

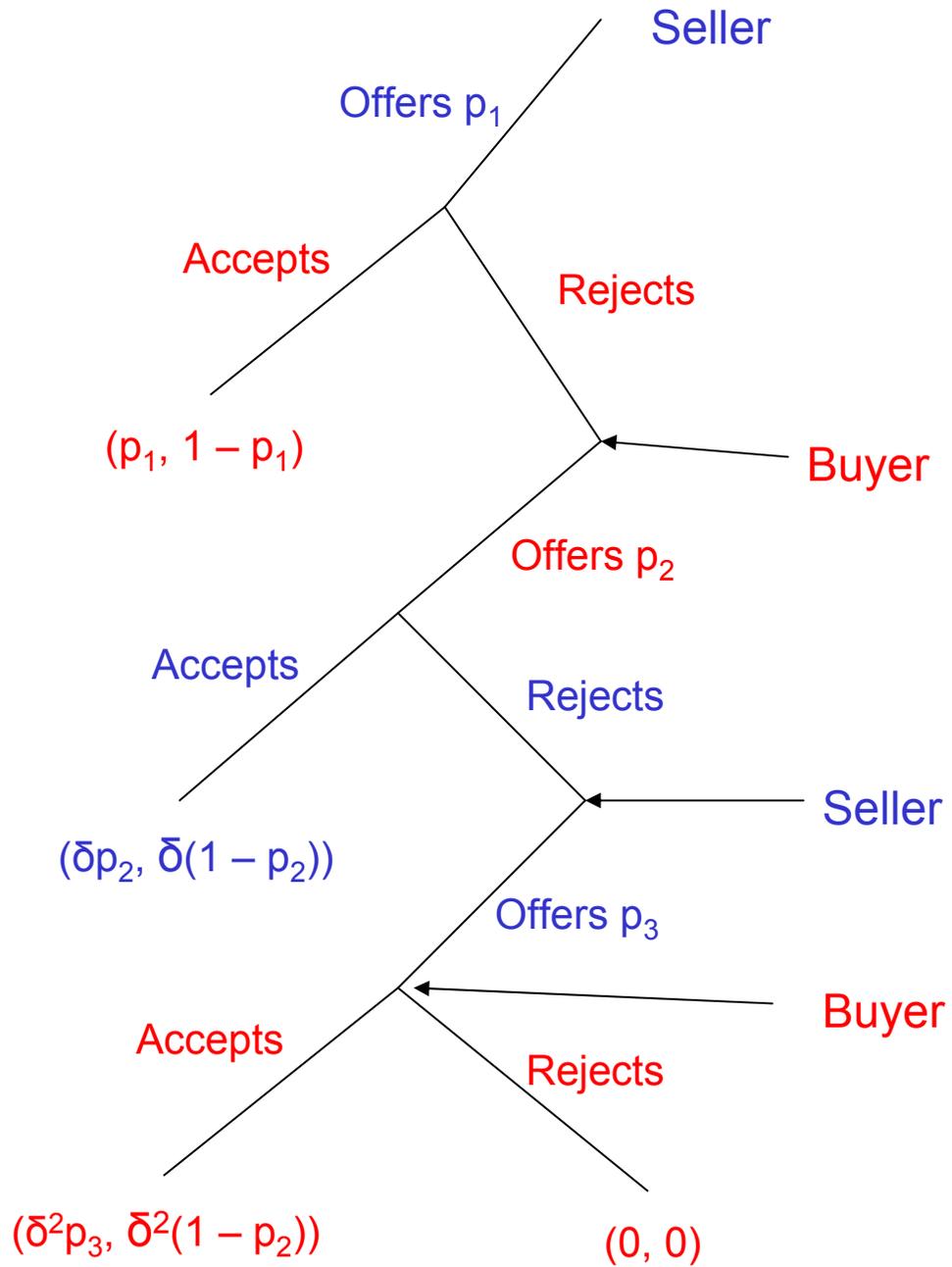
Bargaining, Perception, Advocacy and Bias

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Refresher on Economics of Bargaining: Alternating-Offer Bargaining*

1. Unit gain from trade: Seller has value of **zero** and buyer has value of **one**
2. Seller makes initial price offer (p_1) to buyer at time $t = 0$
3. Buyer can accept or reject offer
 - If buyer accepts seller's offer, game ends and pays p_1 to seller
 - Payoffs to seller are p_1 and payoffs to buyer are $1 - p_1$
 - If buyer rejects offer, makes counter offer of p_2 to seller
4. Profits are discounted at rate δ in each period of game
5. Seller can accept or reject buyer's offer of p_2
 - If seller accepts buyer offer, game ends, receives p_2 from buyer.
 - Payoffs to seller are δp_2 and payoffs to buyer are $\delta[1 - p_2]$.
 - If seller rejects offer, makes counter offer of p_3 to buyer.



Solution to Alternating-Offer Bargaining Game

- Solution includes moves for each player given any strategy played by the other players
- Solution is thus a sub-game perfect equilibrium
- Gains to trade dissipate with each successive period
- Higher utility is possible if solution is reached in earlier periods of game

Alternating-Offer Bargaining: 3-Period Truncated Game

- Solution to the alternating-offer bargaining game can be derived using backward induction...
- In third period:
 - Buyer accepts seller's offer iff $\delta^2[1 - p_3] \geq 0$, which holds if $p_3 \leq 1$
 - Seller will thus make offer of $p_3 = 1$
- In second period:
 - Seller will accept offer iff $\delta p_2 \geq \delta^2$ which will hold if $p_2 \geq \delta$
 - Buyer will thus make offer of $p_2 = \delta$
- In initial period:
 - Buyer will accept offer iff $1 - p_1 \geq \delta[1 - p_2]$ where $p_2 = \delta$ which will hold if $p_1 \leq 1 - \delta + \delta^2$
 - Seller offers $p_1 = 1 - \delta + \delta^2$

Infinite Horizon Alternating-Offer Game: Seller Moves 1st

- Consider the subgame perfect equilibrium in 5 period game:
 - Seller offers $p_1 = 1 - \delta + \delta^2 - \delta^3 + \delta^4$
 - Buyer accepts initial offer iff $p_1 \leq 1 - \delta + \delta^2 - \delta^3 + \delta^4$
- Consider the subgame perfect equilibrium in 7 period game:
 - Seller offers $p_1 = 1 - \delta + \delta^2 - \delta^3 + \delta^4 - \delta^5 + \delta^6$
 - Buyer accepts initial offer iff $p_1 \leq 1 - \delta + \delta^2 - \delta^3 + \delta^4 - \delta^5 + \delta^6$
- Consider the subgame perfect equilibrium in the infinitely repeated game:
 - Seller offers $p_1 = 1 - \delta + \delta^2 - \delta^3 + \delta^4 - \dots = (1 + \delta)^{-1}$
 - Buyer accepts initial offer iff $p_1 \leq (1 + \delta)^{-1}$

Infinite Horizon Alternating-Offer Bargaining: Buyer Moves First

- Consider the subgame perfect equilibrium in the 4 period game:
 - Buyer offers initial price of $p_1 = \delta(1 - \delta + \delta^2)$
 - Seller accepts initial offer iff $p_1 \geq \delta(1 - \delta + \delta^2)$
- Consider the subgame perfect equilibrium in the 6 period game:
 - Buyer offers initial price of $p_1 = \delta(1 - \delta + \delta^2 - \delta^3 + \delta^4)$
 - Seller accepts initial offer iff $p_1 \geq \delta(1 - \delta + \delta^2 - \delta^3 + \delta^4)$
- Consider the subgame perfect equilibrium in the infinitely repeated game:
 - Buyer offers initial price of $p_1 = \delta(1 - \delta + \delta^2 - \dots) = \delta(1 + \delta)^{-1}$
 - Seller accepts initial offer iff $p_1 \geq \delta(1 - \delta + \delta^2 - \dots)$

Unique Subgame Perfect Equilibrium of Infinite Horizon Alternating-Offer Game

- In any period in which it is the seller's turn to offer:
 - Seller offers $p = (1 + \delta)^{-1}$
 - Buyer accepts iff $p \leq (1 + \delta)^{-1}$
- In any period in which it is the buyer's turn to offer:
 - Buyer offers $p = \delta (1 + \delta)^{-1}$
 - Seller accepts iff $p \geq \delta (1 + \delta)^{-1}$
- As a final outcome of this game, we have:
 - First mover offers $p = (1 + \delta)^{-1}$
 - Second mover accepts $p \leq \delta (1 + \delta)^{-1}$
- In the limit as $\delta \rightarrow 1$, the solution converges to “split-the-difference”

Conclusions of Basic Economic Models of Bargaining

- There is no bargaining!
- The first offer made aggregates information from all subsequent negotiations that could potentially occur.
- This offer is accepted, and both parties leave the table satisfied that they could not have done any better.
- So why does the real world not work like this?
 - Uncertainty?
 - Strategy?
 - Hostility/vengeance?
 - Bias?

Choosing the Wrong Pond

Babcock, Wang and Loewenstein, 1996

Bargaining Failures are Widespread

- Many union negotiations end in strikes.
 - Costly, harm both sides
 - Whatever outcome finally occurs, would have been better (economically more efficient) to have had same outcome without the strike.
- Why don't negotiators reach agreement without a strike?
 - Uncertainty?
 - Strategy?
 - Hostility/vengeance?
 - Bias?
- This paper explores the possibility of bias:
 - A survey of union and school district representatives
 - What do they view as relevant comparison groups for bargain?

What the data look like

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Please see Table I in Babcock, L., X. Wang, and G. Loewenstein. "Choosing the Wrong Pond: Social Comparisons in Negotiations that Reflect a Self-Serving Bias." *Quarterly Journal of Economics* 111, no. 1 (February 1996): 1-19.

What Determines the 'Comparables' Lists?

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Please see Table II in Babcock, L., X. Wang, and G. Loewenstein. "Choosing the Wrong Pond: Social Comparisons in Negotiations that Reflect a Self-Serving Bias." *Quarterly Journal of Economics* 111, no. 1 (February 1996): 1-19.

Differences in 'Comparables' and Strikes

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Please see Table III in Babcock, L., X. Wang, and G. Loewenstein. "Choosing the Wrong Pond: Social Comparisons in Negotiations that Reflect a Self-Serving Bias." *Quarterly Journal of Economics* 111, no. 1 (February 1996): 1-19.

How do Unions/Boards Weight Outside Information?

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Please see Table IV in Babcock, L., X. Wang, and G. Loewenstein. "Choosing the Wrong Pond: Social Comparisons in Negotiations that Reflect a Self-Serving Bias." *Quarterly Journal of Economics* 111, no. 1 (February 1996): 1-19.

Limitations?

- Strategic statements.
- Is this ‘self-serving’?
- Omitted third factors?
- Not an experiment.

Not an experiment...

At the same time, it must be acknowledged, that our analysis suffers from the same limitations inherent in all nonexperimental research, which is that we cannot establish causality definitively. It is always possible that some third variable such as the aggressiveness of the parties causes both impasse and self-serving selection of comparables, or that a past history of strikes causes parties to select more extreme comparison groups, rather than the reverse. The latter would be true, for example, if the

Babcock, L., X. Wang, and G. Loewenstein. "Choosing the Wrong Pond: Social Comparisons in Negotiations that Reflect a Self-Serving Bias." *Quarterly Journal of Economics* 111, no. 1 (February 1996): 7.

Biased Judgments of Fairness in Bargaining

Babcock, Loewenstein, Issacharoff and Camerer, 1996

Experimental Context

Motorcycle-automobile accident experiment:

- The plaintiff (motorcyclist) is suing the defendant (automobile driver) for \$100,000.
- Two subjects are given precisely the same information and know that the information they are given is identical.
- Subjects received 27 pages of testimony abstracted from an actual case in Texas.
- Informed that the same materials given to a judge in Texas, who had decided how much, if anything, to award to the plaintiff.

Experimental Context

- **After reading the case materials, but before negotiating, the subjects make two judgments:**
 1. What they think is a fair settlement from the vantage point of a neutral third party
 2. Their best guess of the amount that the judge would award.

[Each subject receives a bonus of \$1.00 at the end of the session if their prediction of the judge's award was within \$5,000 of the judge's actual award.]

The Task

- Subjects paid a fixed fee for participating in the experiment.
- Instructed to try to negotiate an “out of court” \$ settlement.
- Before negotiation, defendant given \$10 to use for payment.
- Every \$10,000 from the case is equivalent to \$1 for the subjects. For example, a \$40,000 settlement meant the defendant gave \$4 to the plaintiff and kept \$6.
- The parties had 30 minutes in which to negotiate an agreement. If they were unable to settle within this time period, the judge's decision was imposed upon the parties.
- The judge's *actual judgment* was \$30,560. If no settlement, defendant paid plaintiff \$3.06 (kept \$6.94).

The Task

Continued:

- The 30-minute negotiation is divided into six five-minute units.
- Every 5 minutes, parties submit bids simultaneously.
 - If the bids overlapped, case settled at the midpoint.
 - If not, assessed \$5,000 each in “lawyer's fees” and renegotiate.
- If unable to settle by sixth period, judge imposes the settlement, each party charged legal fees of \$25,000 (\$2.50).
- After the negotiation:
 - Both subjects record their perceptions of how a judge would rate the importance of 16 arguments in determining award: 8 favoring plaintiff and 8 favoring defendant.
 - The rating scale ranged from 0 (“no importance”) to 10 (“extreme importance”).

Treatment Conditions

Major manipulation is the order of events in the experiments:

1. In condition A, subjects were first given their roles, read the case materials, predicted the judge's award, assessed fairness, and then negotiated.
2. In condition B, subjects first read the materials, predicted the judge's award, assessed fairness, then given their roles (just before negotiating).

Expectation: If 'self-serving' bias present...

- Higher disagreement rate in manipulation A.
- Self-serving interpretations of fairness more extreme, and thus settlement rates lower, when subjects assigned roles first.
- Hypothesis: *Easier to process information in a biased way than it is to change an unbiased estimate once it has been made.*

Effect of Treatments on Settlement Rates

Image removed due to copyright restrictions.

Please see Table 1 in Babcock, Linda, George Loewenstein, Samuel Issacharoff, and Colin Camerer. "Biased Judgments of Fairness in Bargaining." *The American Economic Review* 85 (1995): 1337-1342.

Effect of Treatments on Settlement Rates

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Please see Table 2 in Babcock, Linda, George Loewenstein, Samuel Issacharoff, and Colin Camerer.
"Biased Judgments of Fairness in Bargaining." *The American Economic Review* 85 (1995): 1337-1342.

Effect of Treatments on Settlement Rates

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Please see Table 3 in Babcock, Linda, George Loewenstein, Samuel Issacharoff, and Colin Camerer.
"Biased Judgments of Fairness in Bargaining." *The American Economic Review* 85 (1995): 1337-1342.

Effect of Treatments on Settlement Rates

Image removed due to copyright restrictions.

Please see Table 4 in Babcock, Linda, George Loewenstein, Samuel Issacharoff, and Colin Camerer.
"Biased Judgments of Fairness in Bargaining." *The American Economic Review* 85 (1995): 1337-1342.

Notice that controlling for differences in perceptions, role assignments no longer seem to matter...

Interpretation

- **Previous experiments by these authors had shown:**
 - When assigned a role (defendant/plaintiff), subjects who appeared more biased were less likely to settle.
 - Was interpreted as ‘self-serving bias’ but there was an alternative explanation. (What?)
 - How does this experiment solve that problem?

Creating Convergence: Debiasing Biased Litigants

Babcock, Loewenstein and Issacharoff, 1998

Putting these Findings into Practice: A 'Debiasing' Experiment to Reduce Bargaining Impasse

- **Same experiment as in previous study, but additional treatment:**

“Disputants don't always think carefully about the weaknesses in their own case and are therefore surprised when the judge's ruling is worse than their expectations. For plaintiffs, this means that the judge's award is often less than their expectations. For defendants, this means that the judge's award is often greater than their expectations. Therefore, please think carefully about the weaknesses in your case. In the space below, please list the weaknesses in your own case...”

Main Results

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Please see Table 1 in Babcock, Linda, George Loewenstein, and Samuel Issacharoff.

"Creating Convergence: Debiasing Biased Litigants." *Law & Social Inquiry* 22 (1997): 401-413.

Main Results

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Please see Figure 1 in Babcock, Linda, George Loewenstein, and Samuel Issacharoff.

"Creating Convergence: Debiasing Biased Litigants." *Law & Social Inquiry* 22 (1997): 401-413.

Notice:

(1) Much less bias in 'debiased' group.

(2) Degree of bias not systematically related to settlement in 'debiased' group.

Conclusions

- **External validity?**
 - Inexperience
 - Low stakes
 - Demand effects

An Example: Bush v. Gore

Please see Taylor, Humphrey. "No Honeymoon for President Bush?: Attitudes to Florida Vote Still Highly Polarized." The Harris Poll #76 (December 29, 2000).

An Example: Bush v. Gore

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An Example: Bush v. Gore

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Please see Table 2 in Taylor, Humphrey. "No Honeymoon for President Bush?: Attitudes to Florida Vote Still Highly Polarized." The Harris Poll #76 (December 29, 2000).

Behavioral Confirmation in the Interrogation Room: On the Dangers of Presuming Guilt

Kassin, Goldstein and Savitsky, 2003.

A Further Risk from Bias: Behavioral Confirmation

- In first lecture, we discussed “stereotype threat” – the possibility that objects of stereotype engage in behaviors that confirm stereotype.
- “Behavioral confirmation” is a similar phenomenon: Others’ beliefs lead to a self-fulfilling prophecy.
- In jury trials, confessions are widely believed to be the most persuasive form of evidence:
 - 73% of defendants are convicted at trial in cases that contain false confessions.
 - 23% of DNA exonerations cases contain confessions (also apparently false).
- Is there any danger that confessions are contaminated by others’ beliefs?

Police Interrogations

- Highly rehearsed art form. Typical steps:

THE NINE STEPS OF INTERROGATION

1. Confront the suspect with assertions of his or her guilt.
2. Develop "themes" that appear to justify or excuse the crime.
3. Interrupt all statements of innocence and denial.
4. Overcome all of the suspect's objections to the charges.
5. Keep the increasingly passive suspect from tuning out.
6. Show sympathy and understanding, and urge the suspect to tell all.
7. Offer the suspect a face-saving explanation for his or her guilty action.
8. Get the suspect to recount the details of the crime.
9. Convert that statement into a full written confession.

Police Interrogations

- Interrogations normally undertaken:
 - “An interrogation is conducted only when the investigator is reasonably certain of the suspect’s guilt.”
- What potential problems does this create?
 1. Detectives may not be effective at ‘sniffing-out’ guilt—but they may believe that they are.
 2. Once detectives have drawn initial conclusions about guilt/innocence, could bias interactions that follow, leading to confirmatory bias.

[This is particularly problematic if (1) is true.]

The Experiment: Interrogator Instructions

Interrogator Instructions

- Interrogators told to enact role of detective trying to solve a case.
- Given the details of a mock theft that was committed + written incident report:
- “In Room 100 of Miller House, someone took a key that was hidden behind a VCR on the fireplace. This key was then used to open a locked cabinet where \$100 was stolen from a basket. Whoever did this then put the key back and left with the money.”
- In the *guilty expectation* condition, told that 80% of suspects actually commit the crime.
- In the *innocent expectation* condition, told that 20% guilty.
- Goals:
 1. Secure a confession
 2. Make an accurate determination of guilt or innocence.

The Experiment: Suspect Instructions

- ***Guilty condition***
 - Commit a mock theft. The experimenter describes, step-by-step, the actions required for commission of the crime (i.e., enter a designated room, find a key hidden behind a VCR, use the key to unlock a cabinet, take a \$100 bill from a basket, return the key, take the money, and leave).
- ***Innocent condition***
 - Merely told to approach the targeted room, knock on the door, wait for an answer (no answer), meet experimenter upstairs.
- ***Both treatment groups told:***
 - “No matter what happens, do not confess. Admitting having the stolen goods will be considered a confession. Imagine yourself in the role of a real suspect and consider how much could be lost by confessing.”

Interrogators' Judgments

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Please see Figure 1 in Kassin, Saul M., Goldstein, Christine C., and Kenneth Savitsky. "Behavioral confirmation in the interrogation room: On the dangers of presuming guilt." *Law and Human Behavior* 27, no. 2 (April 2003): 187-203.

Notice:

- (1) Expectations had a substantial effect on interrogators' beliefs about innocence or guilt after interrogation
- (2) Innocent subjects *more likely* to be perceived as guilty.

Interrogator Debriefing

1. Interrogators saw themselves as trying harder to get a confession when the suspect was innocent than when he or she was guilty.
 2. Interrogators also said they had exerted more pressure on the suspect who was innocent than guilty.
- Summary: Interrogators saw themselves as the most aggressive when they interviewed suspects who—unbeknownst to them—were truly innocent.

Impact on Observers (think jurors):

- Observers listened to four taped interviews:
 - **Good news:**
Observers judged as guilty 42% of truly guilty suspects, compared to only 28% of those who were innocent, $p < 0.02$.
 - **Bad news:**
They also judged as guilty 40% of suspects in the guilty expectations condition, compared to only 30% in the innocent expectations condition, $p < 0.08$.

Observers' Judgments

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Please see Figure 2 in Kassin, Saul M., Goldstein, Christine C., and Kenneth Savitsky. "Behavioral confirmation in the interrogation room: On the dangers of presuming guilt." *Law and Human Behavior* 27, no. 2 (April 2003): 187-203.

Suspects in the guilty expectations condition seen as more defensive than those in the innocent expectations condition

Conclusions

- **Not encouraging news for the impartial scales of justice:**
 - People's prior beliefs affect their behavior, conclusions.
 - These beliefs, though unstated, also effect perceptions of others about the same facts.
 - Results raise doubts about whether law enforcement professionals (and others) are fully capable of objectivity, particularly in a judgment-rendering setting.

The Fragility of Perception

Memory/Storage

- **Loftus (1996):**
 - After people observe an event, later information about that event becomes integrated into fabric of memory.
- **Loftus and Palmer (1974):**

Image removed due to copyright restrictions.

Please see Figure 12.2 in Brehm, Sharon S., Saul M. Kassin, and Steven Fein.
Social Psychology. 5th ed. Boston, MA: Houghton Mifflin, 2002. ISBN: 0618129642.

One week later: "Did you see smashed glass?"

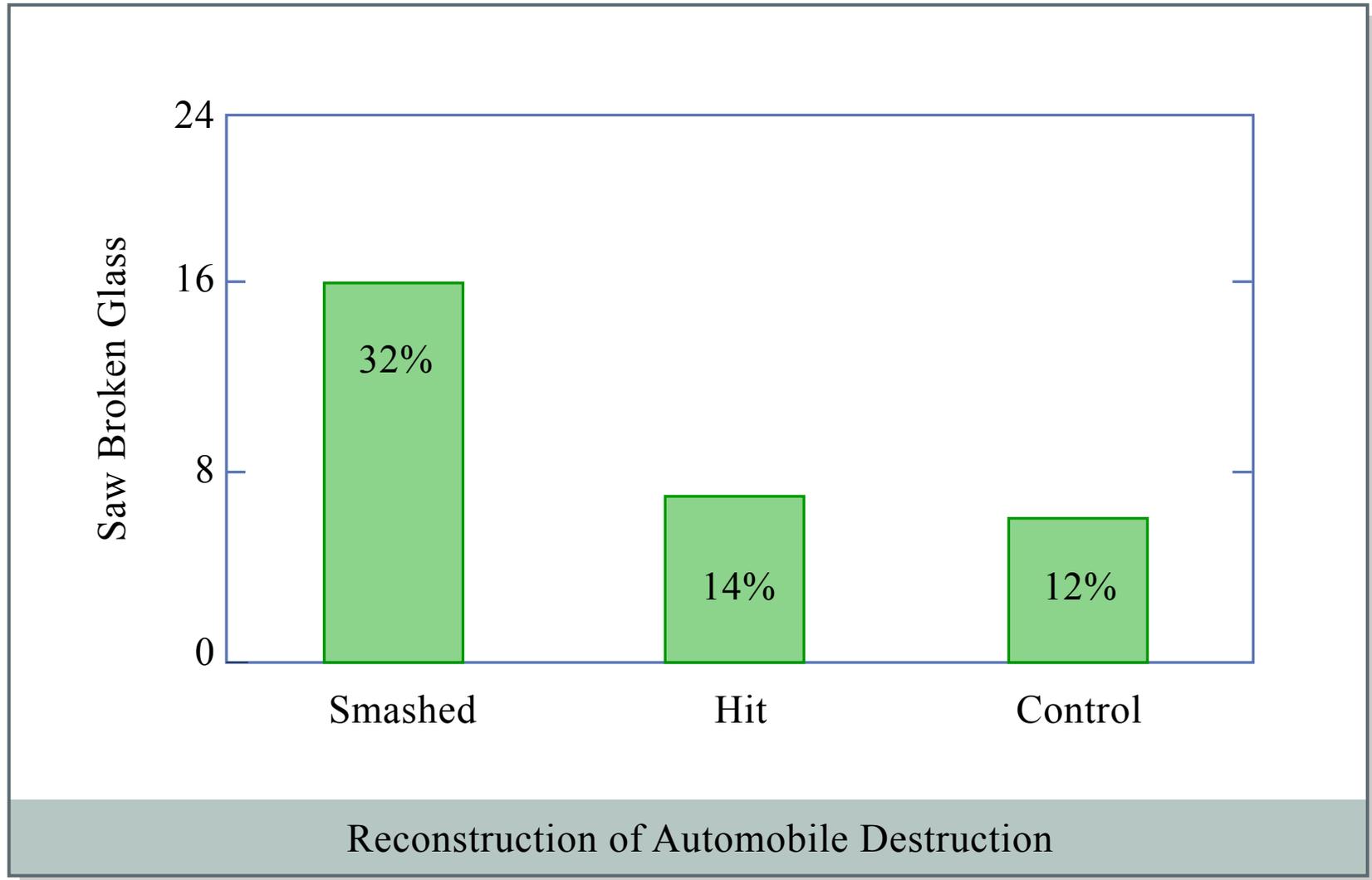


Figure by MIT OCW. Based on Loftus, Elizabeth F., and John C. Palmer. "Reconstruction of Automobile Destruction: An Example of the Interaction Between Language and Memory." *Journal of Verbal Learning and Verbal Behavior* 13 (1974): 585-589.

Simons and Chabris (1999)

- **Instructions:**
 - Watch 75 second videotape of basketball playing
 - For the **black team**, silently count:
 1. Number of aerial passes
 2. Number of bounce passes
 - When video ends, write down the number made of each type of pass.

Simons and Chabris (1999)

Image removed due to copyright restrictions.

Please see Figure 2 in Simons, Daniel J., and Christopher F. Chabris. "Gorillas in our midst: sustained inattention blindness for dynamic events." *Perception* 28, no. 9 (1999): 1059-1074.

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Conclusions...

- People are less capable of objectivity than they may believe.
- It appears that perceptions are colored by:
 1. Selective attention
 2. Self-interest
 3. Prior expectations
 4. Subsequent information
- Makes it difficult to endorse the fully rational model if the 'information' acted upon rationally is itself already contaminated by self-interested perceptions.
- Or, need a theory for why non-objective perception is rational.