

The Role of Emotions in Opinion Choice

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Affective Computing Fall 2011

Problem Statement

- People read news that confirms their biases
- Are choices of what we read influenced by our emotional state?

Goal of the Project

- What is the effect of mood on the diversity of news people choose to read?

[Black Friday Best-Seller: Guns](#) +1

ABC News (blog) - 1 hour ago

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[Gun Nuts in a Rut](#) +1

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[Gun Ownership Is A Right](#) +1

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[Roy Green: Take the politics out of gun ownership](#) +1

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The registry has over time become a significantly valuable tool for many who would support a complete denial of **private gun ownership**. Don't believe me? ...

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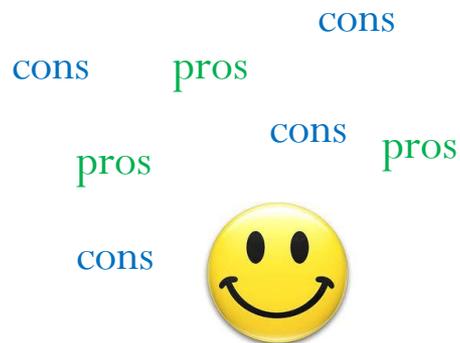
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Hypothesis

- Participants will be more willing to choose to read a diverse set of articles when they are in a **good mood**



Background

- Positive affect positively influences creativity (Dontcheva '11)
 - Participants generated more diverse opinions when in a positive mood
- In medical decision making positive affect decreases anchoring in initial ideas during a diagnosis (Isen '97)
 - Participants were more likely to consider new facts coming into a making a diagnosis than to just be anchored in their initial assessment of the case when they were in a good mood

Plan of the project

- Experimental design
- Built an online platform to run the experiment
- Connected the experiment with Mechanical Turk components
- Results

Study

- Reproduce a situation in which
 - Participant is in a positive/negative mood
 - Participants decides which articles they want to read from a list of headlines
 - We measure how diverse the choice of the participant is

Experimental Platform

Mechanical Turk

- All experiments were run on Mechanical Turk
- We used the command line interface to interact with the Mturk environment
- The HIT was stored on an external page

Experimental Platform

- we designed an online platform in .php so that we can:
 - Generate survey items on the page based on a txt file
 - Display the items in random order every time the page is visited

Experimental Design

Experiment Goal

- Will participants choose to read articles that don't confirm their views while in a **good mood**?
- Which views?
 - Individual gun ownership/ gun control
 - Climate Change
 - Gay marriage

Experimental Design

- Find Participant's opinion on gun control

- Put Participant in a  or  mood

- Ask participant to choose news articles they would want to read based on headlines

Participant's Opinion

How strongly do you agree with the following items?

- The law should ban privately owned handguns.
- As long as they don't have a criminal record or a history of mental illness, any adult should be free to carry a concealed handgun in public.

[Strongly Disagree

...

Strongly Agree]

Priming

- Listening to music that is inducing of positive/negative music

- Prokofiev



- Brandenburg Concerto



Choosing Article Headlines

- 6 options were offered
 - The real slippery slope of laws protecting personal guns ;
 - Limiting guns for the good of our children;
 - Owning personal guns and its risk to society;

 - Carrying weapons and their benefits;
 - Personal guns - used in self defense 2 million times a year;
 - What new recreational activities you can do with your gun;
- 3 answers were requested

Headline Item Selection

How we chose the headlines

- Initial pool of 12 items
- MTurk Experiment:
 - Voted how much items agree with gun ownership being a good thing
- We picked the items that were most extreme in ratings

The Initial 12 Items Proposed for Voting

- **Against Personal Gun Ownership**
 - The real slippery slope of laws protecting personal guns
 - Personal Guns - why more people will die because of them
 - Gun control and tragedies in high schools
 - Limiting guns for the good of our children
 - Owning personal guns and the
 - Civilian gun defense is not necessary
- **For Personal Gun Ownership**
 - Carrying weapons and their benefits
 - Protecting the weak - why personal guns are useful
 - Personal guns -used in self defense 2 million times a year
 - Why owning a gun makes you safer
 - What new recreational activities you can do with your gun
 - Why handguns improve the society

Final Items

- **Against Personal Gun Ownership**

- The real slippery slope of laws protecting personal guns ;
- Limiting guns for the good of our children;
- Owning personal guns and its risk to society;

- **For Personal Gun Ownership**

- Carrying weapons and their benefits;
- Personal guns - used in self defense 2 million times a year;
- What new recreational activities you can do with your gun;

Back to the Experimental Design

What we want to analyze

- The correlation between participant initial opinion and the orientation of the headlines they choose
- The balance of headlines they agree/don't agree with

What We Found

- learning about the MTurk world
 - It is full of spammers!
 - It is full of lazy workers!
- 30 participants
 - Most of them chose the answers among the first 3 choices
 - (not a coincidence!)
 - Half of them gave insufficient explanations
 - “I like these headlines”
- Most “lazy workers” were in the  mood condition
 - Coincidence(?)

What We Tried To Address for Experiment 2

- How to deal with the Mturk platform specific difficulties
- How can we adjust the task to make it more appropriate for this platform
- Pick other priming methods – video
- Randomize order of answers

Experiment 2

A Snapshot of What the MTurk Workers Had to Do

What articles would you like to read?

We will ask you a couple of questions and have you listen or watch a media file. We will then ask you to choose news articles that you would like to read.

A Snapshot of What the Mturk Workers Had to Do

How strongly do you agree with the following items?

The law should ban privately owned handguns.



As long as they don't have a criminal record or a history of mental illness



A Snapshot of What the Mturk Workers Had to Do

Please listen to the following media file. While you are listening describe the song or the video in the text box below.



Describe the song or video:

A Snapshot of What the Mturk Workers Had to Do

We want to show you snippets from a couple of articles that relate to the previous questions you answered. We will show you 6 possible headlines. Please pay attention to the headlines. You will receive questions about them later.

A Snapshot of What the Mturk Workers Had to Do

Carrying weapons and their benefits

The real slippery slope of laws protecting personal guns

Owning personal guns and its risk to society

Personal guns - used in self defense 2 million times a year

Limiting guns for the good of our children

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A Snapshot of What the Mturk Workers Had to Do

You are required pick the 3 headlines for which you would like to read the articles having that headline. In the space next to the headline please write what you think the article might contain (don't repeat the headline in the description). **Do this only for the 3 headlines for which you would want to see the article behind the title.**

What new recreational activities you can do with your gun

describe article content:

Carrying weapons and their benefits

describe article content:

The real slippery slope of laws protecting personal guns

describe article content:

Owning personal guns and its risk to society

describe article content:

A Snapshot of What the Mturk Workers Had to Do

Please answer the following questions

Which headline is the most likely to contain statistics about how often guns are used?

choose headline... ▼

Which headline is the most likely to contain information about different uses of guns?

choose headline... ▼

Which headline is the most likely to contain information about national policies on guns?

choose headline... ▼

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Please answer the following questions

Which headline is the most likely to contain statistics about how often guns are used?

choose headline... ▼

- choose headline...
- What new recreational activities you can do with your gun
- Carrying weapons and their benefits
- The real slippery slope of laws protecting personal guns
- Owning personal guns and its risk to society
- Personal guns - used in self defense 2 million times a year
- Limiting guns for the good of our children

different uses of guns?

Which headline is the most likely to contain information about national policies on guns?

choose headline... ▼

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A Snapshot of What the Mturk Workers Had to Do

Thank you for your participation. You can now submit the hit!

Improvements From First Experiment

More Priming Elements

Please listen to the following media file. While you are listening describe the song or the video in the text box below.



Describe the song or video:

- We included videos for priming – these should have a stronger effect as priming elements
- The videos included were:
 - The Champ sad scene
<http://www.youtube.com/watch?v=SU7NGJw0kR8>
 - Laughing baby <http://www.youtube.com/watch?v=HttF5HVYtlQ>

Avoiding Random Answers

Carrying weapons and their benefits

The real slippery slope of laws protecting personal guns

Owning personal guns and its risk to society

Personal guns - used in self defense 2 million times a year

Limiting guns for the good of our children

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- We wanted to avoid Turkers choosing randomly the first headlines they saw
- We introduced an extra step where they are just asked to read the headlines
- The headlines were presented in random order for each participant

Avoiding Random Answers

You are required pick the 3 headlines for which you would like to read the articles having that headline. In the space next to the headline please write what you think the article might contain (don't repeat the headline in the description). **Do this only for the 3 headlines for which you would want to see the article behind the title.**

What new recreational activities you can do with your gun

describe article content:

Carrying weapons and their benefits

describe article content:

The real slippery slope of laws protecting personal guns

describe article content:

Owning personal guns and its risk to society

describe article content:

- Inserted a step in which Turkers are not only asked to choose the 3 headlines they want to read about but have to say what the article might contain
- This step is to make the task more meaningful and increase the chances that the Turker is not choosing answers randomly but that they are more likely to choose based on interest

Validation Questions

Please answer the following questions

Which headline is the most likely to contain statistics about how often guns are used?

choose headline... ▼

- choose headline...
- What new recreational activities you can do with your gun
- Carrying weapons and their benefits
- The real slippery slope of laws protecting personal guns
- Owning personal guns and its risk to society
- Personal guns - used in self defense 2 million times a year
- Limiting guns for the good of our children

different uses of guns?

Which headline is the most likely to contain information about national policies on guns?

choose headline... ▼

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- We chose 3 questions to which we assigned a gold standard answer so that we can validate the responses of Turkers based on the answers to the validation questions

Data Processing

Participants

- 50 participants
- HIT settings
 - MTurk Qualifications for participant: 90% approval rate
 - Cost: 30 cents

Experimental Conditions

	Positive Affect	Negative Affect
Audio Priming	Brandenburg	Prokofiev
Video Priming	Baby laughing	Champ scene

- Participants assigned to conditions randomly
 - We used a hash of their IP address to randomly assign them to one of the 4 conditions

Data We Threw Out

- We threw away 15 participants
- Method:
 - Threw out people who answered wrong to 2 or 3 of the validation questions (out of 3)
 - We kept in the participants who answered wrong to one question but correct to the others
 - Why: The validation task was subjective enough that it would allow room for fair choices of answers we didn't consider correct initially
- We readjusted the filters for the validation answers
 - We initially set one gold standard answer for each question
 - Realized that some questions could have had an acceptable second answer so we decided to keep 2 gold standard answers per question
 - This resulted from the data we got back from Turkers and the distribution of their answers

How we coded the data

- Initial opinion
 - An average of the 2 questions measuring opinion
 - Likert scale 1-5
 - Also categorized as pro/counter gun ownership by splitting the scores at 3.5
- Opinion of the headline choices
 - = 1, if the participant chose 2 or more headlines that were Pro Gun Ownership
 - = 0, if the participant chose 2 or more headlines that were Counter Gun Ownership
- Consistency of opinion
 - Represents if participant chose to read headlines that were consistent to their initial opinion
 - = 1, if the headlines chosen have predominantly the same orientation as the initial opinion of participant
 - = 0, otherwise

What the Data Showed

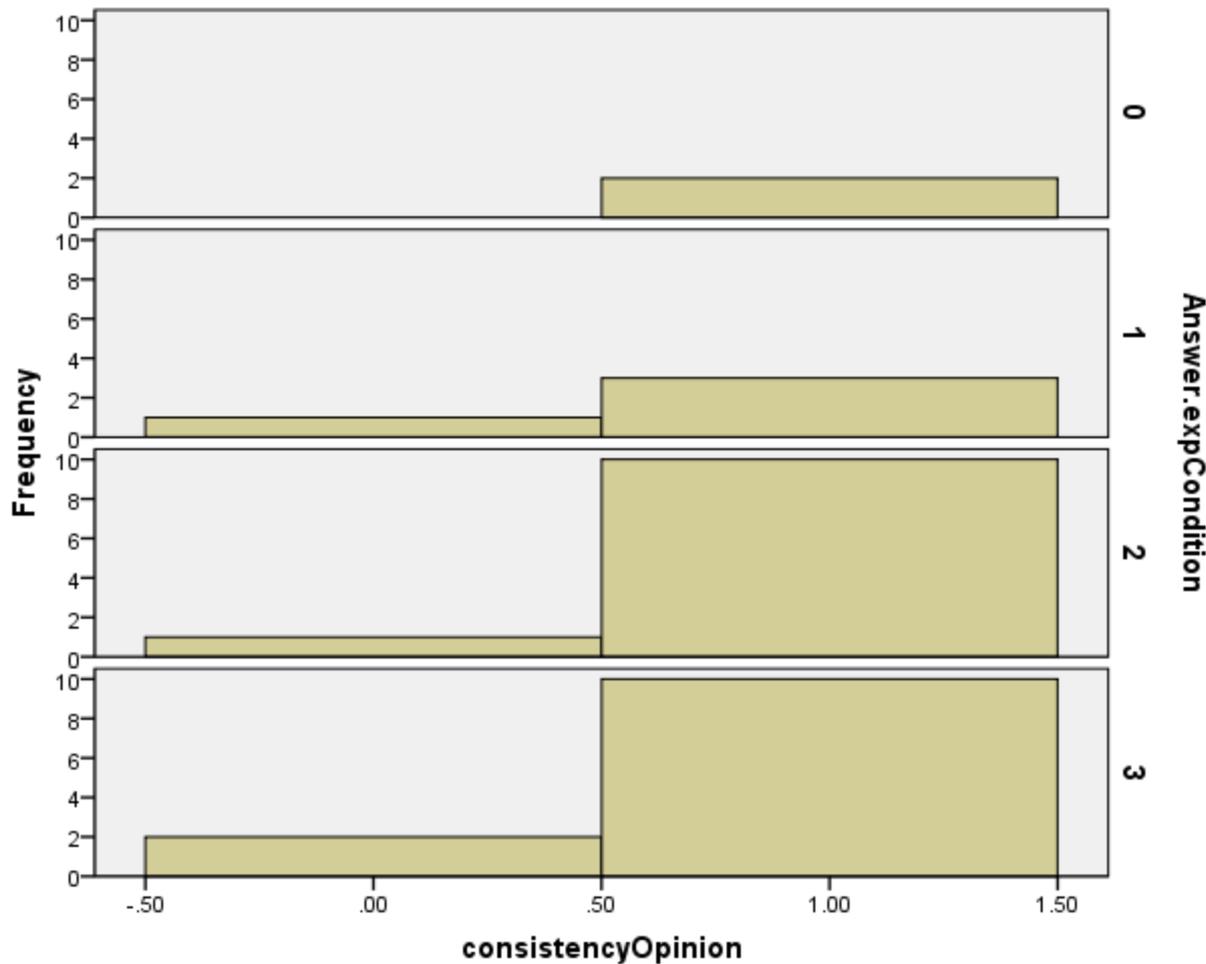
Does the mood influence if people choose opinions different than their own?

- We assessed if participants chose headlines that were not confirming their own opinions
 - what type of opinions participants chose and what their initial opinion was
 - correlate orientation of priming with the consistency between participants own opinions and the opinions they chose to read

Initial Opinions vs Headlines Chosen

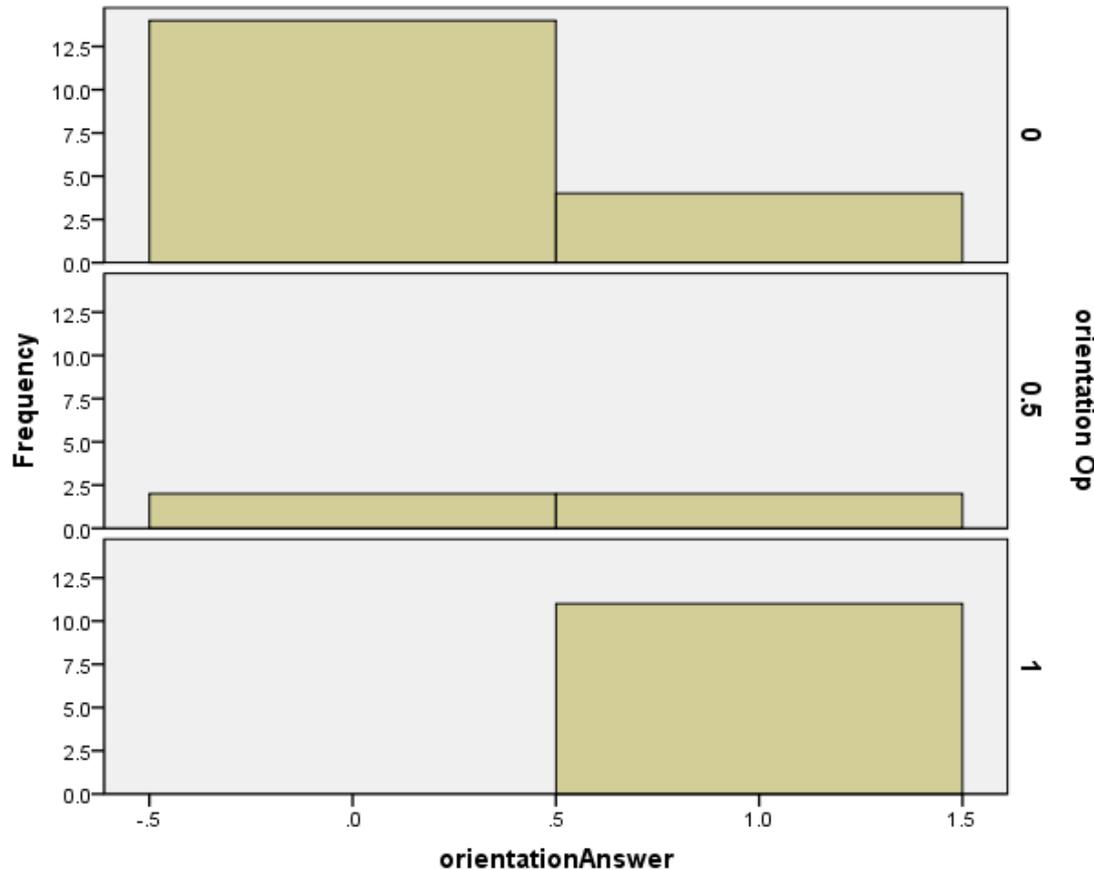
- Orientation of the Participant's Initial Opinions (orientationOp) versus the orientation of the headline answers they chose (orientationAnswer)
 - An answer of 0 - means it was against gun ownership
 - An answer of 1 - means it was pro gun ownership

Participant Breakdown



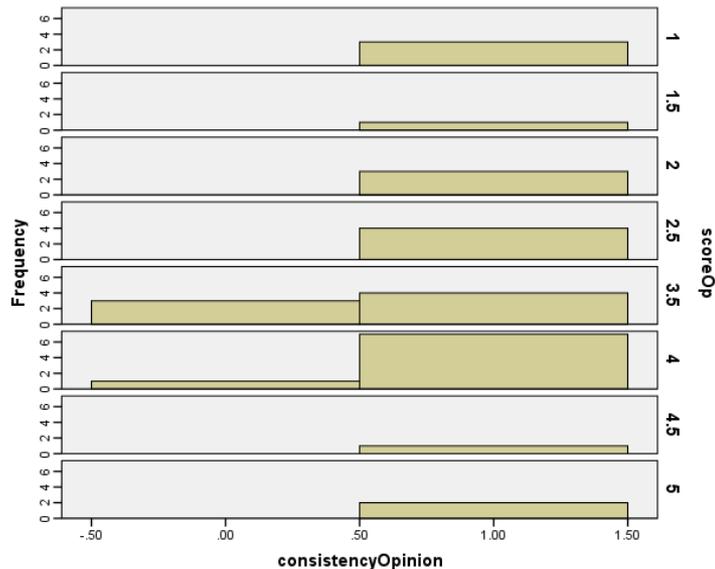
- The breakdown of the participants in experimental conditions (0 - negative audio, 1 - positive audio, 0 - negative video, 1 - positive video)

Initial Opinions vs Headlines Chosen



- ▶ This plot shows that people who were pro-guns did not change their mind regardless of the priming, they were all consistent with their initial opinion
- ▶ The people who were neither pro or counter gun ownership chose to read things that were pro-guns or counter-guns
- ▶ Some of the people who were against guns changed their mind

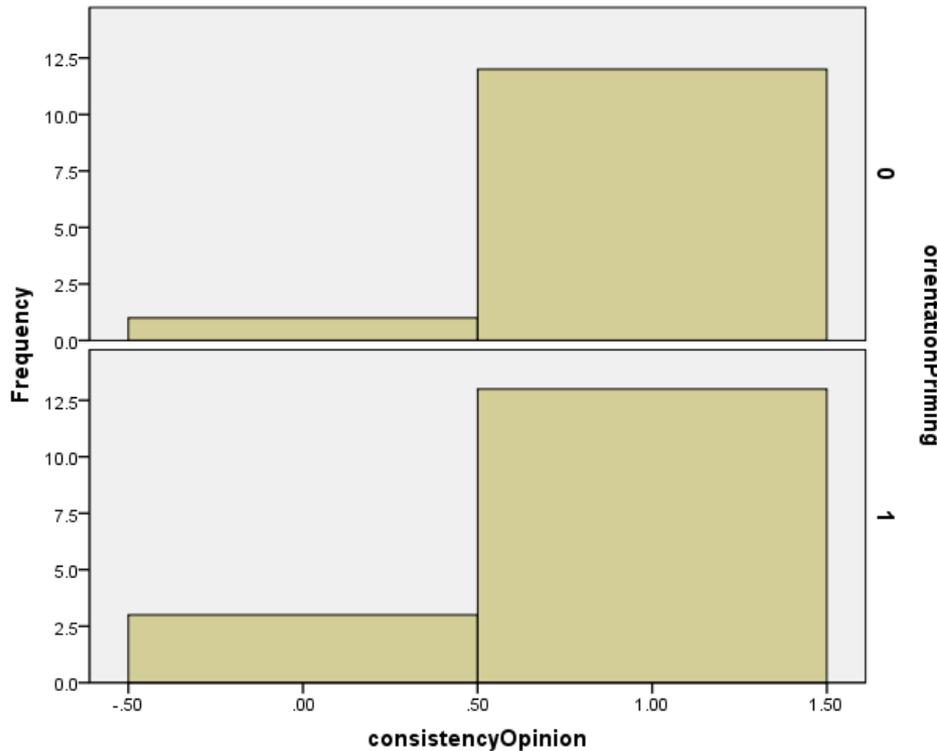
Consistency in Opinion Choice Dependant on Initial Opinions



- Whether people were consistent in their choices of opinions dependent on how strong their initial opinion was
- The scoreOp represents the opinion participant presented regarding gun ownership in the beginning (1 - Strongly For Gun Ownership, 5 - Strongly Against Gun Ownership)

- The graph shows that
 - people with strong opinions 1-2.5 and 4.5-5 were consistent with their opinions
 - People who were in the middle, neither strongly agreeing nor strongly disagreeing chose to also read things that did not agree to their initial opinion

Consistency of Opinion vs the Orientation of the Priming



The following graph shows that most people were consistent with their original opinion in the answers they chose, regardless of whether the participants were primed positively or negatively

There is **no significant effect** of how consistent (not consistent - 0, consistent - 1) the participants were with their initial opinion in the different priming conditions (positive priming - 1 /negative priming - 0)

- For the participants who didn't have strong opinions about the topic (had a score of 3 in their statement of opinions)
 - There were 4 participants – they were distributed in each condition and each of them chose answers that were either pro or counter – so they spanned the entire space of participants without giving us any inference to make from that

Conclusions and Future Work

Conclusions & Future Work

- Regardless of the mood of the participants, people with strong opinions chose to read things that agreed with their opinion
- We need a bigger sample of participants to analyze the effects of the mood priming on participant's choices of headlines
- Topics on which people have an opinion that is less strong might be more appropriate