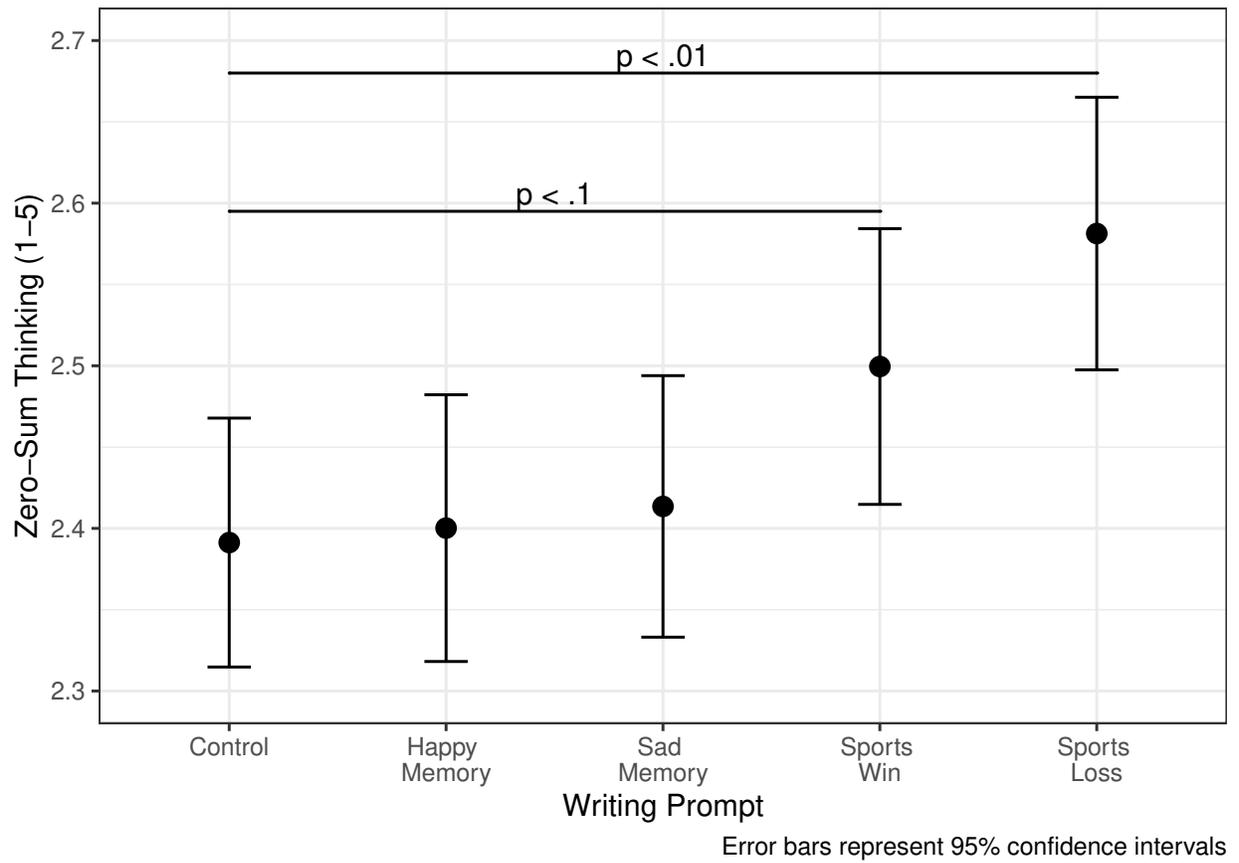


Figure 3: Means of All Five Experimental Conditions.

respondents wrote about their day, and each of the four other conditions. In figure 3, I display the means for all 5 conditions. Regardless whether they wrote about a victory or a defeat, respondents who wrote about sports were higher in zero-sum thinking than respondents in the control condition. Respondents who wrote about a happy or a sad memory were not statistically different from those in the control condition. This indicates that it is the competitive, winner-versus loser aspect of many sports which increases zero-sum thinking, not the emotional impact of sports.

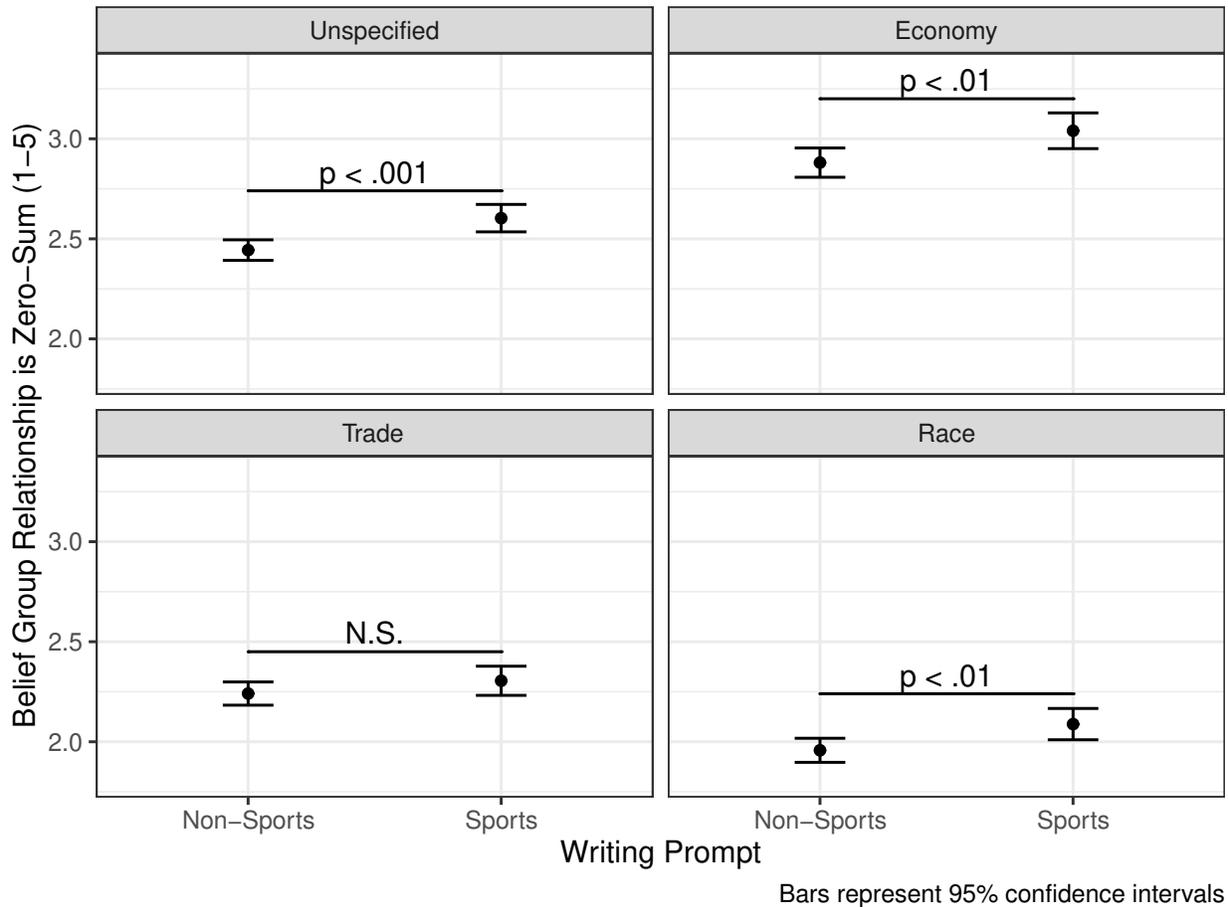


Figure 4: Writing About Sports Increases Perceptions Group Relationships are Zero-sum Across Groups.

Finally, in figure 4 I split my zero-sum thinking index into four measures; one consisting of the three zero-sum thinking measures where groups are unspecified and the other three consisting of each of the topic areas (trade, race, economy). For all cases, respondents in the sports conditions thought that the relationship between the groups was more zero-sum, although the difference was not significant for international trade.

### 5.3 Summary

**Study 2** presents evidence that making sports wins and losses more cognitively accessible to respondents increases zero-sum thinking. These results cannot be explained by the emotional impact of sports. Rather, the competitive nature of sports specifically is what makes people view group relationships as more competitive.

## 6 Discussion

This paper makes two significant and novel contributions. First, it demonstrates the influence of media consumption on zero-sum thinking. Watching media where two sides are engaged in unambiguous zero-sum competition causes people to see more ambiguous group relationships as zero-sum competitions as well. Second, it highlights the influence of sports on political attitudes. Sports are often thought of as “apolitical” by definition (Engelhardt and Utych 2020) or “irrelevant events” with no substantive relevance to the formation of political judgments (Healy, Malhotra and Mo 2010). However, often people make political judgments based on information that comes easily top of mind, and entertainment media is a ready source of highly memorable information (Kim 2022). Athletes are among the most recognizable celebrities on the planet and serve as a reference when people make political judgments (Alrababa’h et al. 2021).

This paper examines how watching sports influences perceptions of whether groups are competing. However, the nature of competition in sports differs from other forms of competition. Politics is often described as a sport or a war (Howe 1988), but those are two fundamentally different types of competition. Sports are contests defined by rules that all participants accept and which are enforced by neutral arbiters. War on the other hand is largely unconstrained by rules and brings to mind the threat of annihilation and violence, not just defeat. Sports may make people see group relationships as more zero-sum but simultaneously perceive that nature of that conflict is more driven by norms and less violent or dangerous.

Finally, these results point to the importance of how seemingly unrelated information can influence political opinions. In conventional theories of media effects, opinions for a given issue are formed through the consumption and consideration of media on that issue (Zaller 1992). These findings suggest that attitudes can be formed based on media consumption that is only tangentially related to an issue but which someone is more familiar with. Further studies of media effects on political attitudes should consider a wider scope than the conventional focus on news coverage.

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