Framing. Demand and Expectancy Effects

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MW24.2 Experimental Economics (SS2022)

Lecture Plan

- Framing
- Experimenter demand effect
- Experimenter expectancy effect
- Summary of experiment logistics

@ Irwin P. Levin, Sandra L. Schneider and Gary J. Gaeth (1998). All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects. Organizational Behavior and Human Decision Processes 76(2): 149-188

@ Daniel John Zizzo (2010). Experimenter demand effects in economic experiments. Experimental Economics 13(1): 75-98

Asian disease problem

* Tversky and Kahneman (1981)

Imagine that the U.S. is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs are as follows:

- If Program A is adopted, 200 people will be saved.
- If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved.
- If Program C is adopted, 400 people will die.
- If Program D is adopted, there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die.

$\Rightarrow$ Suggested solution: Prospect Theory

Framing

- Usually, economic experiments use *neutral language* and avoid emotionally loaded terms or jargon
- *Logical* information content $\neq$ decision frame
- Decision frame: the decision-maker's conception of the acts, outcomes, and contingencies associated with a particular choice; controlled partly by the formulation of the problem and partly by norms, habits and personal characteristics

- Framing effect: systematically different behavioral outcomes resulting from *objectively equivalent* descriptions of a decision problem
- Framing effects are likely to be caused by certain regularities of cognition routines (esp., information processing)

Valence framing topology

* Levin et al. (1998)

- Valence: degree of attraction or aversion felt towards an object or event

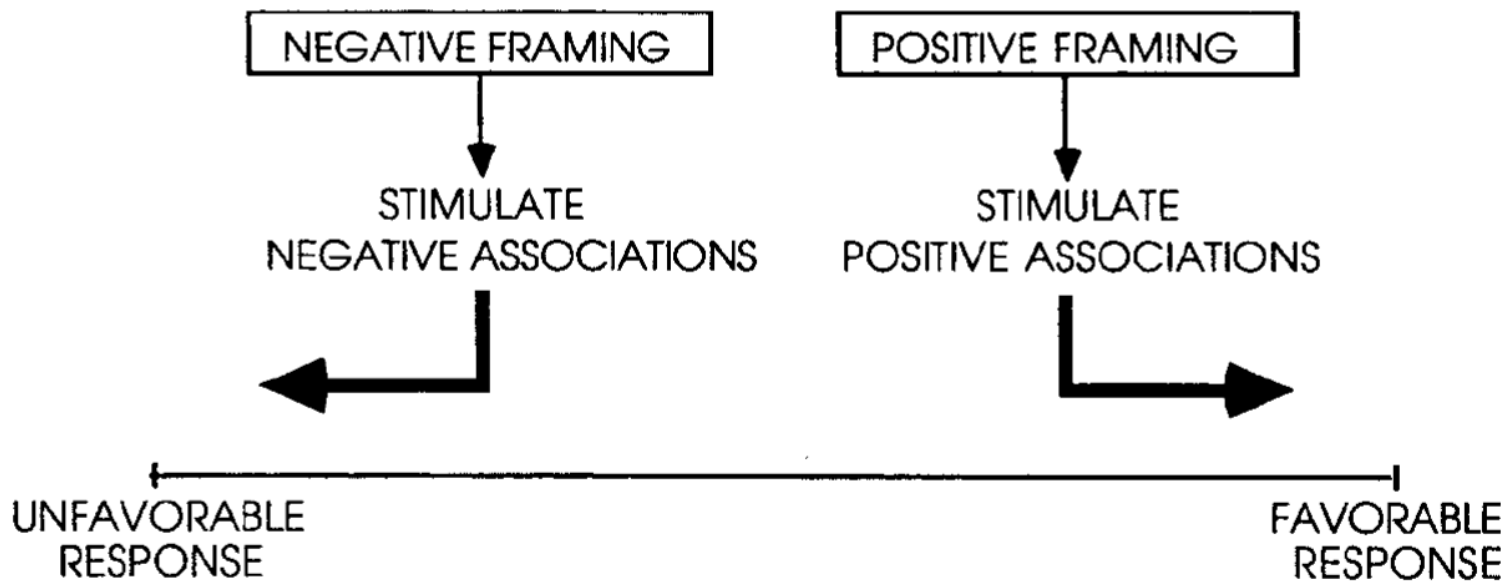
- Classification of valence frames:
  * Attribute framing
  * Goal framing
  * Risky choice framing

Valence framing topology

* Levin et al. (1998)

- Attribute framing:

  single attribute of an object described in terms of either a *positively* or *negatively* valenced proportion



Tasting meat

* Levin and Gaeth (1988)

- Consumer ratings of several qualitative attributes of ground beef framed as either "75% lean" or "25% fat"

TABLE 1

MEAN RATING SCORES ACROSS TASTE AND FRAMING CONDITIONS

	Label-only condition[a]			Taste after labeling			Taste before labeling		
Rating scale	Positive	Negative	Difference[b]	Positive	Negative	Difference	Positive	Negative	Difference
Fat/lean	5.15	2.83	2.32[e]	4.67	3.57	1.10[e]	4.05	3.45	.60[c]
Low quality/high quality	5.33	3.66	1.67[e]	4.71	3.95	.76[d]	4.43	4.09	.34
Greasy/greaseless	4.49	2.96	1.53[e]	4.13	3.43	.70[d]	3.67	3.05	.62[c]
Bad taste/good taste	5.69	4.43	1.26[e]	5.00	4.71	.29	5.00	5.09	−.09

[a] Data taken from Levin (1987).
[b] Difference between mean rating score in positive and negative framing conditions.
[c] $p < 0.10$.
[d] $p < 0.05$.
[e] $p < 0.01$.

Valence framing topology

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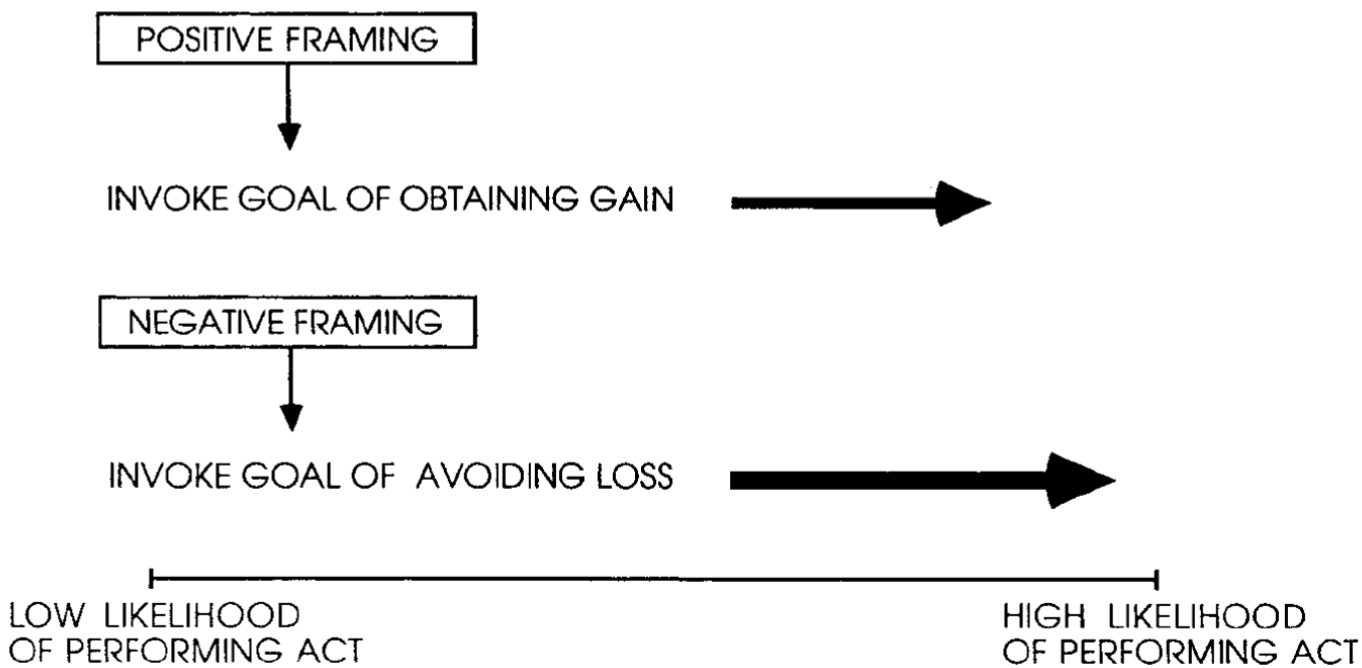
- Goal framing:

  urging to engage in an activity via a description of either the *advantages* of participating or the corresponding *disadvantages* of not participating



Credit card use

* Ganzach and Karsahi (1995)

- Benefits of using a credit card explained either in terms of gains the customers could obtain from using the card or in terms of losses they could suffer from not using it

Table 1. Utilization and Charges by Condition

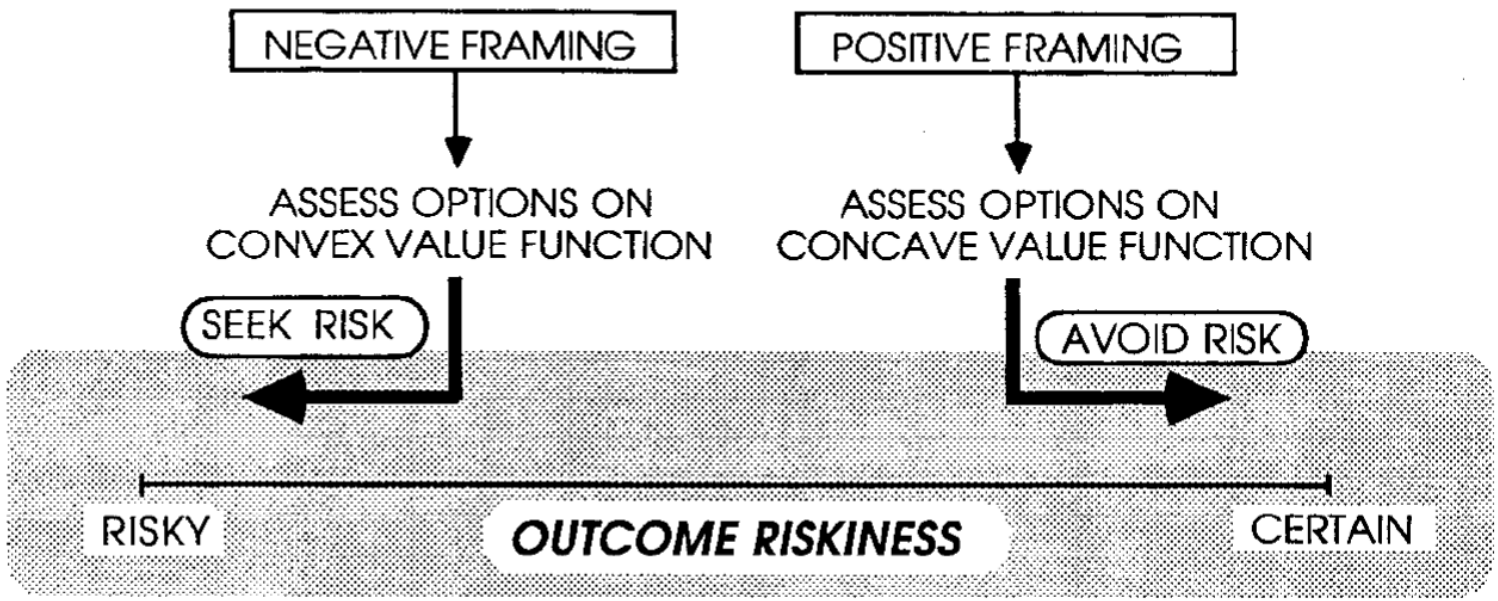
		Utilization		Charges	
Group	***n***	**Month 1**	**Month 2**	**Month 1**	**Month 2**
Cash–negative	66	45.5%	45.5%	270.0	199.9
Cash–positive	57	29.3%	24.1%	129.8	129.1
Checks–negative	62	54.8%	54.8%	492.8	260.6
Checks–positive	55	23.6%	16.4%	244.9	104.4

Valence framing topology

* Levin et al. (1998)

- Risky choice framing:

  choice task between two gambles described either in terms of *gain* outcomes and probabilities or in terms of equivalent *loss* outcomes and probabilities



Asian disease problem

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Name of the game

* Liberman et al. (2004)

- Repeated ($\times 7$) Prisoner's Dilemma with different name labels

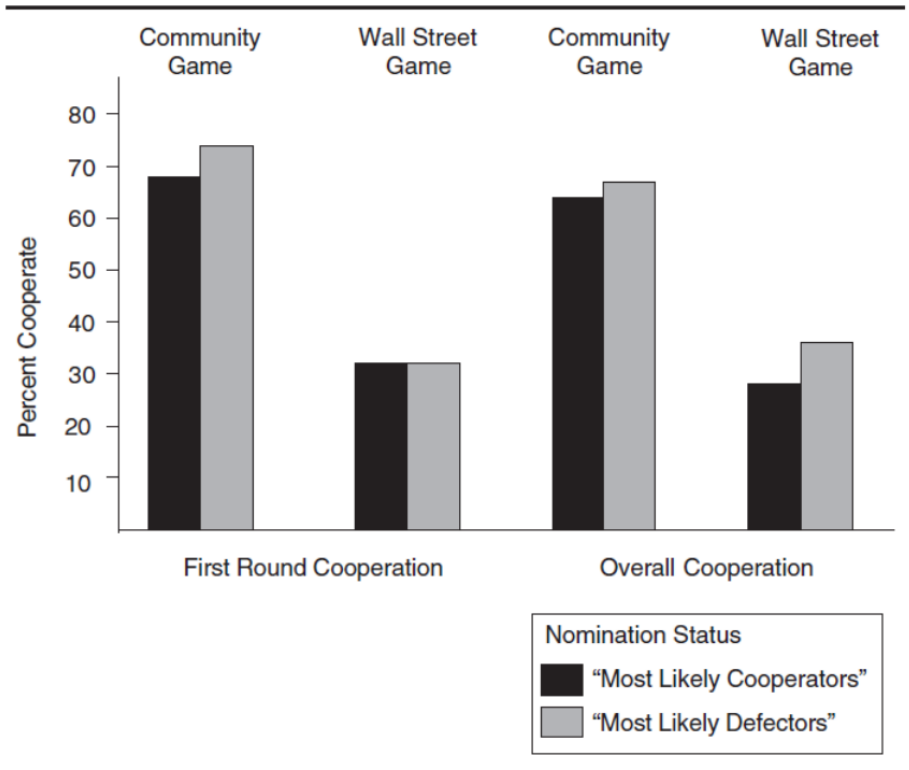

Figure 1 First round and overall cooperation in the Community Game versus Wall Street Game by nominated "most likely cooperators" and "most likely defectors" (Study 1).

Foreign language effect

* Keysar et al. (2012)

- Asian disease problem of Tversky and Kahneman (1981)
- Choice presented either in the native tongue or foreign language

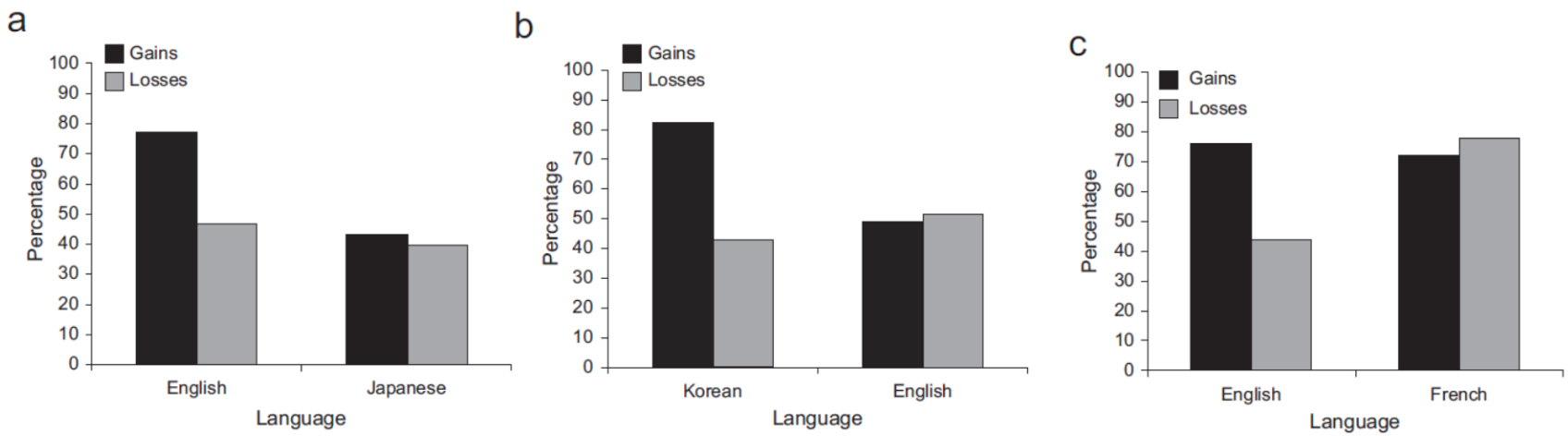

Fig. 1. Percentage of participants in Experiments 1a through 1c who selected the sure option as a function of frame and language. In Experiment 1a (a), English was the native language, and Japanese the foreign language; in Experiment 1b (b), Korean was the native language, and English the foreign language; in Experiment 1c (c), English was the native language, and French the foreign language.

Experimenter Demand Effect

* Zizzo (2010)

- Experimenter demand effect(s): change(s) in responses of experimental subjects due to cues about what constitutes *appropriate* behavior

- Cognitive experimenter demand effect:
  - $\sim$ identifying the task and appropriate behavior from the description
- Social experimenter demand effect:
  - $\sim$ social pressure w.r.t. appropriate behavior

Experimenter demand effect

* Zizzo (2010)

- *Expected* versus *true* objective of an experiment
  (as far as the resulting behavioral response)

(!) no correlation $\Rightarrow$ no problem

(!) negative correlation $\Rightarrow$ more difficult to observe true effect

(!) positive correlation $\Rightarrow$ spurious inferences possible

(generally true for any confounding factor)

Telling subjects *what* to do works!

* Chou et al. (2009)

- Beauty contest game with the optimal strategy *revealed*

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Instruction to the Game:

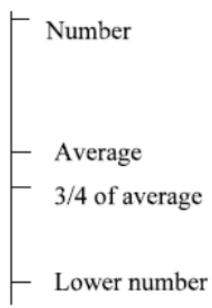
CALTECH

1. Strategically choose a number between 0 and 100, both included.
2. You will be randomly assigned an opponent from the room.
3. We will calculate 3/4 of the average of your number and your opponent's number

Winning Rule:

- Your number will win if it is closer to (3/4 of the average of the your number and your opponent's number)
- If your number wins we will pay you $8 at the end of class *today*. If you choose the same number as your opponent, you will receive $4.

Notice how simple this is: the lower number will always win (see Figure)



You have five minutes to think about your answer. Write your number in the space below.

NUMBER CHOSEN _____ (please enter one number here)
Group ID _____
My Name _____

Please write down your motives for choosing your number on the back of the instructions.

Dictator game giving: altruism or artifact?

* Bardsley (2008)

- Altruistic behavior in Dictator and "taking" games

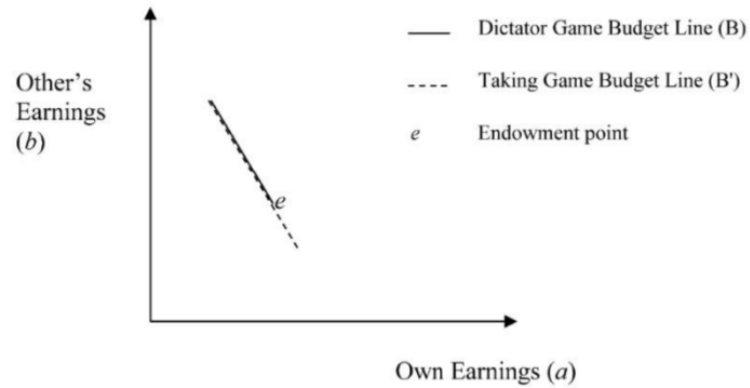
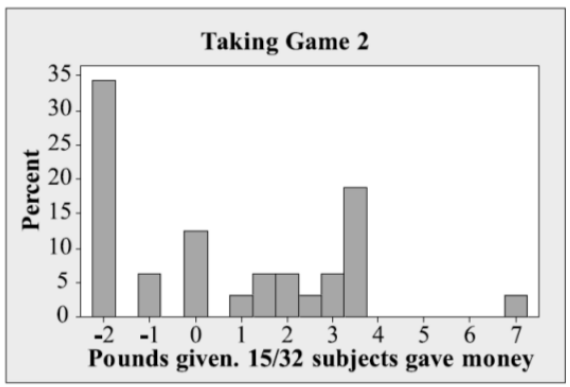


Fig. 1 Dictator and taking game budget lines

- Generosity can be reversed!

T1



T2

Experimenter demand effect

* Zizzo (2010)

- Ways to alleviate the issue:
  * minimum interaction between experimenter(s) and subjects
  * between-subject design
  * blind trials (ideally, double-blind)
  * non-deceptive obfuscation of the true objective
  * neutral language
  * counter-balancing of cues

Experimenter Expectancy Effect

- Self-fulfilling prophecy about the treatment effect
* Result of an experiment depends on the experimenter

- Basic mechanism:
  (i) subjects infer the true objective and comply (i.e., EDE)
  (ii) experimenter behaves in accordance with the hypothesis

Rosenthal effect (also, Pygmalion effect)

* Rosenthal and Jacobson (1966)

- Random subset of children classified as "bloomers"
- IQ test performance measured after 8 months

MEAN GAINS IN IQ

Grade	Controls		Experimentals		Diff.	t	p†
	M	σ	M	σ			
1	12.0	16.6	27.4	12.5	15.4	2.97	.002
2	7.0	10.0	16.5	18.6	9.5	2.28	.02
3	5.0	11.9	5.0	9.3	0.0		
4	2.2	13.4	5.6	11.0	3.4		
5	17.5	13.1	17.4	17.8	−0.1		
6	10.7	10.0	10.0	6.5	−0.7		
Weighted M	8.4*	13.5	12.2**	15.0	3.8	2.15	.02

*Mean number of children per grade = 42.5.
**Mean number of children per grade = 10.8.
†p one-tailed.

Summary of Experiment Logistics

- Usual time frame:
  - Dry run
  - Subject recruitment
  - Pilot session(s)
  - Subject recruitment
  - Data collection session(s)
    - instructions
    - control questions
    - practice trials
    - payment trials
    - demographic questionnaire
    - payment

Summary of experiment logistics

- Subject instructions:
  - should be followed verbatim w/out extra clarifications
  - neutral language, no emotionally loaded terms or economic jargon
  - minimum amount of context
  - cautious use of examples

- Lab log should be recorded

Summary of experiment logistics

* Econometrica submission requirements

- Subject pool and recruiting procedures
- Experimental technology – when and where the experiments were conducted; by computer or manually; online, and so forth
- Any procedures to test for comprehension before running the experiment, including the use of practice trials and quizzes
- Matching procedures, especially for game theory experiments
- Subject payments, including whether artificial currency was used, the exchange rate, show-up fees, average earnings, lotteries and/or grades
- Number of subjects used in each session and, where relevant, their experience
- Timing, such as how long a typical session lasted, and how much of that time was instructional
- Any use of deception and/or any instructional inaccuracies

Lecture summary

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  - Risky choice framing
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