Measurement

Read Chapter 3 -Measurement

Kinds of Measurements

Measurement Scales

Psychological Constructs and Operational Definitions

Reliability and Validity

Sampling from distributions

Sampling and Simple experiments

T-tests

Priming

- Can stimuli in your environment prime your behavior without your awareness?

Unconscious Influences

- Can stimuli in your environment prime your behavior without your awareness?

Journal of Personality and Social Psychology
1996, Vol. 71, No. 2, 230–244

0022-3514/96/$3.00

Automaticity of Social Behavior: Direct Effects of Trait Construct and Stereotype Activation on Action

John A. Bargh, Mark Chen, and Lara Burrows
New York University

Previous research has shown that trait concepts and stereotypes become active automatically in the presence of relevant behavior or stereotyped-group features. Through the use of the same priming procedures as in previous impression formation research, Experiment 1 showed that participants whose concept of rudeness was primed interrupted the experimenter more quickly and frequently than did participants primed with polite-related stimuli. In Experiment 2, participants for whom an elderly stereotype was primed walked more slowly down the hallway when leaving the experiment than did control participants, consistent with the content of that stereotype. In Experiment 3, participants for whom the African American stereotype was primed subliminally reacted with more hostility to a vexatious request of the experimenter. Implications of this automatic behavior priming effect for self-fulfilling prophecies are discussed, as is whether social behavior is necessarily mediated by conscious choice processes.

Currently cited 3731 times since 1996

Big question?

- Priming stereotypes has been shown to implicitly influence people's attitudes when making judgments about other people...
- Can priming stereotypes also implicitly influence a wider range of behaviors, including action plans and motor movements?

Small question?

- Can simple exposure to words related to being elderly cause people to behave like the elderly?

Alternative

- The present hypothesis is that social behavior should be capable of automatic activation by the mere presence of features of the current environment, just as are social perceptions and attitudes.

Logic

- If the hypothesis is true, then simply showing people words that are associated with particular stereotypes could activate behavior associated with those stereotypes

Task & Manipulation

- Participants unscrambled lists of words into sentences
- One group of subjects received some words that related to being elderly (Florida, old, lonely, sentimental, wise, bingo, retired, etc.)
- The other group received different neutral words

Prediction and Measurement

- Participants primed with elderly concept will walk more slowly out of the room to the elevator when they leave the experiment
- The DV is walking speed
- A confederate who appears to be sitting in a waiting room uses a stopwatch to measure time to walk from door to elevator

Result

Results

Experiment 2a. A t test was computed to ascertain the effect of the priming manipulation on walking speed. Participants in the elderly priming condition ($M = 8.28$ s) had a slower walking speed compared to participants in the neutral priming condition ($M = 7.30$ s), $t(28) = 2.86$, $p < .01$, as predicted.

Experiment 2b. In the replication, analyses revealed that participants in the elderly priming condition ($M = 8.20$ s) again had a slower walking speed compared to participants in the neutral priming condition ($M = 7.23$ s), $t(28) = 2.16$, $p < .05$. Thus, across both studies, passively activating the elderly stereotype resulted in a slower walking speed (see Figure 2).

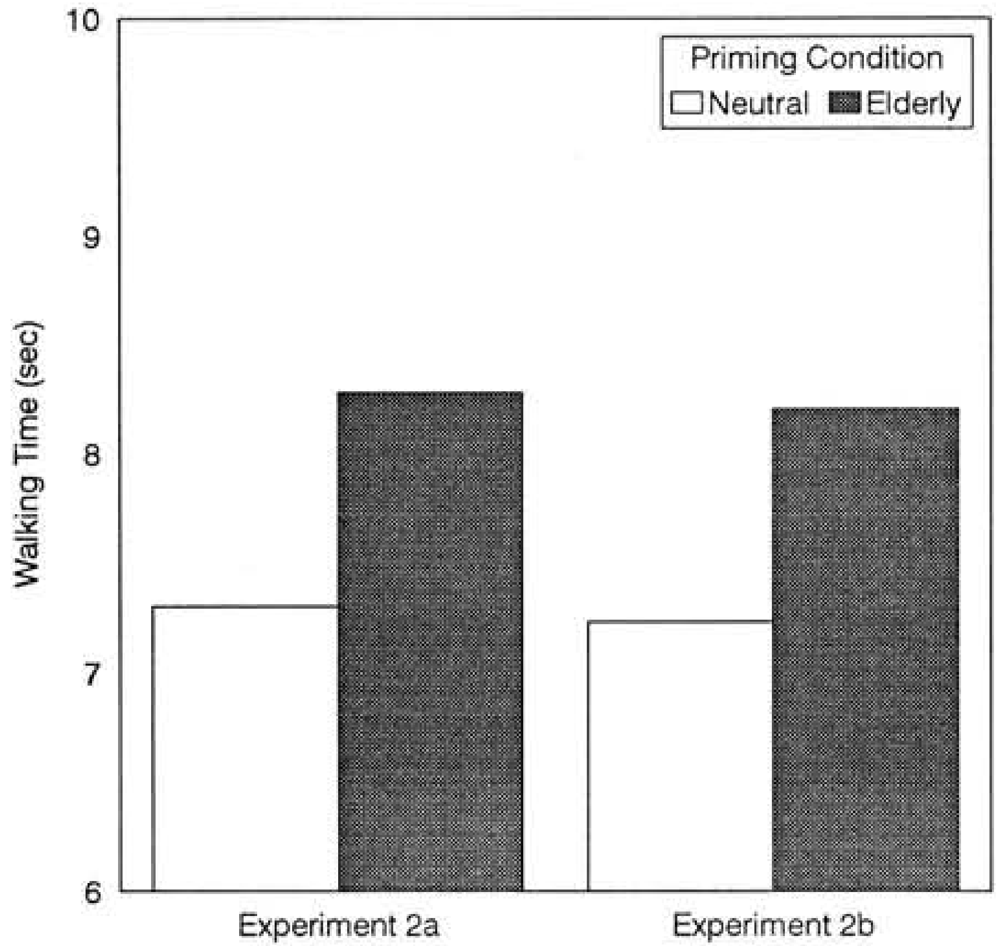


Figure 2. Mean time (in seconds) to walk down the hallway after the conclusion of the experiment, by stereotype priming condition, separately for participants in Experiment 2a and 2b.

Inference

- Positive support for their hypothesis
- Simple exposure to cues associated with stereotypes can prime behavior to act in accordance with those stereotypes

OPEN ACCESS Freely available online

PLoS one

Behavioral Priming: It's all in the Mind, but Whose Mind?

Stéphane Doyen[1,2,3]*, Olivier Klein[2], Cora-Lise Pichon[1], Axel Cleeremans[1]

1 Consciousness, Cognition and Computation Group, Université Libre de Bruxelles, Brussels, Belgium, **2** Social Psychology Unit, Université Libre de Bruxelles, Brussels, Belgium, **3** Social and Developmental Psychology Department, University of Cambridge, Cambridge, United Kingdom

Abstract

The perspective that behavior is often driven by unconscious determinants has become widespread in social psychology. Bargh, Chen, and Burrows' (1996) famous study, in which participants unwittingly exposed to the stereotype of age walked slower when exiting the laboratory, was instrumental in defining this perspective. Here, we present two experiments aimed at replicating the original study. Despite the use of automated timing methods and a larger sample, our first experiment failed to show priming. Our second experiment was aimed at manipulating the beliefs of the experimenters: Half were led to think that participants would walk slower when primed congruently, and the other half was led to expect the opposite. Strikingly, we obtained a walking speed effect, but only when experimenters believed participants would indeed walk slower. This suggests that both priming and experimenters' expectations are instrumental in explaining the walking speed effect. Further, debriefing was suggestive of awareness of the primes. We conclude that unconscious behavioral priming is real, while real, involves mechanisms different from those typically assumed to cause the effect.

Experiment 1

- Replicate Bargh et al. with an improved design

Experiment 1

- Large n = 120 (psychology students)
- 4 experimenters
- French version of Bargh’s scrambled sentence task (Primed old vs. No prime)

Experiment 1

- **Fully double-blind**
- Experimenters did not know whether participants were in prime or no prime conditions
- Participants were randomly assigned to each condition

Experiment 1

- **Objective measure of walking time**
- Infrared sensors were used to measure walking time
- Measured walking time into the experiment, and exiting the experiment

- **More comprehensive measures of awareness**

1-Awareness of the prime was assessed by asking participants increasingly specific questions about the presence of primes in the scrambled sentences. One particular question was a four-alternative forced-choice task (4-AFC) in which participants were required to choose between four pictures representing four social categories that could have been used as primes (i.e.: athletic person, Arabic person, handicapped person and elderly).

2-Awareness of the primed behavior was assessed by inviting participants to indicate how much they thought their walking speed had increased or decreased relative to their regular walking speed (responses were provided using an on-screen slider along a scale ranging from 0 to 100, with 50 representing their regular walking speed).

3-Awareness of the link between the prime and the primed behavior was assessed directly by asking participants whether they had noticed any link between the scrambled sentences task and their walking speed as they had left the room.

Results

Walking speed. In this analysis, we used participants' walking speed as they entered the experiment room, (i.e., before priming) as a covariate. The results show no significant difference between the Prime ($M = 6.27''$ $SD = 2.15$) and the No-Prime group ($M = 6.39''$ $SD = 1.11$) in the time necessary to walk along the hallway after the priming manipulation ($F(1, 119) < 1$, $\eta^2 = .01$).

Awareness of the prime. No participant reported having noticed anything unusual about the scrambled sentences task. Four participants (6.66%) in the Prime condition reported that the sentences were related to the stereotype of old persons. We tested the distribution of forced choices for both conditions using a two independent sample chi-squared test: the Prime group chose the picture of the old person above chance level whereas the No prime group was equally likely to choose all four pictures ($\chi 2$ (1) = 5.43, p = 0.023).

Awareness of the effect. We computed the deviation of the slider from the initial position. No significant difference was found between the Prime (M = 1.7) and the No-Prime (M = 2.68) groups (t (1, 119) < 1, d = 0.022).

Awareness of the link. 96% of participants reported that they could not establish a link between the scrambled sentences task and their subsequent behavior.

No experimenter reported having entertained any specific expectation about participants' behavior.

Conclusions

- Failure to replicate Bargh et al. with double-blind, and objective measures of walking time

Experiment 2

- Why did Bargh et al. get an effect in the first place?
- Experimenter bias
- Manual chronometry

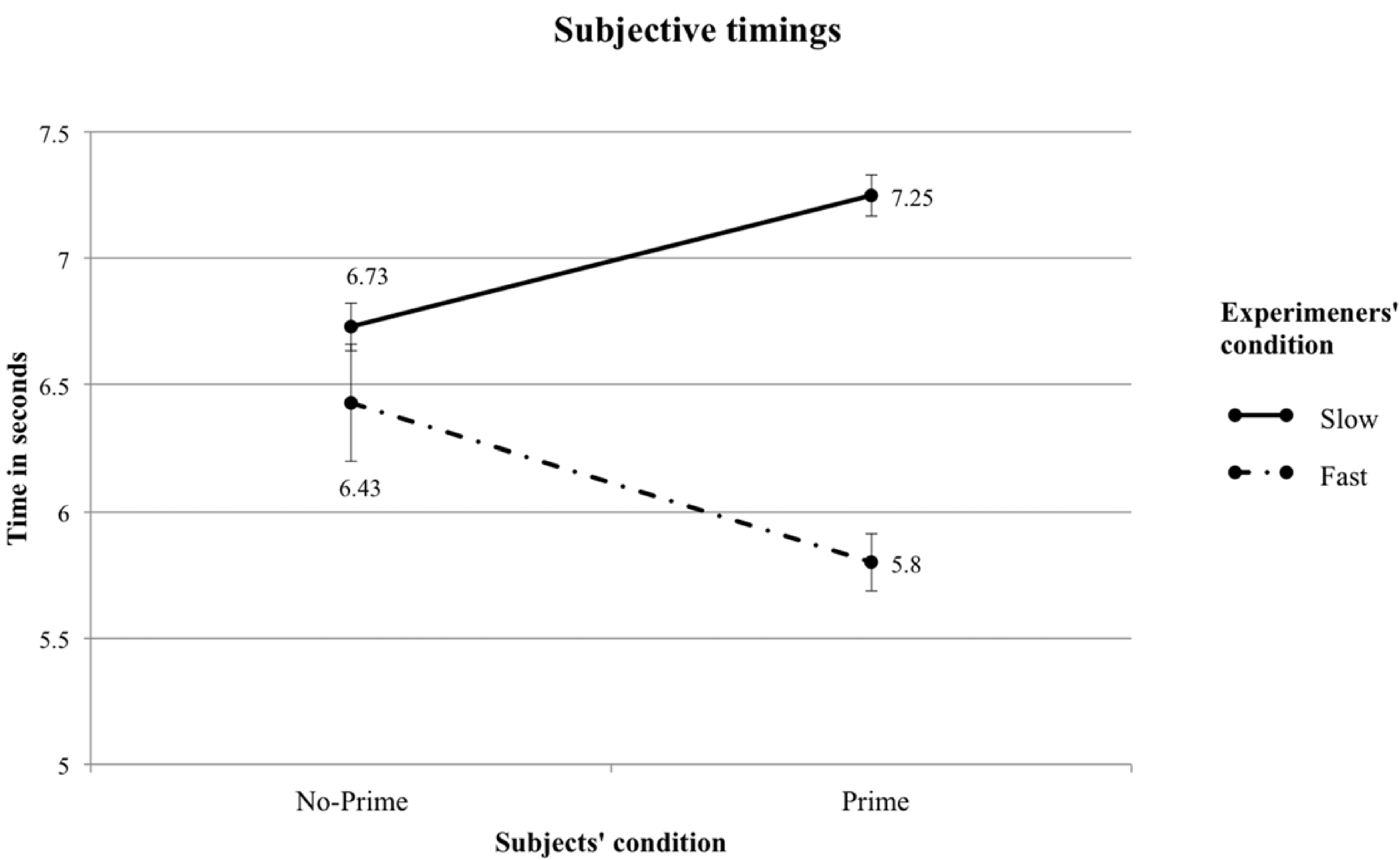
Same as before but,

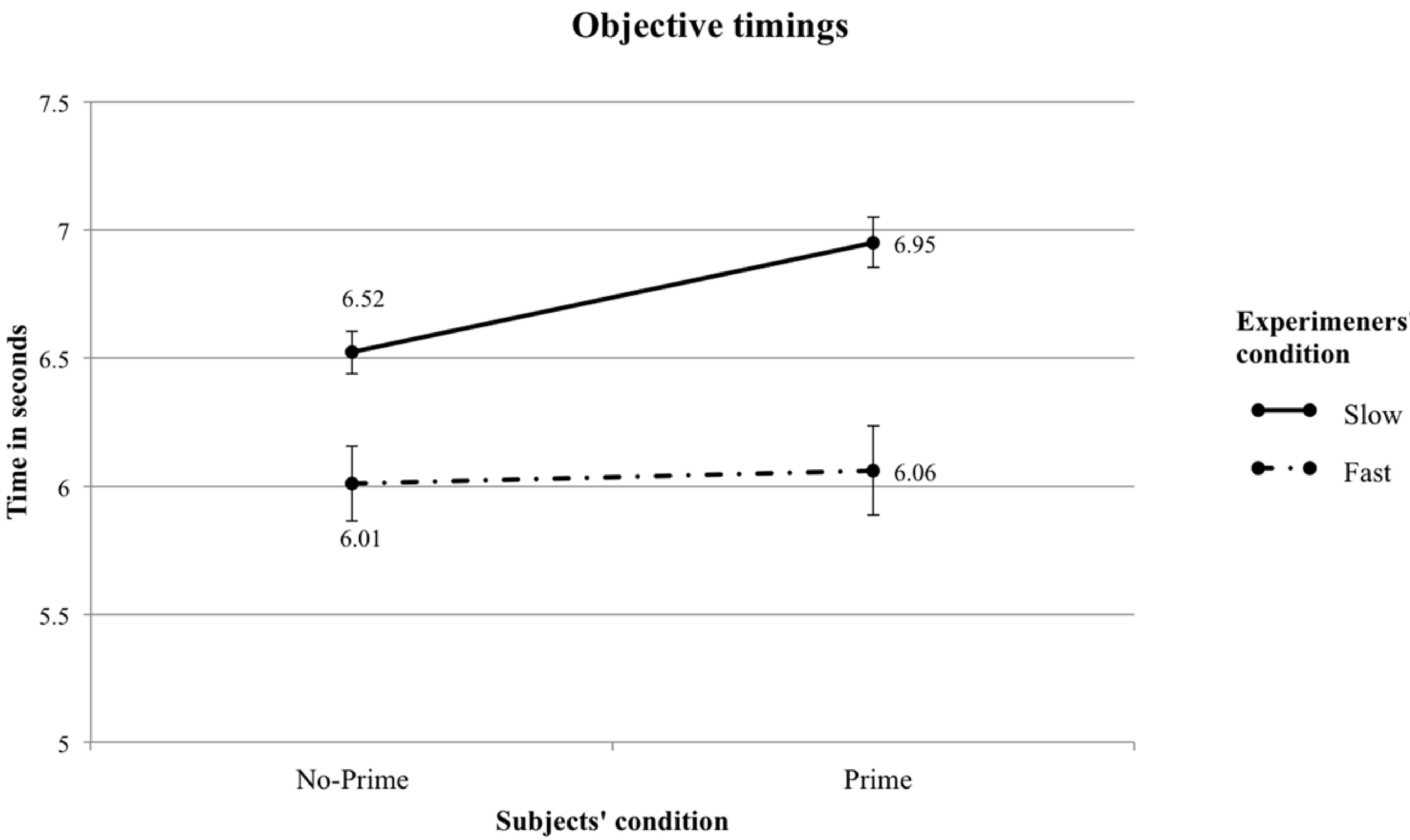
Participants. 50 new participants (age range 18–30 years, average 21.3) took part in Experiment 2. 10 participants (age range 20–24 year, average 21.7) were also recruited as experimenters. This experiment was approved by the Ethics Committee of the Department of Psychological Sciences of the University of Brussels.

Experimenters' expectations. Experimenters' expectations about primed participants' behavior were manipulated. One half of the experimenters were told that the primed participant would walk slower as result of the prime (i.e.: "Slow" condition), the other half were told that the participants would walk faster (i.e.: "Fast" condition). Each individual experimenter tested 5 participants randomly assigned to the Prime or the No-Prime condition. Experimenters' expectations were shaped through a one hour briefing and persuasion session prior to the first participant's session. In addition, the first participant whom an experimenter tested was a confederate who had been covertly instructed to act in the manner expected expected by the experimenter. Crucially, participants' condition (i.e.: Prime or No-Prime) was made salient to the experimenter. As in Experiment 1, the experimenters were instructed to follow a strict script to standardize their interactions with the participants and not to reveal to the participant the expected result of the prime on their subsequent behavior.

Experimenters' beliefs about the experimental set up and effect of the prime on the participants were assessed upon completion of their testing session.

Timings. As in Experiment 1, we used the infrared gate to measure participants' walking speed (hereafter, "objective timing"). However, the equipment was presented to the experimenters as experimental hardware that was so far unreliable and that needed further calibration. Therefore, we also asked the experimenters to measure participants' walking time using a manual stopwatch (hereafter, "subjective timing").


Subjective timings
Time in seconds
7.5
7
6.5
6
5.5
5
7.25
6.73
6.43
5.8
No-Prime
Prime
Subjects' condition
Experimeners' condition
Slow
Fast


Objective timings
7.5
7
6.5
6
5.5
5
Time in seconds
6.52
6.95
6.01
6.06
No-Prime
Prime
Subjects' condition
Experimeners' condition
Slow
Fast

Lecture #3

Read Chapter 3 -Measurement

Kinds of Measurements

Measurement Scales

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Kinds of measurements

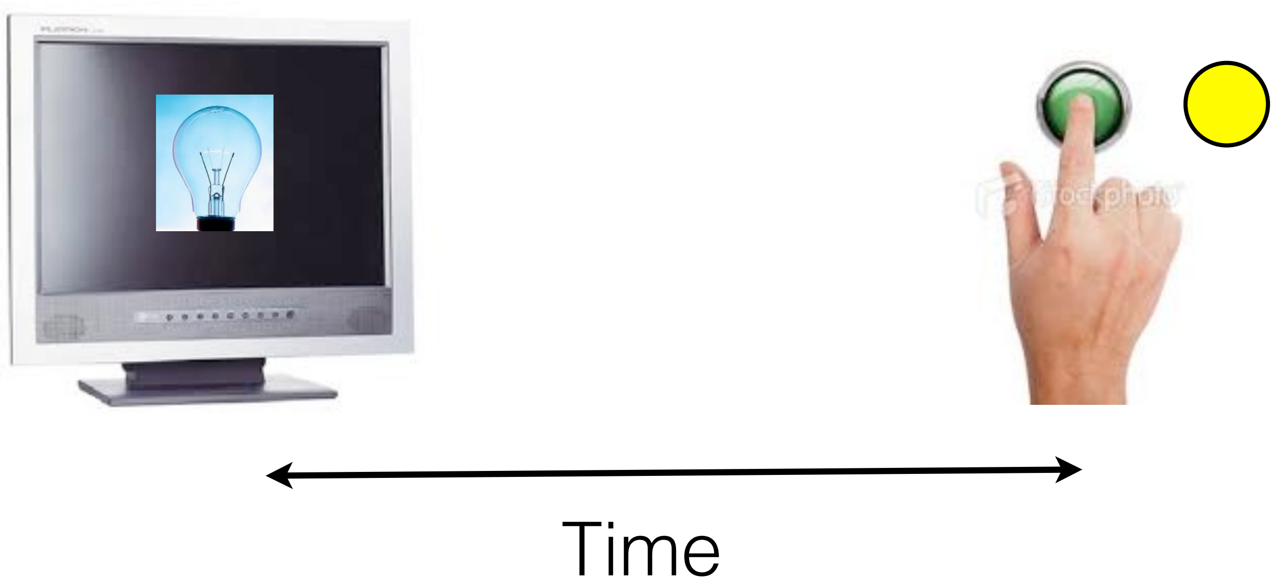
Reaction time	Heart Rate
Accuracy	Skin conductance
Verbal Report	Blood pressure
Likert Scales	Video recordings
Eye Gaze	Audio recordings
Kinematics	Performance data
ERPs	Writing...
Fmri	….
Physiological measures	…

Reaction time

Time elapsed between presentation of a stimulus and a subsequent response to that stimulus

Accuracy

Classification of responses into correct vs. incorrect



Verbal report

Asking people to explicitly communicate their behavior to the experimenter.

Used in Field work (e.g., keeping a journal)

Debriefing of participants after experiment...(did you notice this or that?)

Nisbett & Ross

Verbal reports are highly stigmatized. People often make up stories that do not relate to their actual behavior.

Likert Scales

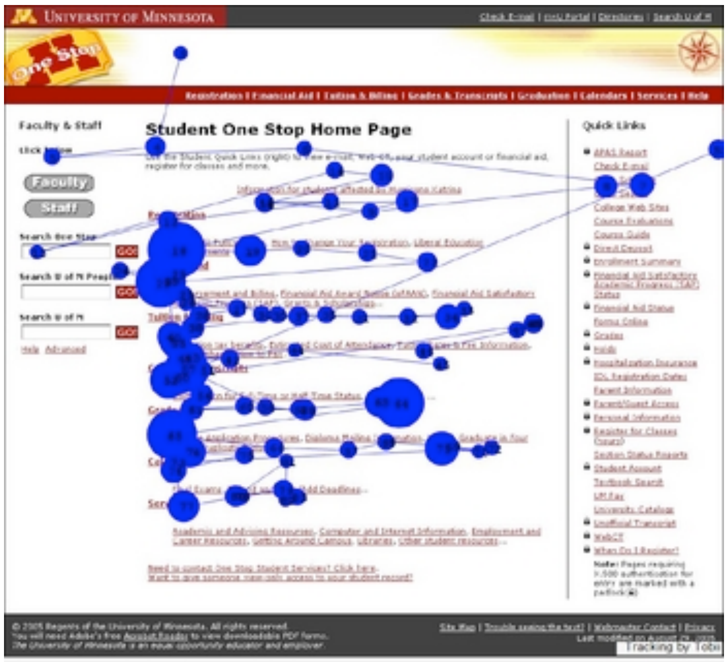
Please rate on a scale of 1-7, how much do you think, prefer, believe, this or that?

Useful way to convert verbal report into a quantitative variable

Susceptible to framing effects...

Eye Gaze

Eye movement tracking data



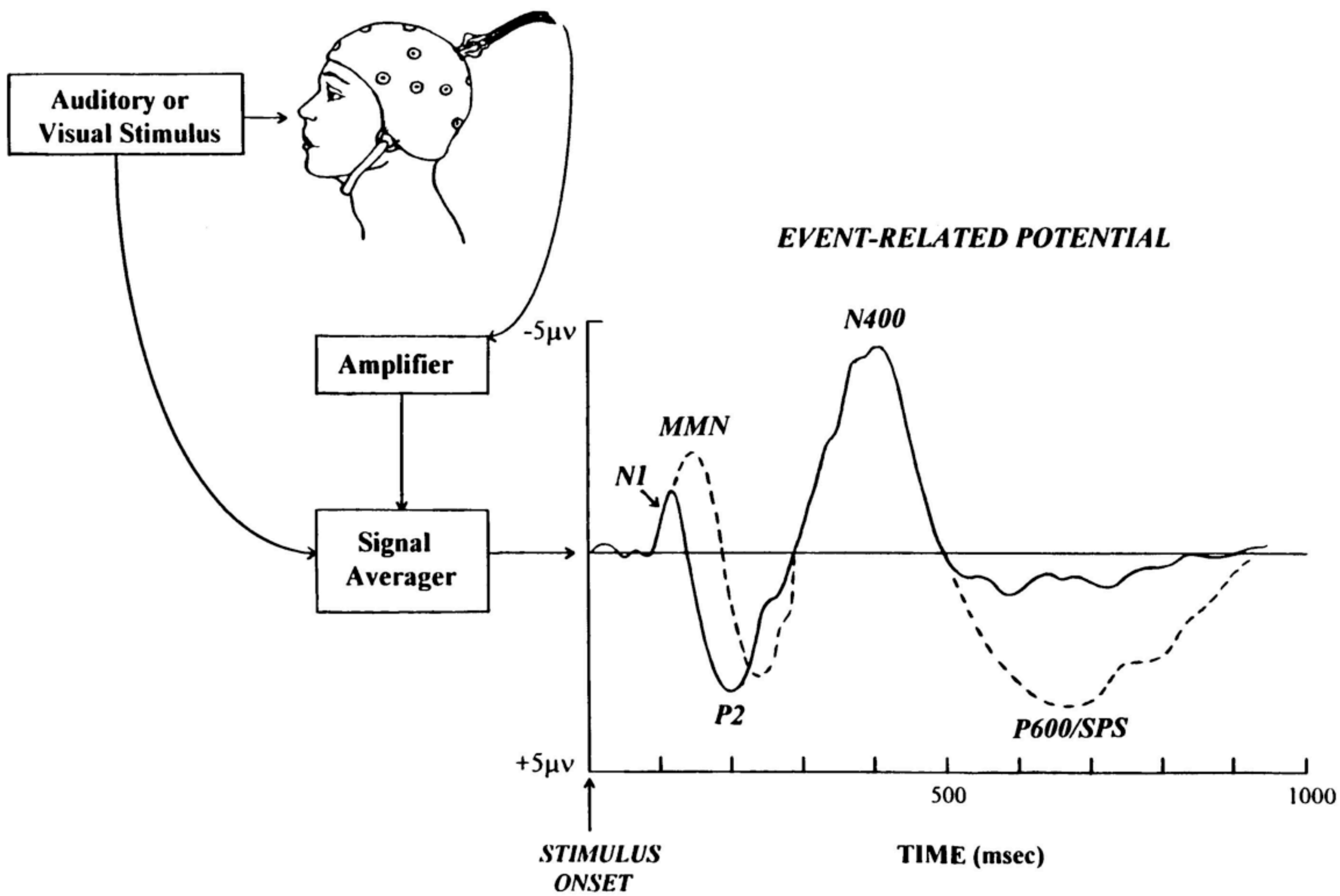
Kinematics

Data relating to muscle and joint movement, tension, rotation etc.

http://www.biomotionlab.ca/Demos/BMLwalker.html

Event-related potentials

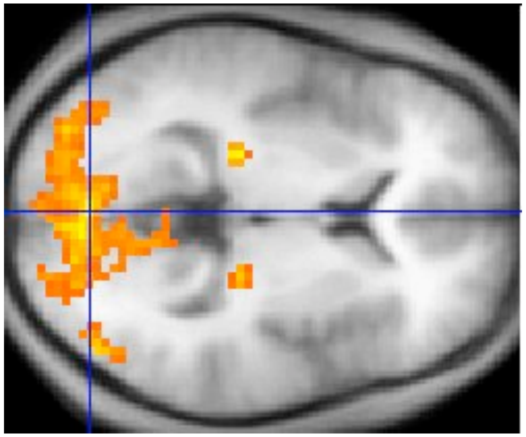
Measured changes in scalp electrical potential. Low spatial resolution, but high temporal resolution



Functional magnetic resonance imaging

Measured changes in BOLD (blood oxygen level dependence) response, otherwise known as the hemodynamic response, or change in blood flow that is related to neuronal activity

Low temporal resolution
High spatial resolution



Physiological Measures

Measurable bodily changes that may be functionally related to a psychological process

Heart Rate
Skin
Conductance
Sweating
Blood pressure
eye blink rate
etc.

Lecture #3

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Measurement scales

How do we assign numbers to behavior?

- Nominal scales - Categorical
- Ordinal scales - represent rank only
- Interval scales - rank and equal intervals
- Ratio scales - rank, equal intervals, and zero means nothing

Why this matters? The kind of numbers you use, has implications for the kinds of statistics that you can to interpret your data

Nominal scales

Assigning numbers to different categories

True = 1, False = 0
Right = 1, False, = 0

Group A = 1, Group B = 2

Numbers have no order information
(numbers just represent different entities, not bigger or smaller entities)

Ordinal scales

Numbers used to make ranks, or show the order of smallest to largest, most to least, best to worst etc.

List your top ten favorite youtube videos...

Ordinal scales have no information about magnitude differences between ranks

(E.g., How much better do you like your number 1 video than your number 2).

Interval scales

Numbers represent order (rank) with equal interval (e.g., the difference between 1 and 2 = the difference between 2 and 3)

Zero is just another value (not the absence of something)

Temperature has 0 degrees fahrenheiht, but it's just another interval on the scale, not the complete absence of heat.

Ratio scales

Numbers represent order (rank) with equal interval (e.g., the difference between 1 and 2 = the difference between 2 and 3)

Zero is MEANS COMPLETE ABSENCE

A weight of 0, means completely weightless

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The psychological construct

The underlying psychological process causing the measurable behavior.

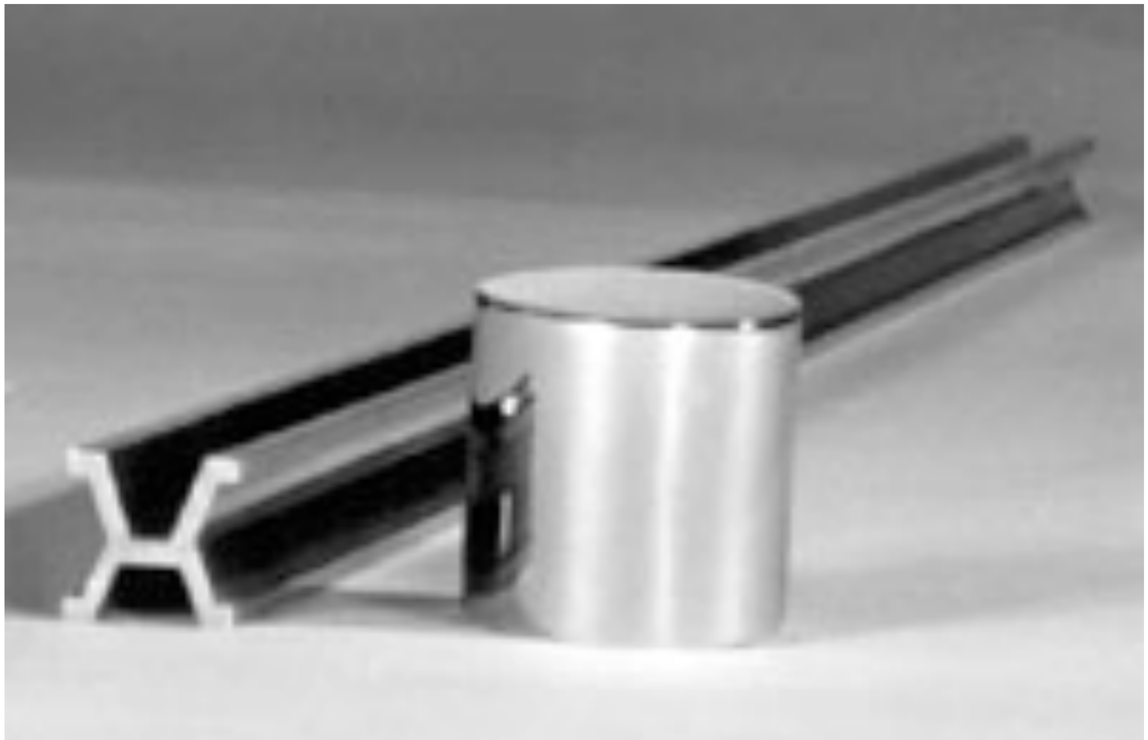
Construct	Behavior to measure
Intelligence	performance on IQ test
Memory	free recall a list of words
Honesty	amount of candy taken
Attention	Stroop effect

Operational definitions

The terminology of science should be totally objective and precise...

In psychology it is important to develop clear definitions and terms that explain what we are attempting to measure

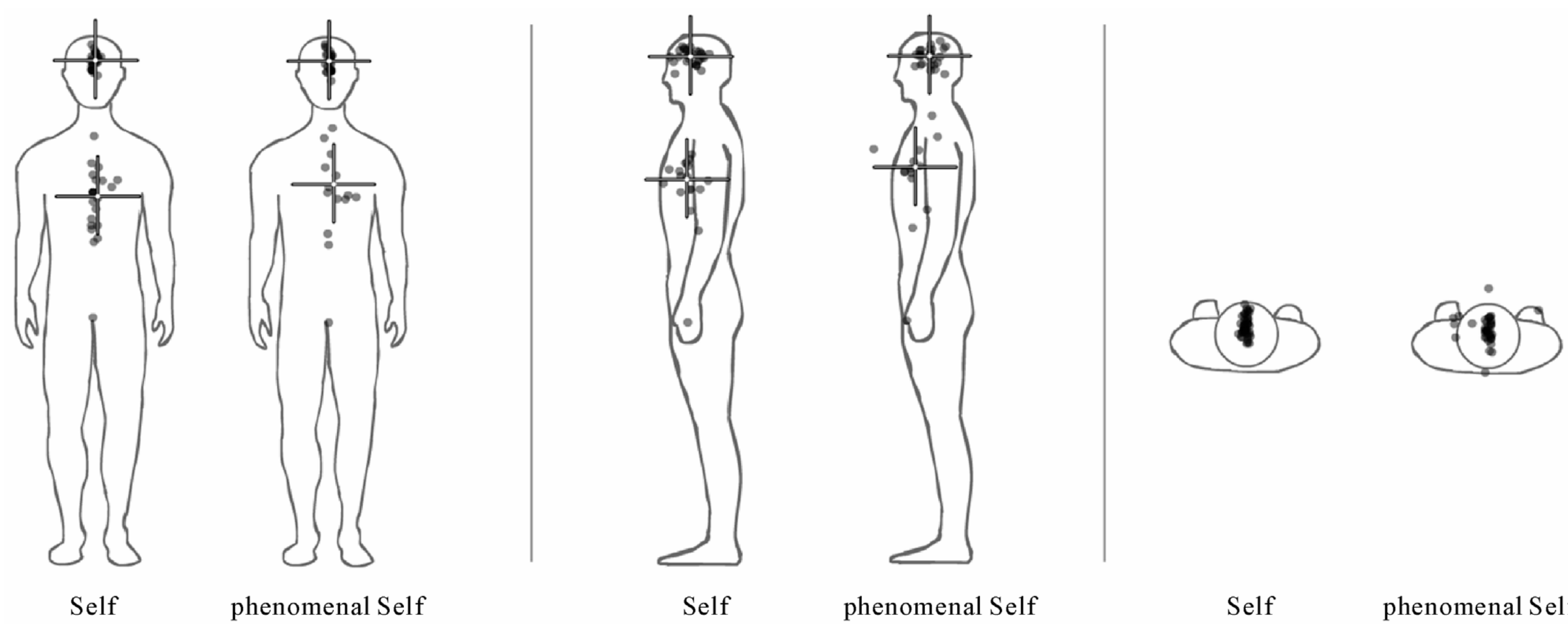
Meter stick

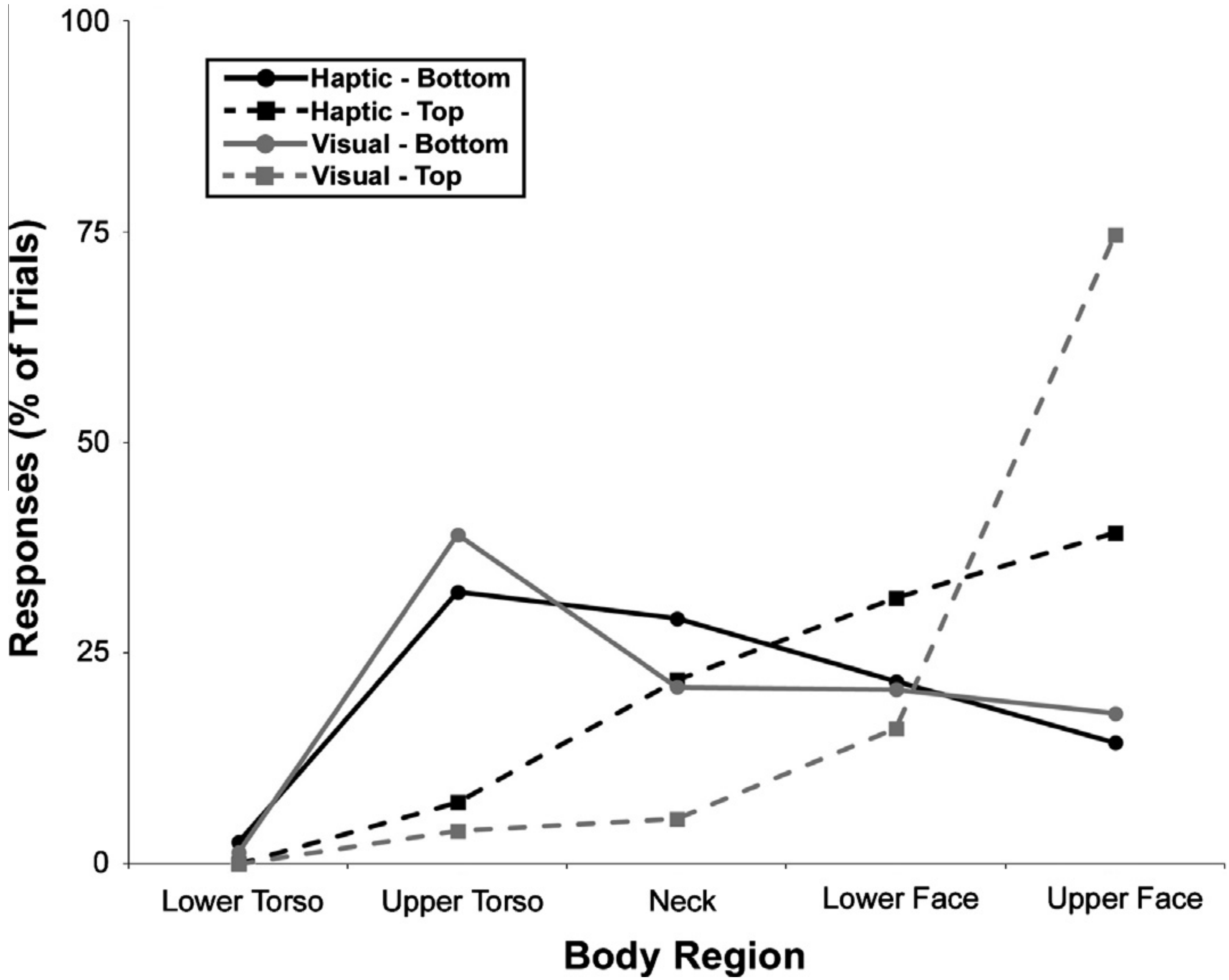


Adopted in 1875, original prototype created 1889, remains preserved in Sevres, France

Where is my mind?

- The sense of self is a psychological construct
- Can we measure the location of the self? Where do people feel they are coming from?


Self
phenomenal Self
Self
phenomenal Self
Self
phenomenal Self


100
75
50
25
0
Responses (% of Trials)
Haptic - Bottom
Haptic - Top
Visual - Bottom
Visual - Top
Lower Torso
Upper Torso
Neck
Lower Face
Upper Face
Body Region

Take homes

- Creating operational definitions that connect our measurement to psychological constructs help us understand what our measurements actually mean

- Firmly connecting our measures to real psychological phenomena is difficult, and we will discuss this issue throughout the course.

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Evaluating measures

- Reliability - is our measure free from error?
- Validity - what does our measure actually measure?

Reliability

- Reliability refers to the **consistency of a measure**
- A measure is high in reliability if it produces similar results under consistent conditions
- For example, measures of height are generally high in reliability, because they are consistently the same every time you measure someone's height
- Measures of reaction time are lower in reliability because they often change from one measurement to the next

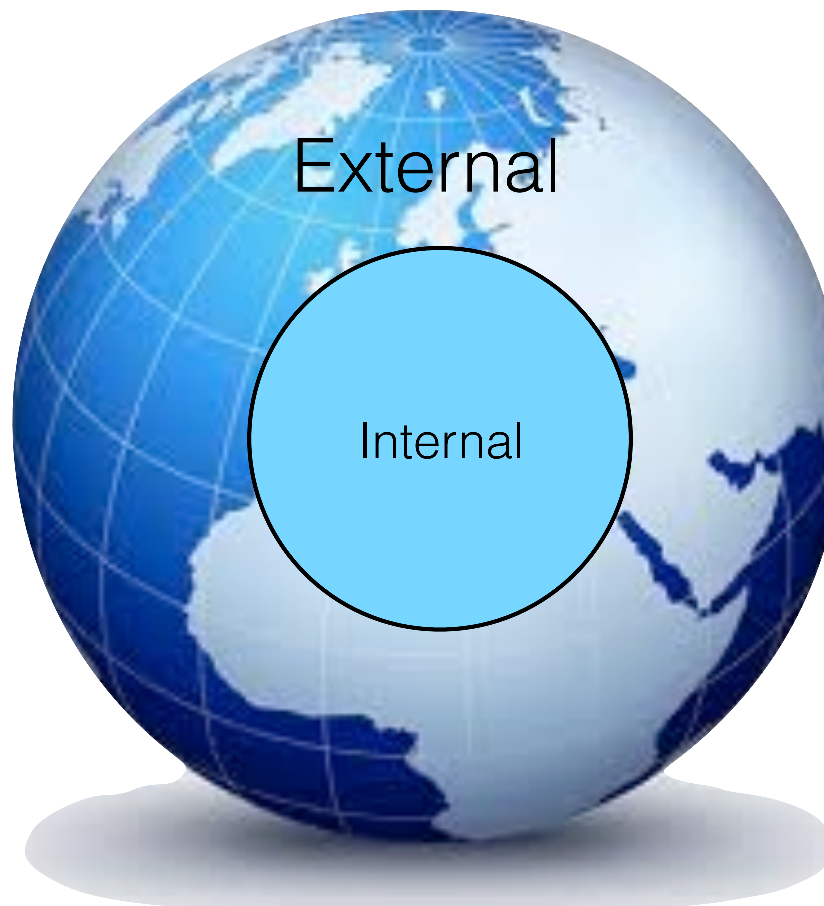
Measurement error reduces reliability

- Where does measurement error come from?
    - Malfunctioning tools
    - Human error in data collection/storage/analysis
    - Imprecise tools
    - Random noise
    - People are variable
    - The process of sampling

Validity

Internal validity
Free from measurement error, measure relates to psychological construct

External validity
Measurement or psychological construct relates to real-world phenomena



Read the textbook for an in-depth discussion

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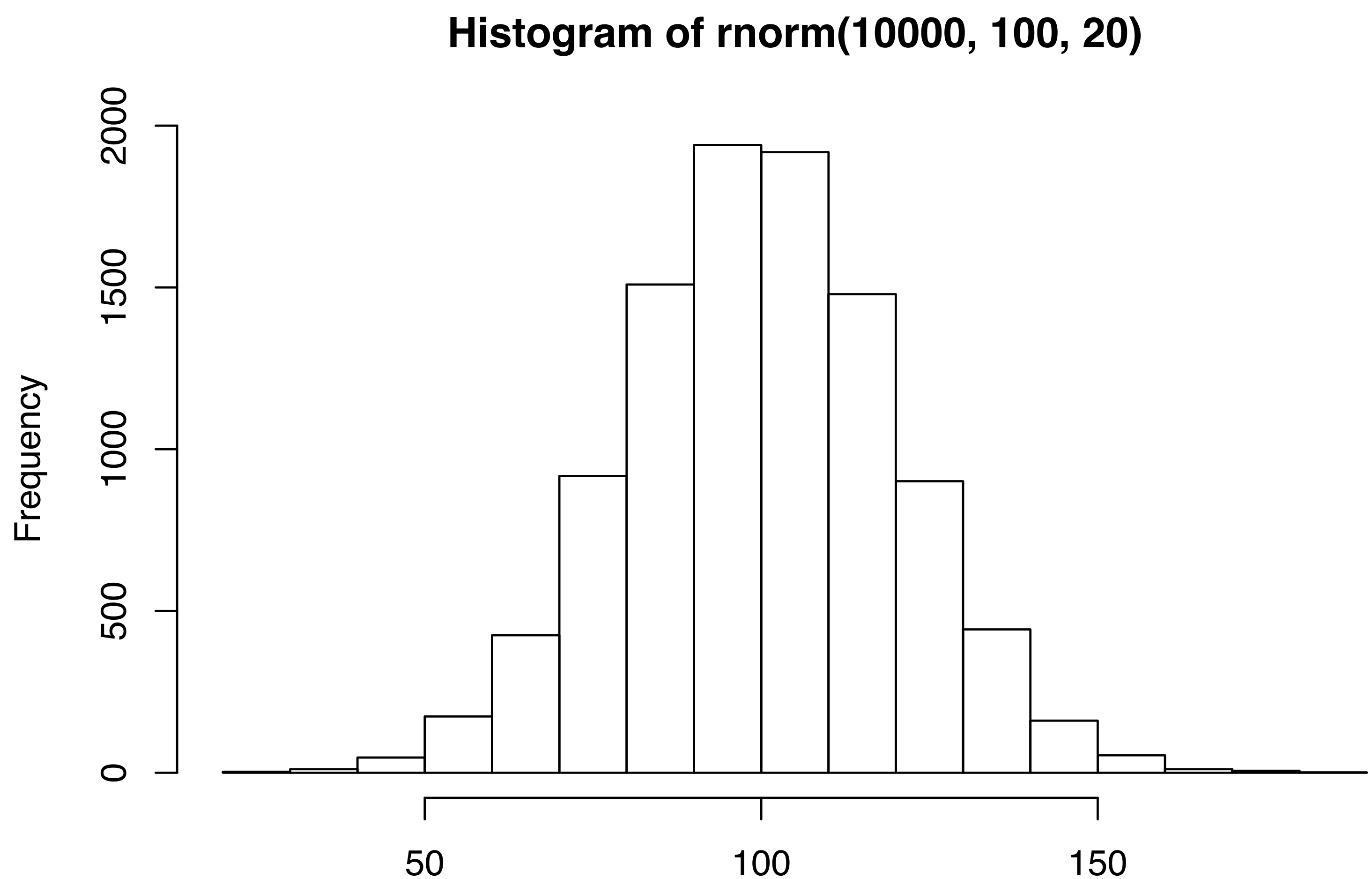
Sampling from distributions

- **What is a distribution?**
- What is a sample?
- What can we expect to happen when we sample (take measurements) from a distribution?
- What can we infer about our sample?

A distribution is a population of scores

The histogram shows that some scores are more likely than others

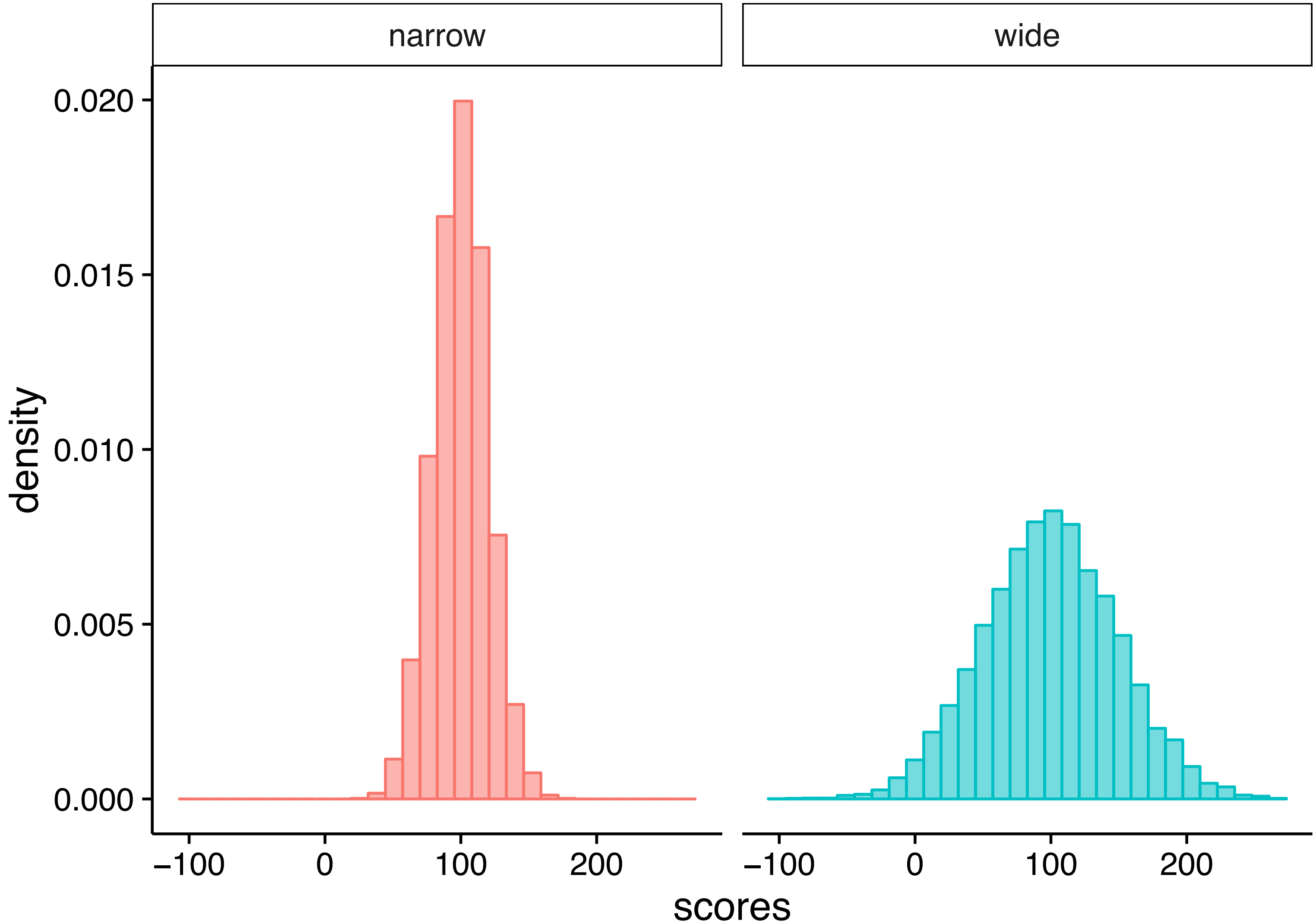


Mean = 100, Standard deviation = 20

Reliability and distributions

Data sampled from narrow distributions will be **more** reliable

Data sampled from wide distributions will be **less** reliable

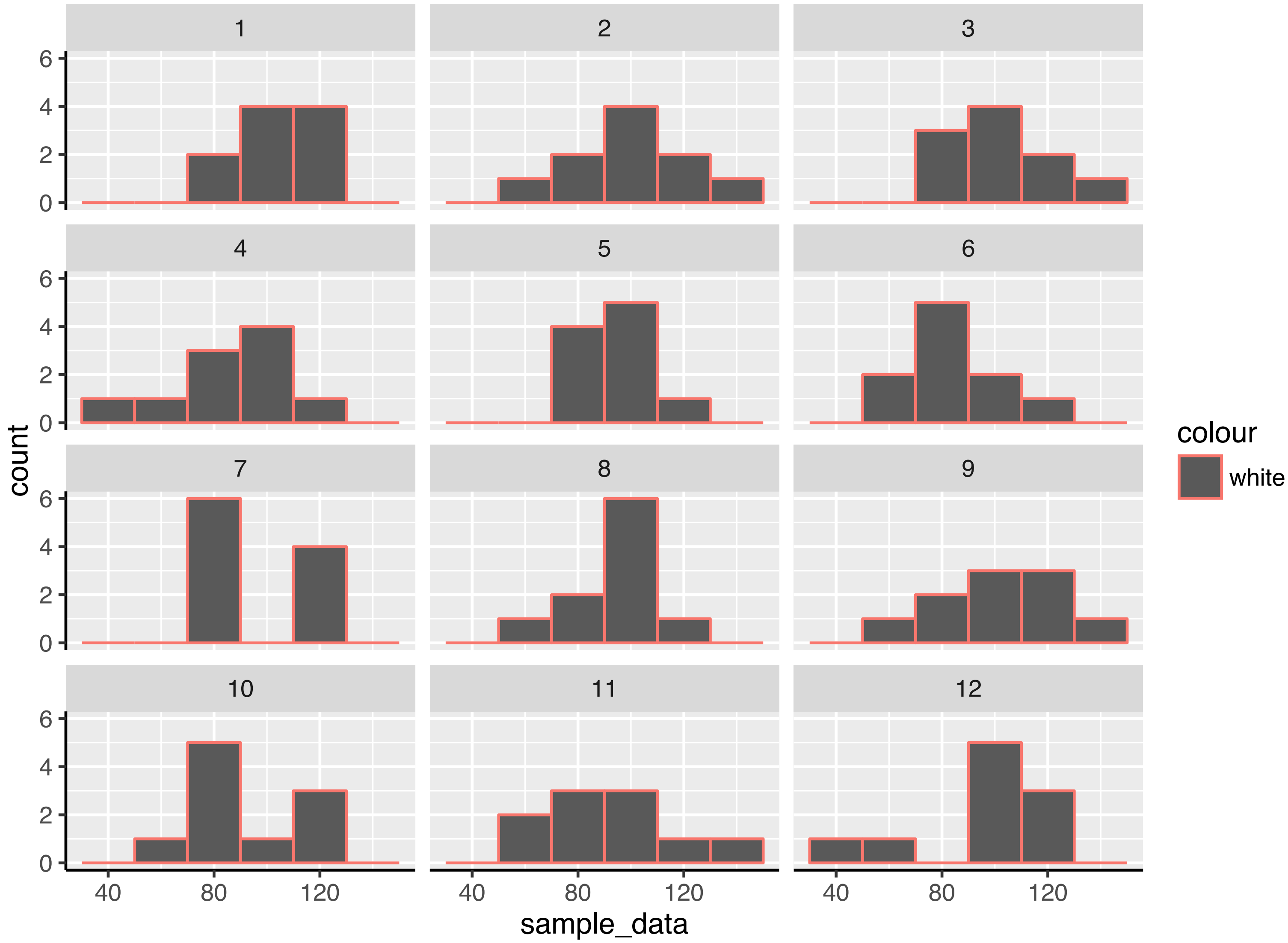


Sampling from distributions

- What is a distribution?
- **What is a sample?**
- What can we expect to happen when we sample (take measurements) from a distribution?
- What can we infer about our sample?

Taking small random samples from the distribution

Each histogram reflects 10 scores sampled from the population

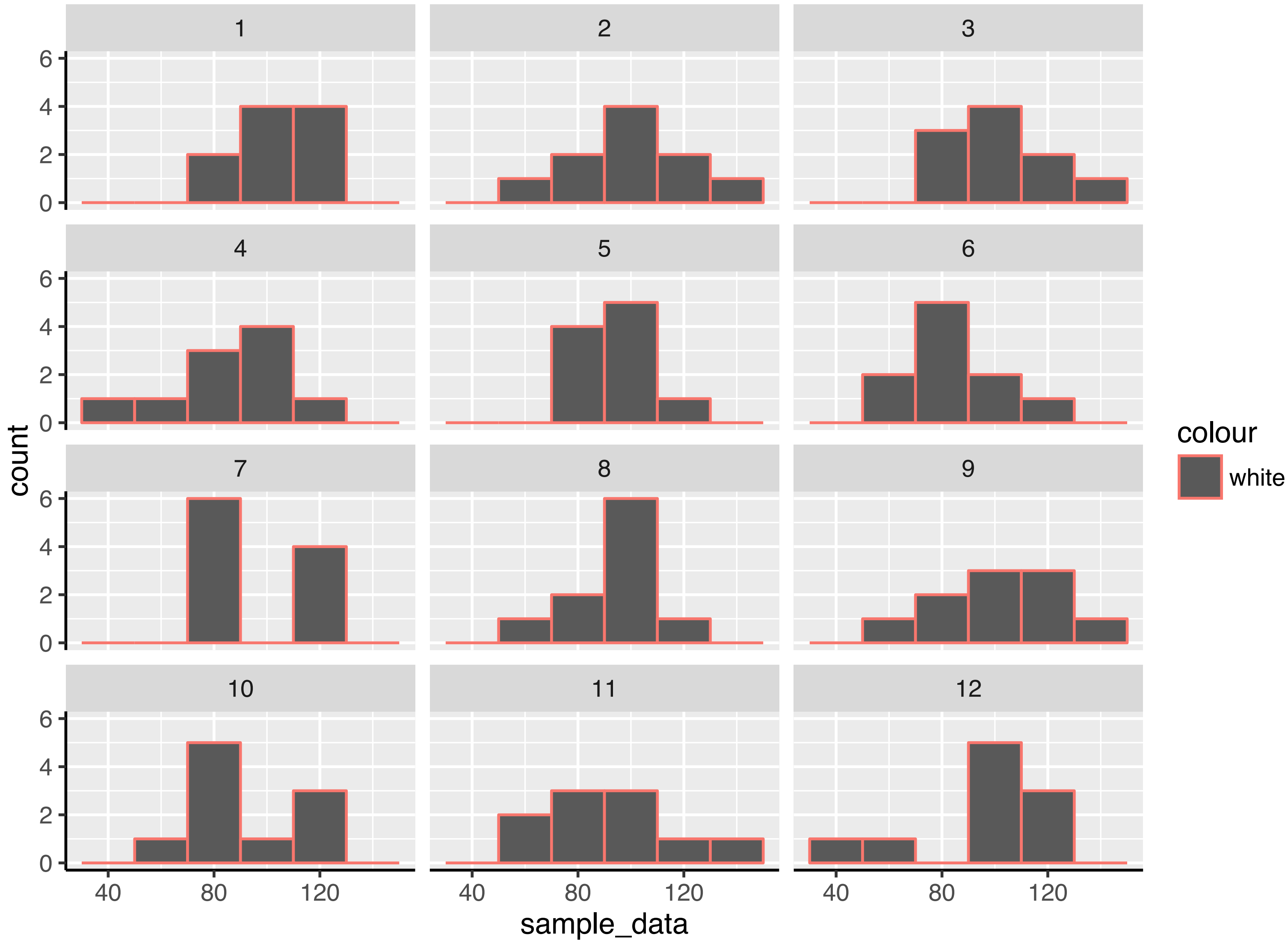


Sampling from distributions

- What is a distribution?
- What is a sample?
- **What can we expect to happen when we sample (take measurements) from a distribution?**
- What can we infer about our sample?

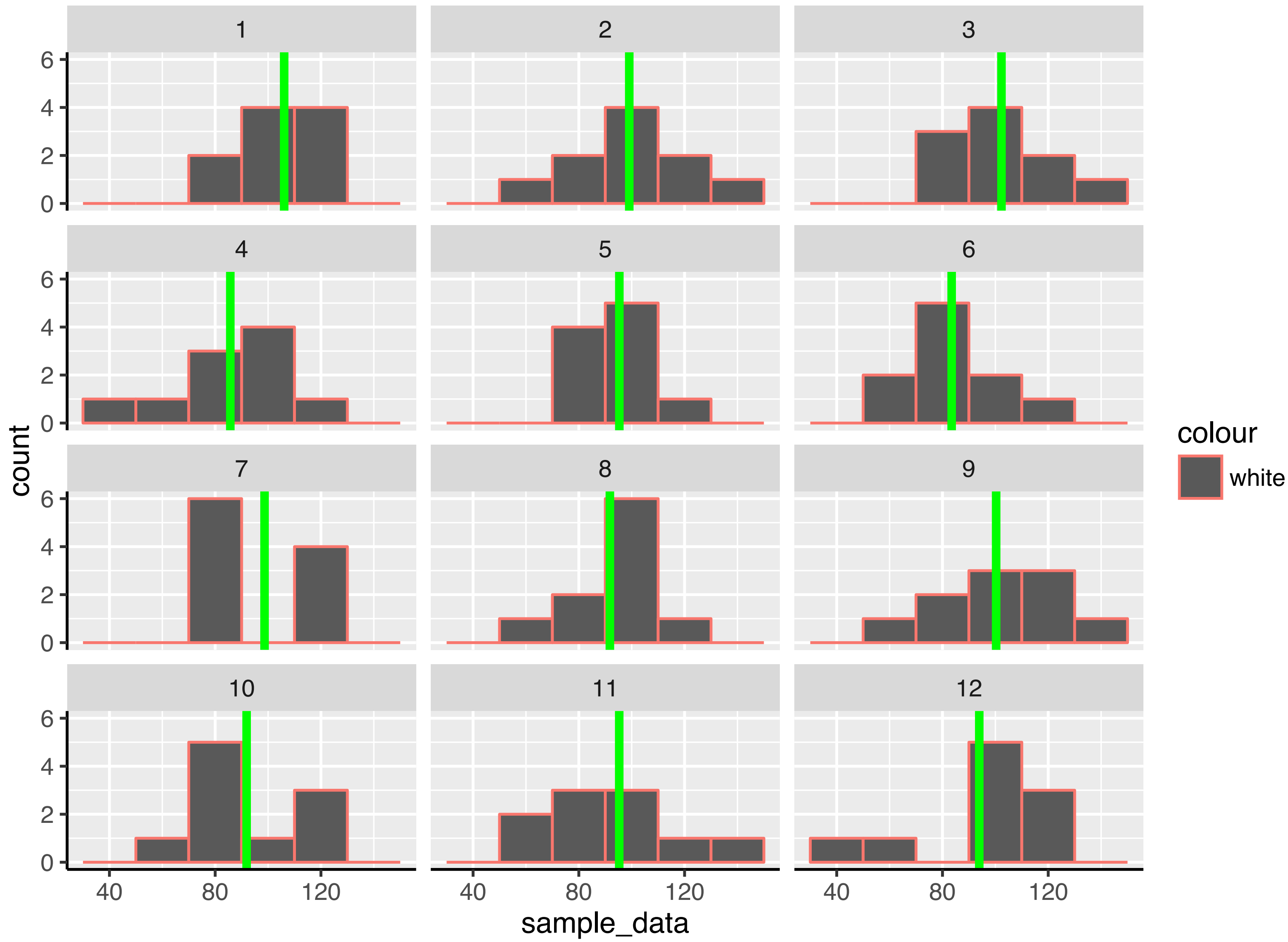
Taking small random samples from the distribution

1. Each sample is different because of random sampling

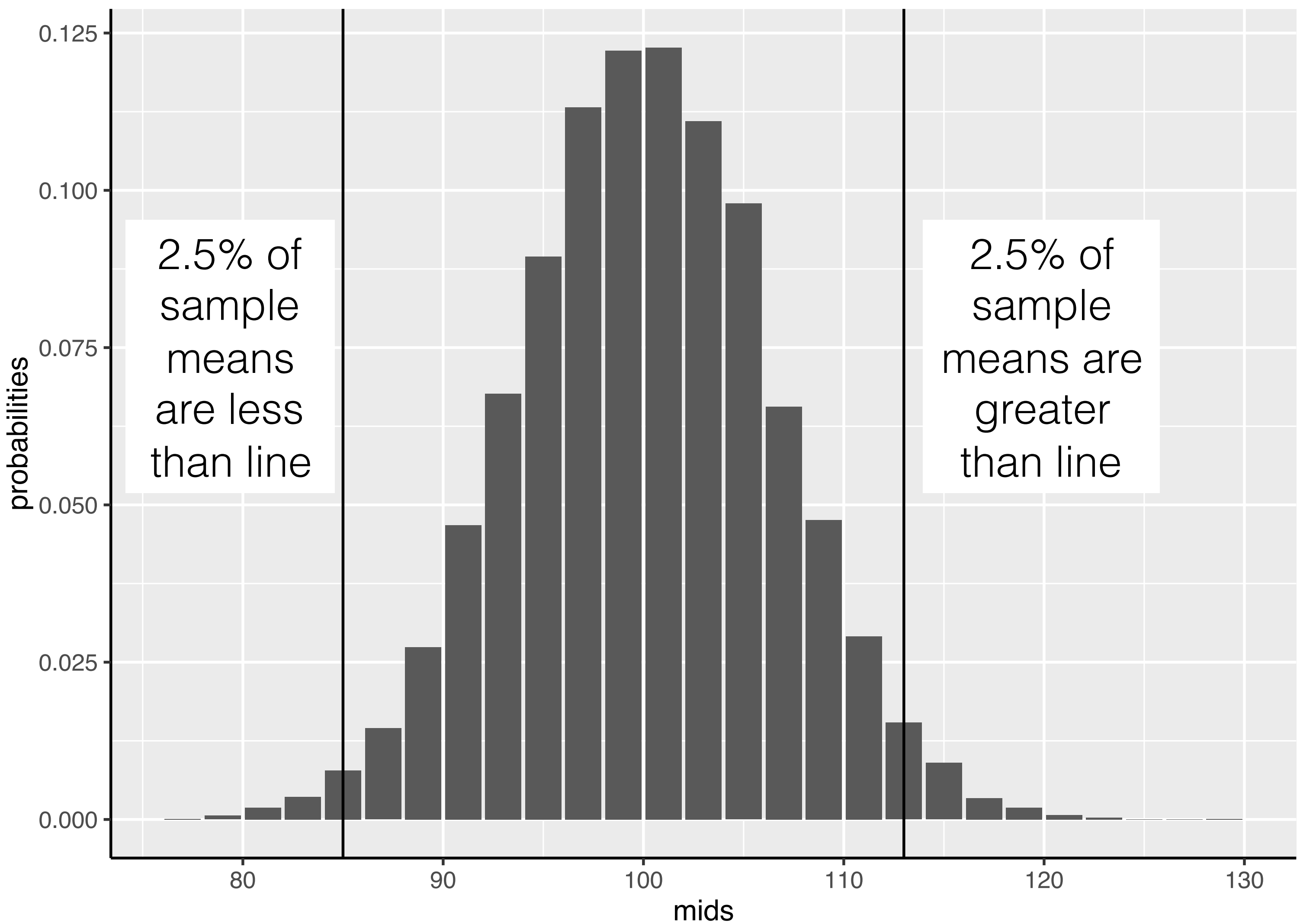


Green line = means of each sample of 10 scores

2. The sample means are close to the population mean, but still distributed around it

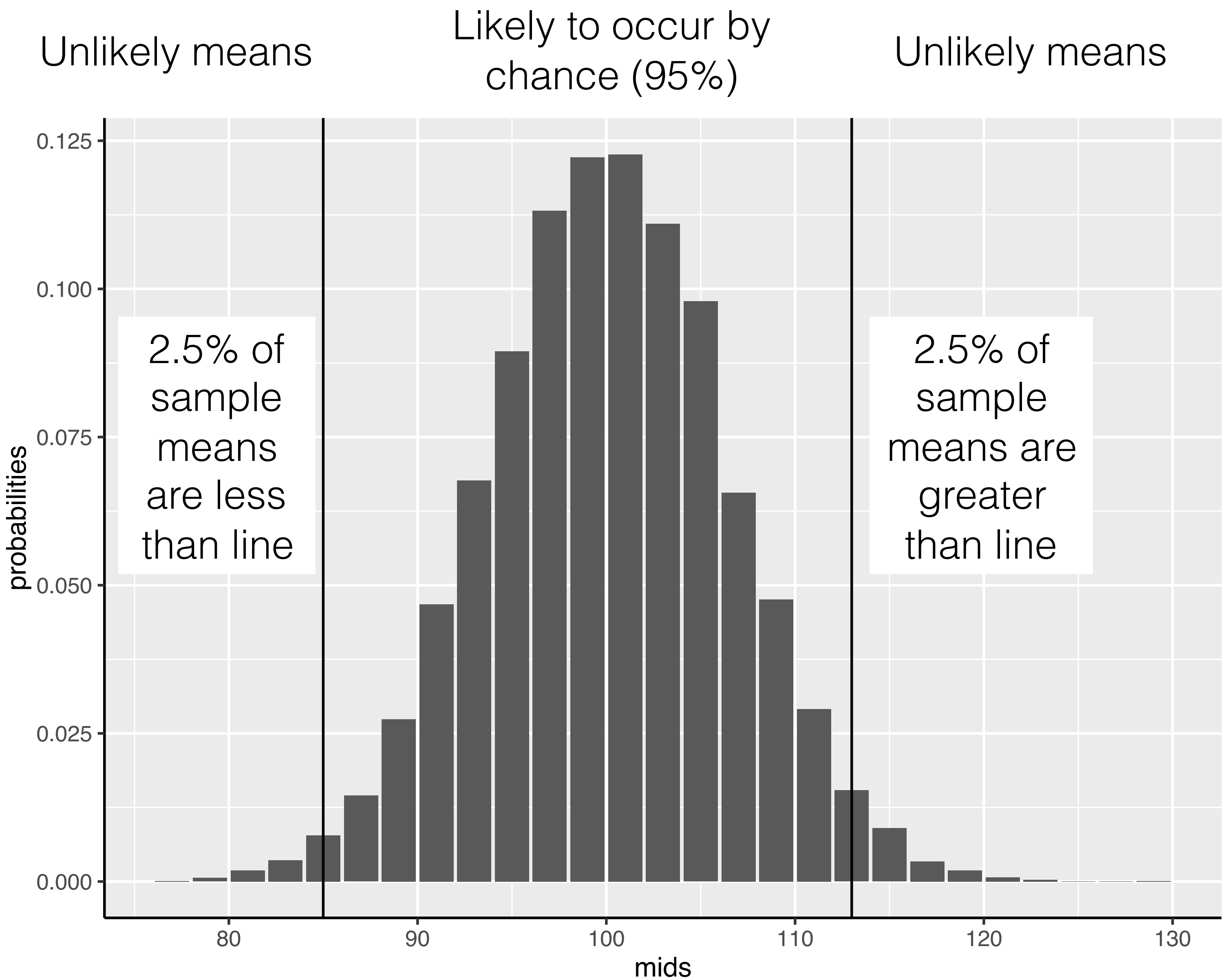


The distribution of the sample means



Histogram of means for each sample (n=10)

We can expect that our sample mean will usually be between these two lines, and rarely outside of these two lines

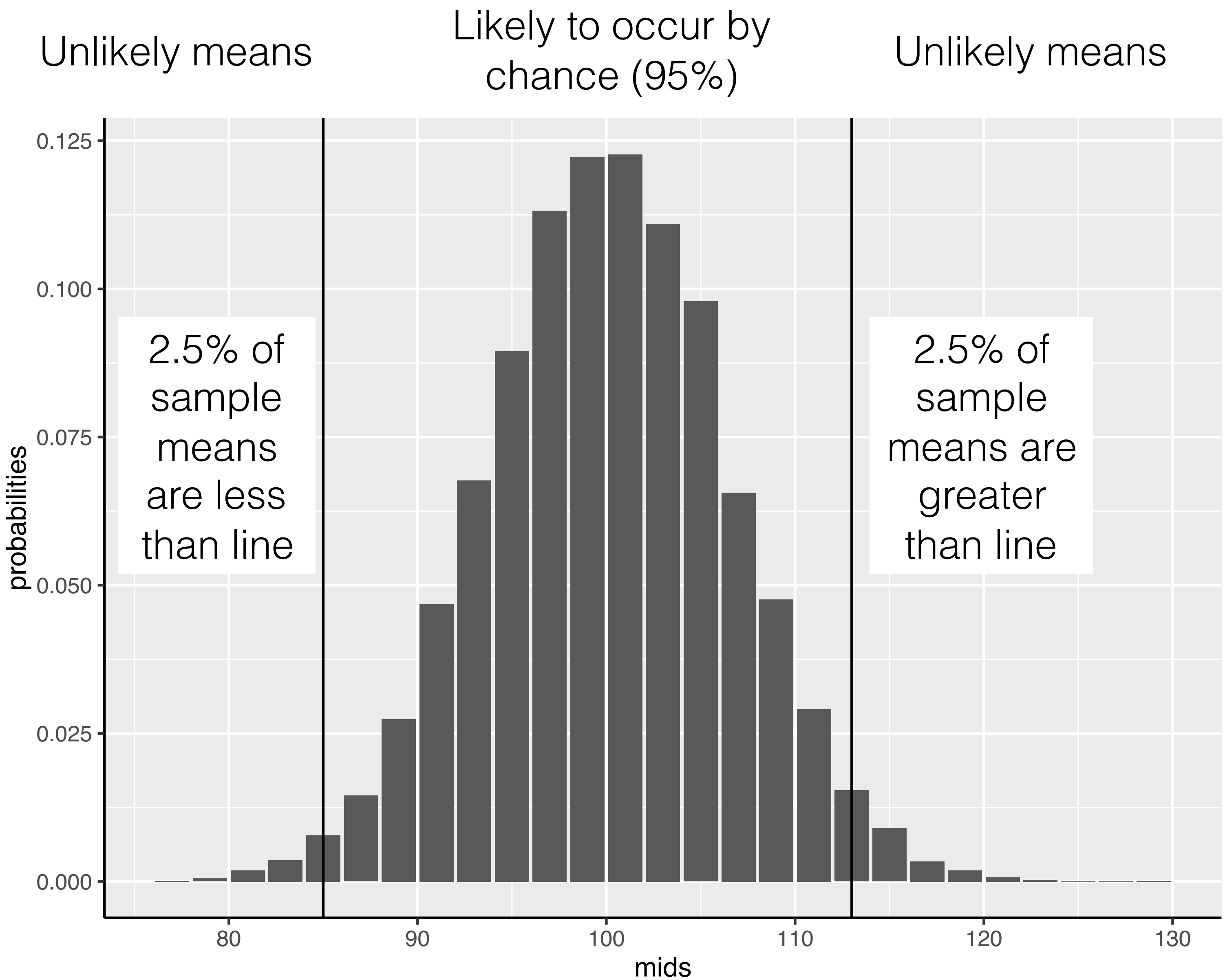


Histogram of means for each sample (n=10)

Sampling from distributions

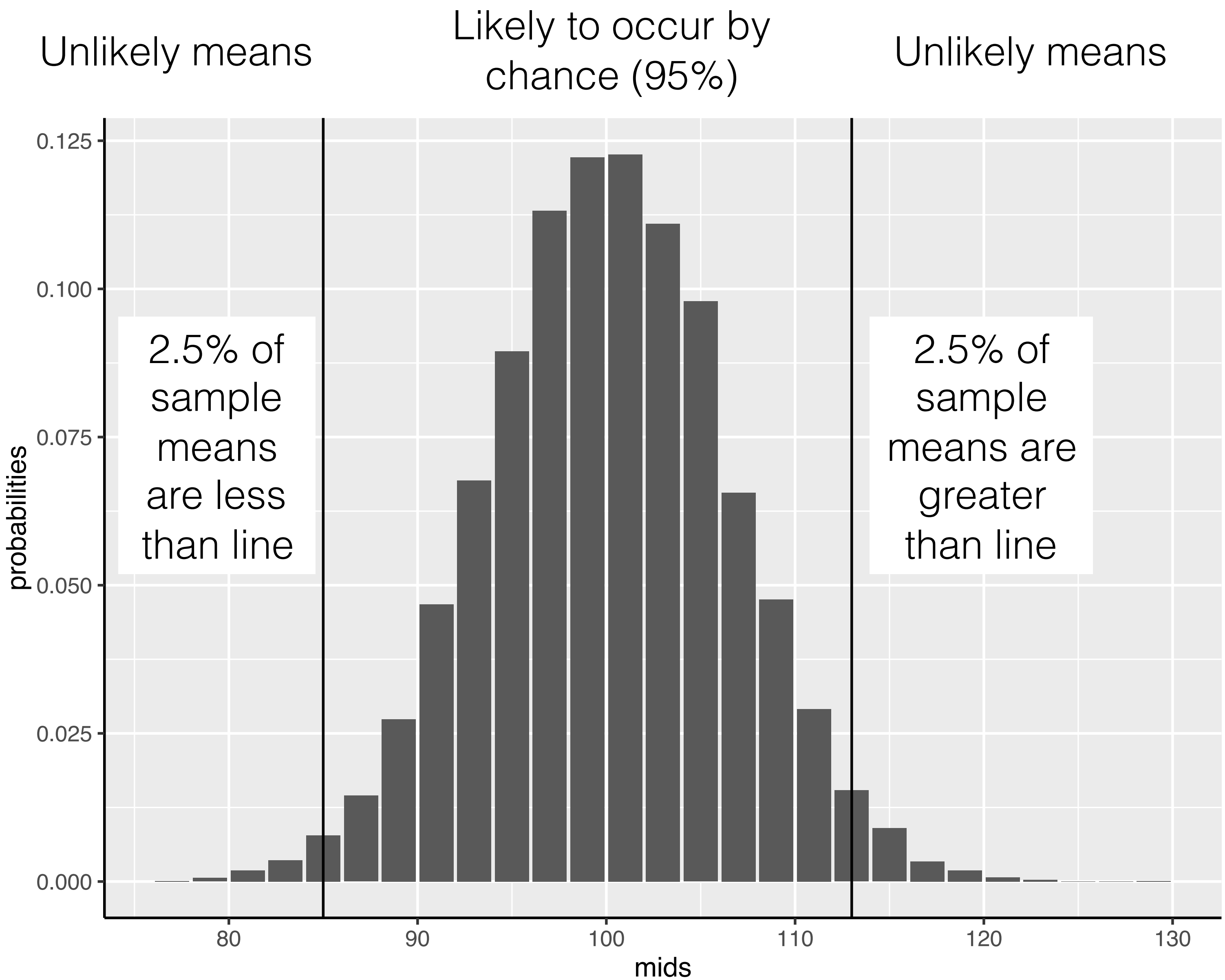
- What is a distribution?
- What is a sample?
- What can we expect to happen when we sample (take measurements) from a distribution?
- **What can we infer about our sample?**

Mean of SAMPLE = 105
Inference = Likely to have come from this distribution



Histogram of means for each sample (n=10)

Mean of SAMPLE = 60
Inference = <u>Unlikely</u> to have come from this distribution



Histogram of means for each sample (n=10)

Take homes
Sampling from distributions

- Any sample we take could be more or less like some population

- Differences between samples can be introduced by random sampling

- We can make inferences about our sample by simulating the distribution of sample means. Then we can decide whether or not our sample was likely to have come from a particular distribution.

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Sampling and Experiments

- **What are the distributions in an experiment?**
- Can random sampling produce a difference between conditions?
- How can we know if a difference we observe between conditions is due to chance?

What are the distributions in an experiment?

Sample distributions

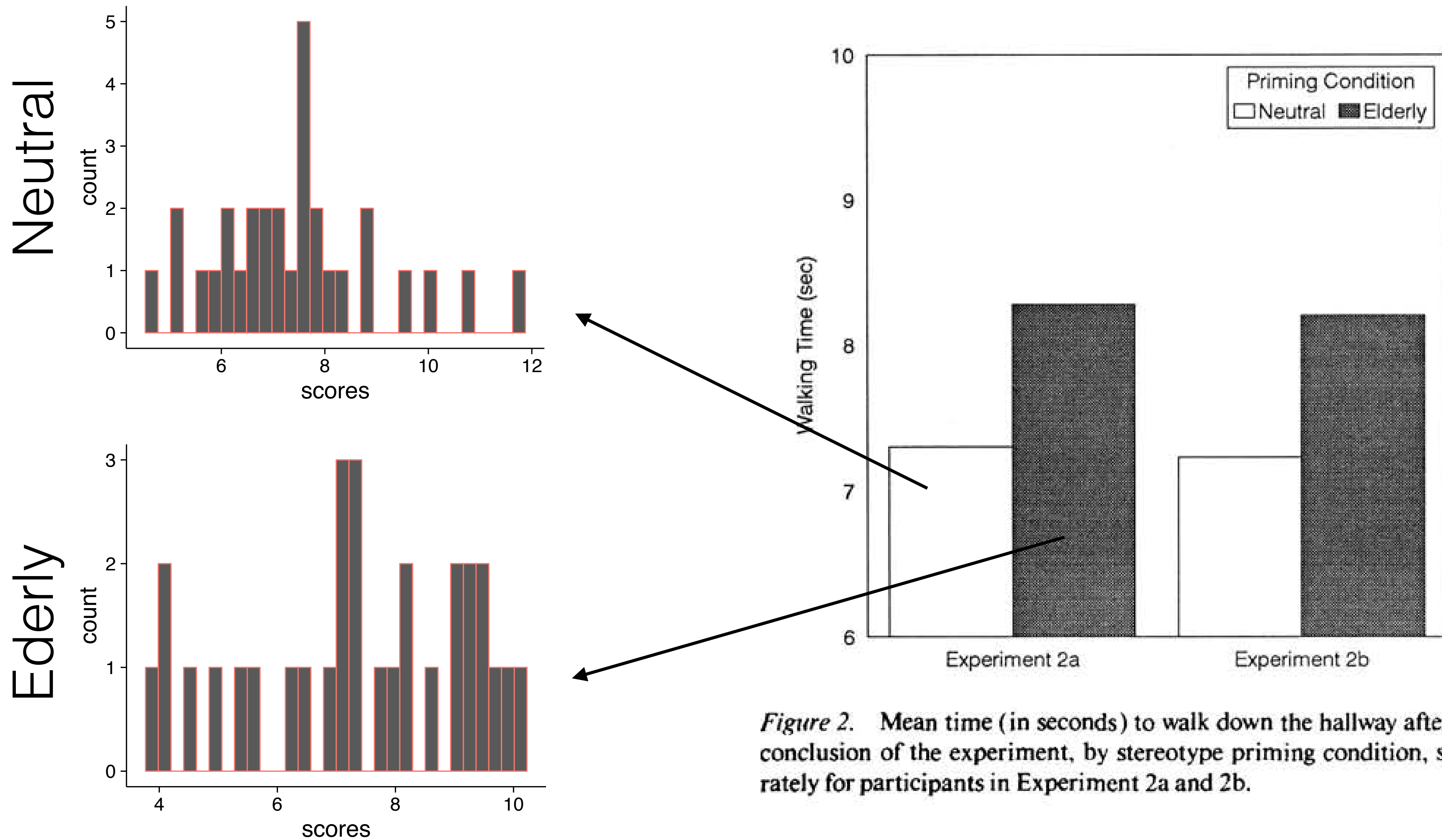


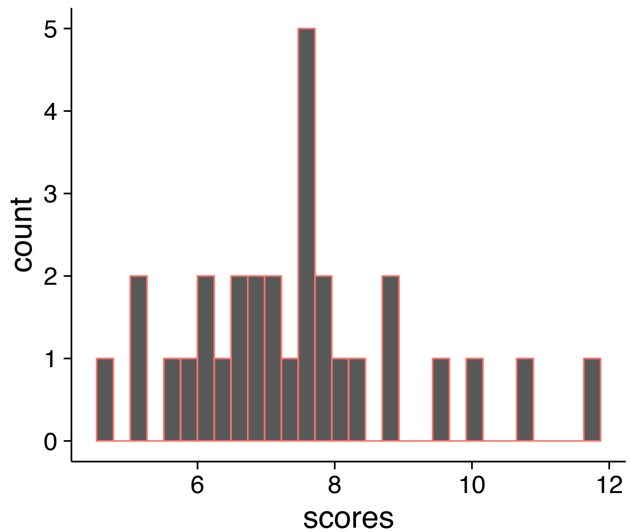
Figure 2. Mean time (in seconds) to walk down the hallway after the conclusion of the experiment, by stereotype priming condition, separately for participants in Experiment 2a and 2b.

What are the distributions in an experiment?

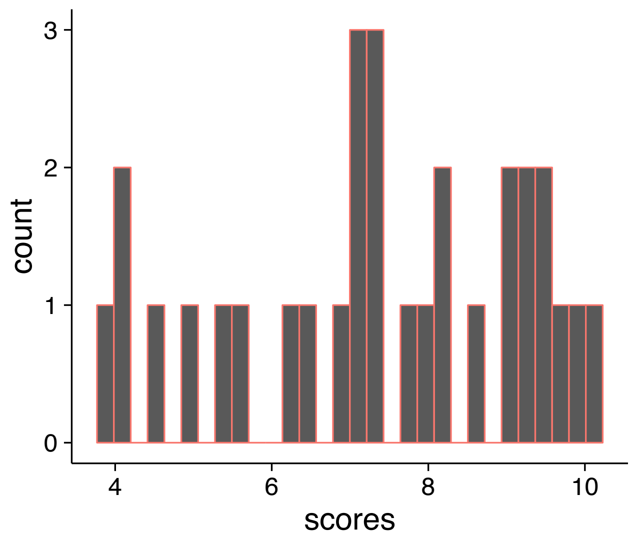
Sample distributions

Hypothetical distributions

Neutral



Ederly

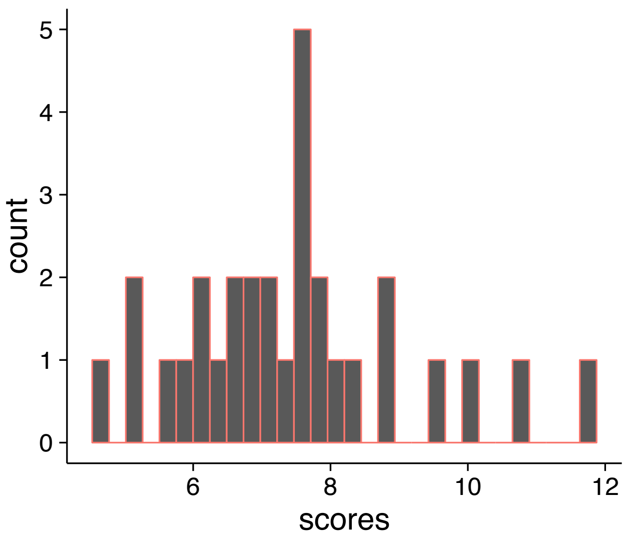


What kind of distributions could our samples be taken from?

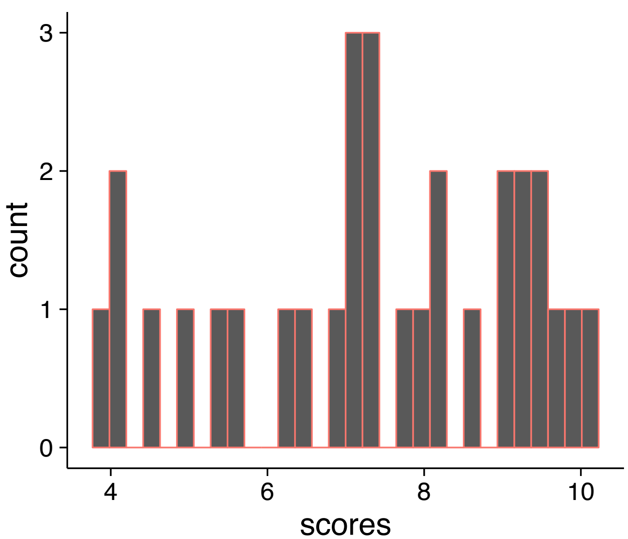
What are the distributions in an experiment?

Sample distributions

Neutral



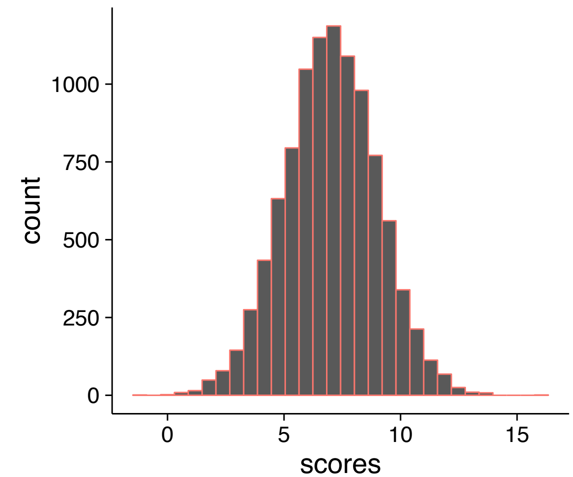
Ederly



Hypothetical distributions

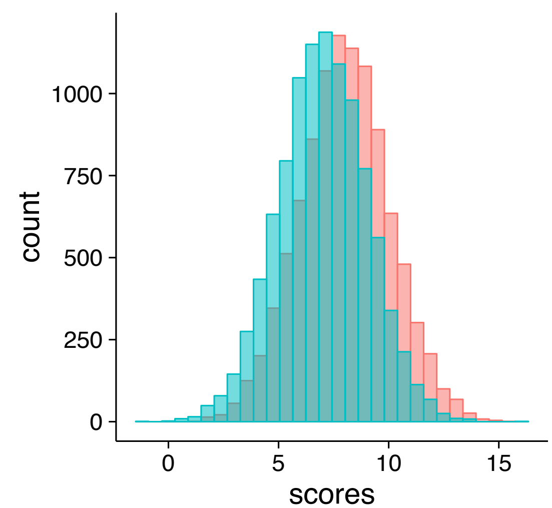
Possibility #1 :
The null distribution

- Experimental manipulation does nothing to the measurement
- Both samples could have come from the same distribution



Possibility #2 :
Different distributions

- The conditions in the experiment causally influence the measurement
- Each sample comes from different distributions

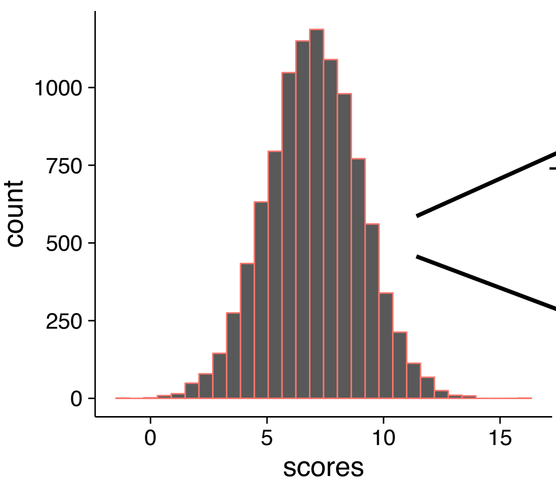


Sampling and Experiments

- What are the distributions in an experiment?
- **Can random sampling produce a difference between conditions?**
- How can we know if a difference we observe between conditions is due to chance?

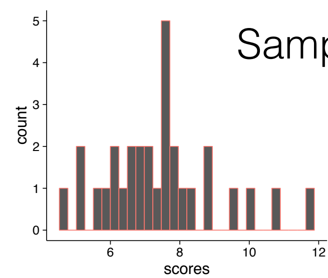
Can random sampling produce a difference between conditions? (even when there isn't one…)

Hypothetical distribution of scores

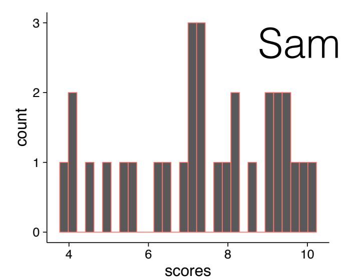


Take samples for each condition

Sample data from one experiment



Sample Mean = 7



Sample Mean = 8

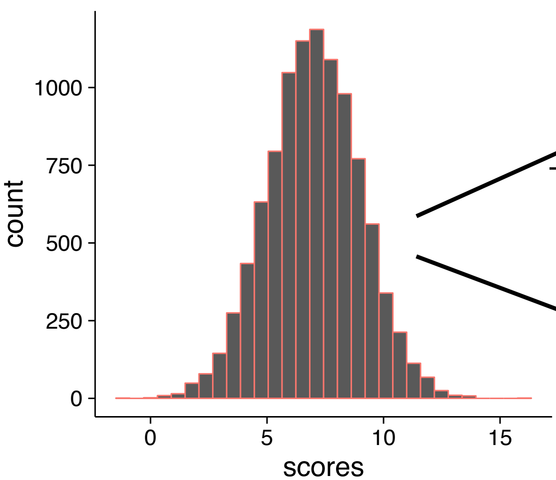
YES, the sample means can be different by chance alone

Sampling and Experiments

- What are the distributions in an experiment?
- Can random sampling produce a difference between conditions?
- **How can we know if a difference we observe between conditions is due to chance?**

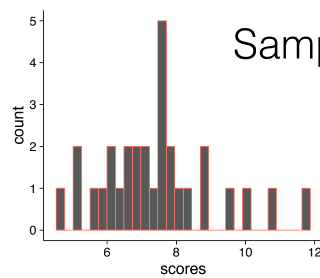
How can we know if a difference we observe between conditions is due to chance?

Hypothetical distribution of scores

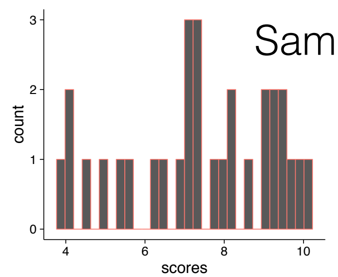


Take samples for each condition

Sample data from one experiment

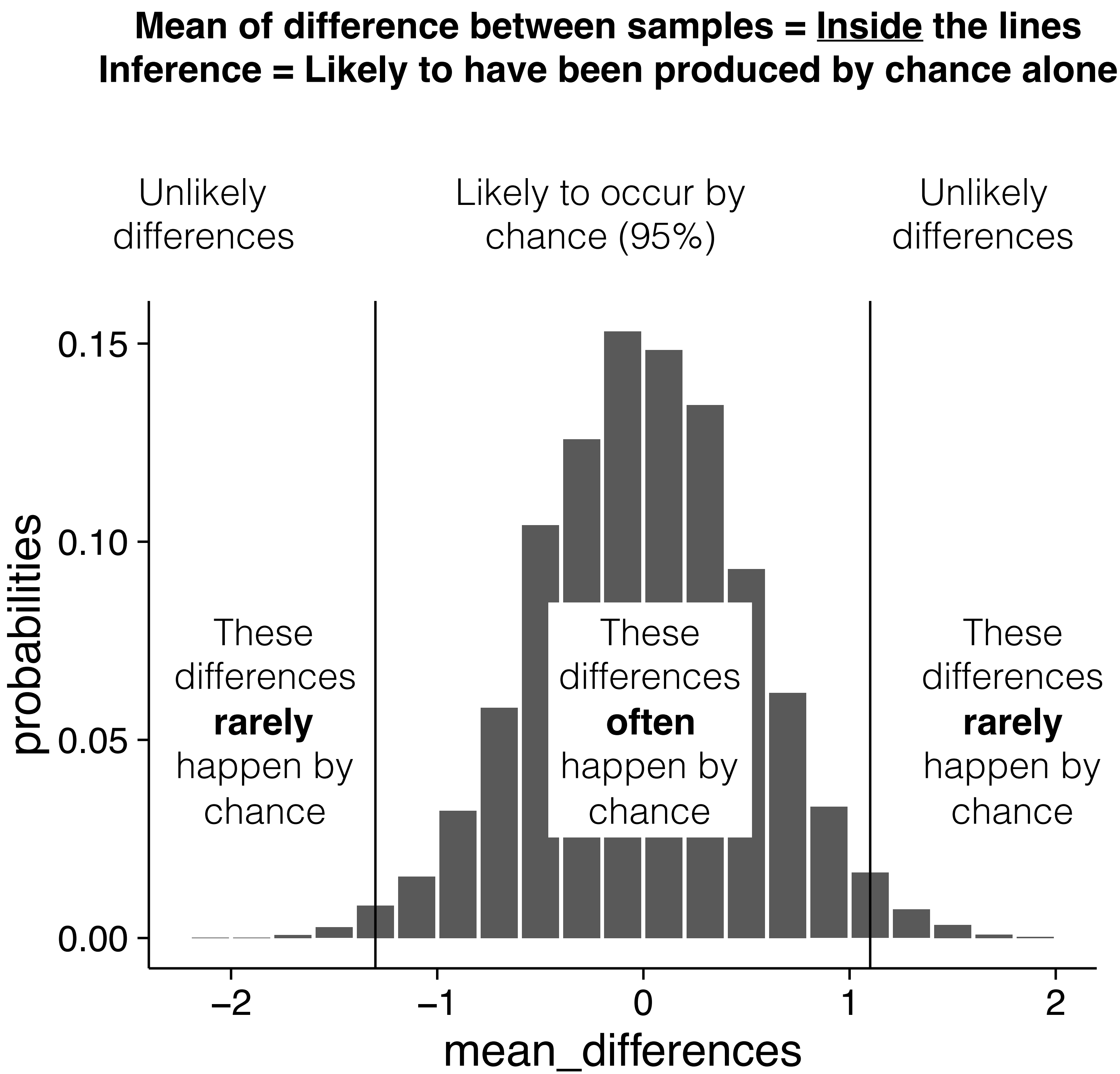


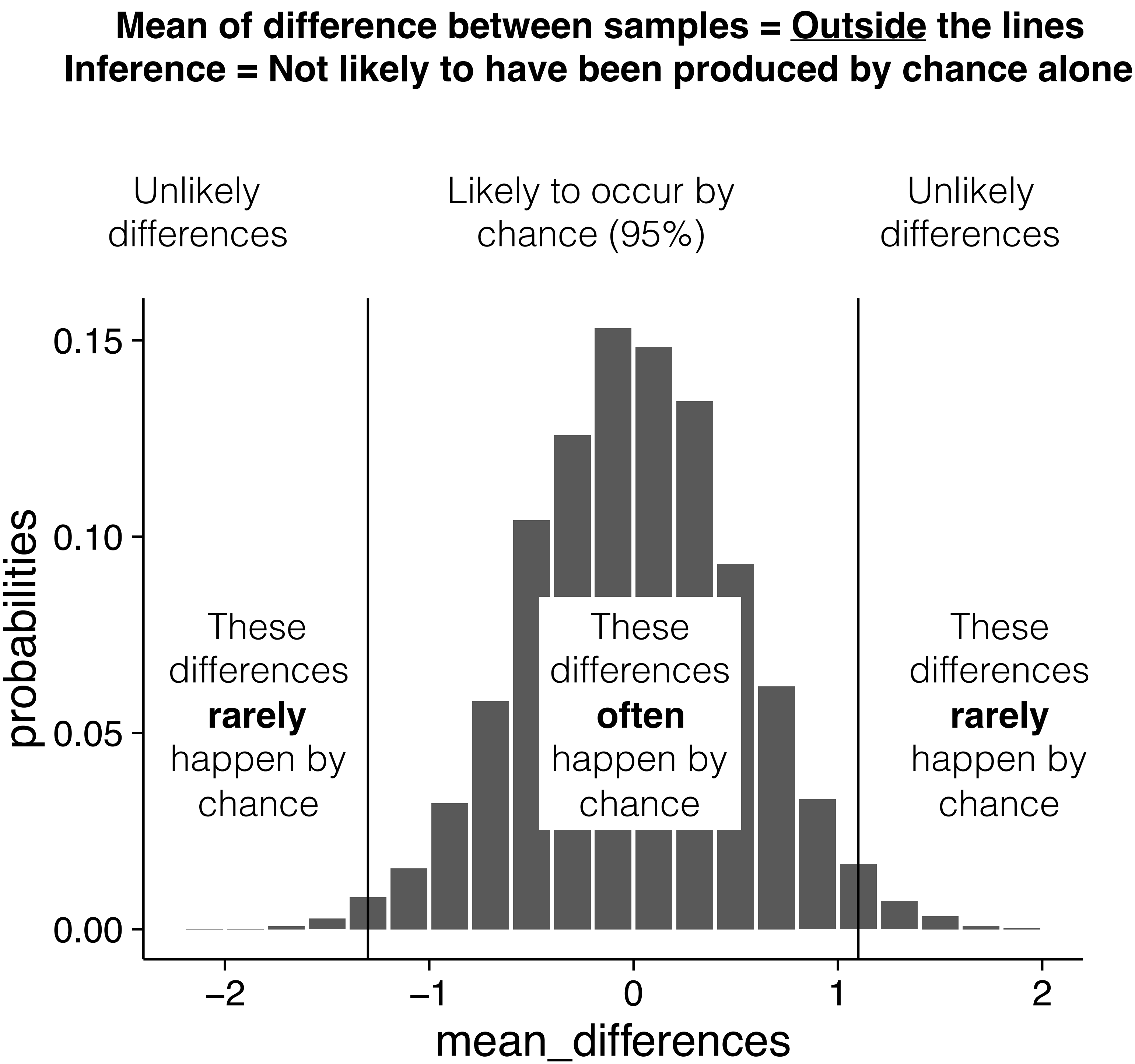
Sample Mean = 7



Sample Mean = 8

We can repeat this simulated result many times to find the distribution of differences that would occur by chance


Mean of difference between samples = Inside the lines
Inference = Likely to have been produced by chance alone
Unlikely differences
Likely to occur by chance (95%)
Unlikely differences
These differences rarely happen by chance
These differences often happen by chance
These differences rarely happen by chance
probabilities
0.15
0.10
0.05
0.00
−2
−1
0
1
2
mean_differences


Mean of difference between samples = Outside the lines
Inference = Not likely to have been produced by chance alone
Unlikely differences
Likely to occur by chance (95%)
Unlikely differences
These differences **rarely** happen by chance
These differences **often** happen by chance
These differences **rarely** happen by chance
probabilities
0.15
0.10
0.05
0.00
−2
−1
0
1
2
mean_differences

Take home
Sampling and Experiments

- The process of sampling data into two or more conditions can produce differences purely by chance alone

- We can estimate the distribution of differences that could be produced by chance

- We can compare the difference we observed in an experiment to the chance distribution, and then make an inference about whether our difference was produced by chance.

Lecture #3

Read Chapter 3 -Measurement

Kinds of Measurements

Measurement Scales

Psychological Constructs and Operational Definitions

Reliability and Validity

Sampling from distributions

Sampling and Simple experiments

T-tests

t-tests

- A brief history
- Things you should already know about t-tests
- The concept behind the formula

William Sealy Gosset
(Student)

Things you should already know about t-tests

- What the different kinds of t-tests are
- When to use each kind of t-test
- How to compute a t-test on data
- What the different values returned by a t-test are
- How to interpret the results of a t-test
- How to report a t-test in a result section

3 kinds of t-tests

- **One-sample t-test** - compare a sample mean against a population mean
- **Independent samples t-test** - compare two sample means (between-subjects)
- **Paired samples t-test** - compare two sample means (within-subjects)

General concept

- We want to simplify our data, and produce two numbers that tell us whether any difference we observed could have been produced by chance
- Number 1 = The test-statistic
- Number 2 = The probability of the test-statistic
- We want to measure our test-statistic, and find out the probability that it could be produced by chance

The test-statistic

$$t = \frac{\text{Difference between conditions}}{\text{Estimate of Variability}}$$

- t will increase as the size of the difference between conditions increases

- t will decrease as the variability increases

- Each value of t, has an associated probability (p), which tells us how often that value of t occurs by chance

One-sample t-test

$$t = \frac{\text{Difference between sample and population}}{\text{Variability in sample mean}}$$

$$t = \frac{\text{sample mean} - \text{population mean}}{\text{standard error of the mean}}$$

$$t = \frac{\bar{x} - u}{SEM}$$

$$t = \frac{\bar{x} - u}{\frac{s}{\sqrt{n}}}$$

$$t = \frac{\bar{x} - u}{\sqrt{\frac{\sigma^2}{n}}}$$

x= sample mean
u= population mean
SEM = standard error of the sampling distribution of the mean

x= sample mean
u= population mean
s= sample standard deviation
n=number of samples

x= sample mean
u= population mean
σ2= sample variance
n=number of samples

All formulas express the same concept

Independent samples t-test

t = <u>Difference between conditions</u>

Variability in sampling distribution of the differences

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\text{Pooled Standard Error}}$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_p^2}{n_1} + \frac{S_p^2}{n_2}}}$$

X_1 = sample mean from Condition 1
X_2 = sample mean from Condition 2
S^2_p = Pooled Variance
n_1 = number of samples in Condition 1
n_2 = number of samples in Condition 2

$$S_p^2 = \frac{SS_1 + SS_2}{df_1 + df_2}$$

SS_1 = Sums of Squared Deviations for Condition 1
SS_2 = Sums of squared Deviations for Condition 2
df_1 = degrees of freedom for Condition 1 (n_1-1)
df_2 = degrees of freedom for Condition 2 (n_2-1)

$$SS = \sum (X_i - \bar{X})^2$$

Xi = Each score of X
X (bar) = mean of sample

Paired samples t-test

$$t = \frac{\text{Difference between conditions}}{\text{Variability in sampling distribution of the differences}}$$

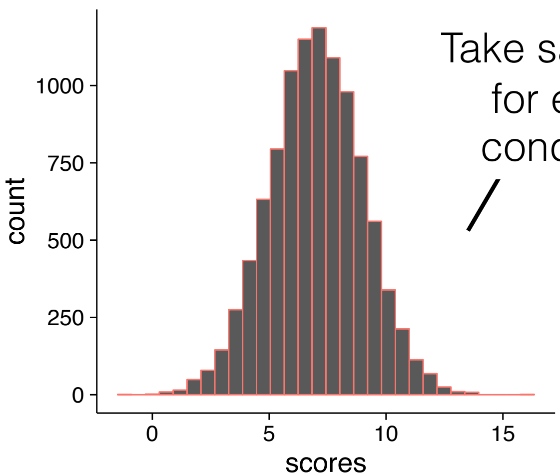
$$t = \frac{X_D - u_0}{\frac{S_D}{\sqrt{n}}}$$

X_D = Mean of paired differences
u_0 = 0 (expected difference of zero)
S_D = Standard deviation of paired differences
n = number of samples

Note: This is the same as a one-sample t-test, testing the differences between conditions against 0

Possible data from one experiment

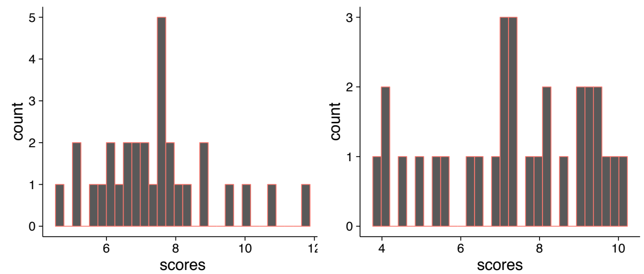
Hypothetical distribution of scores



Take samples for each condition

X1 mean = 7

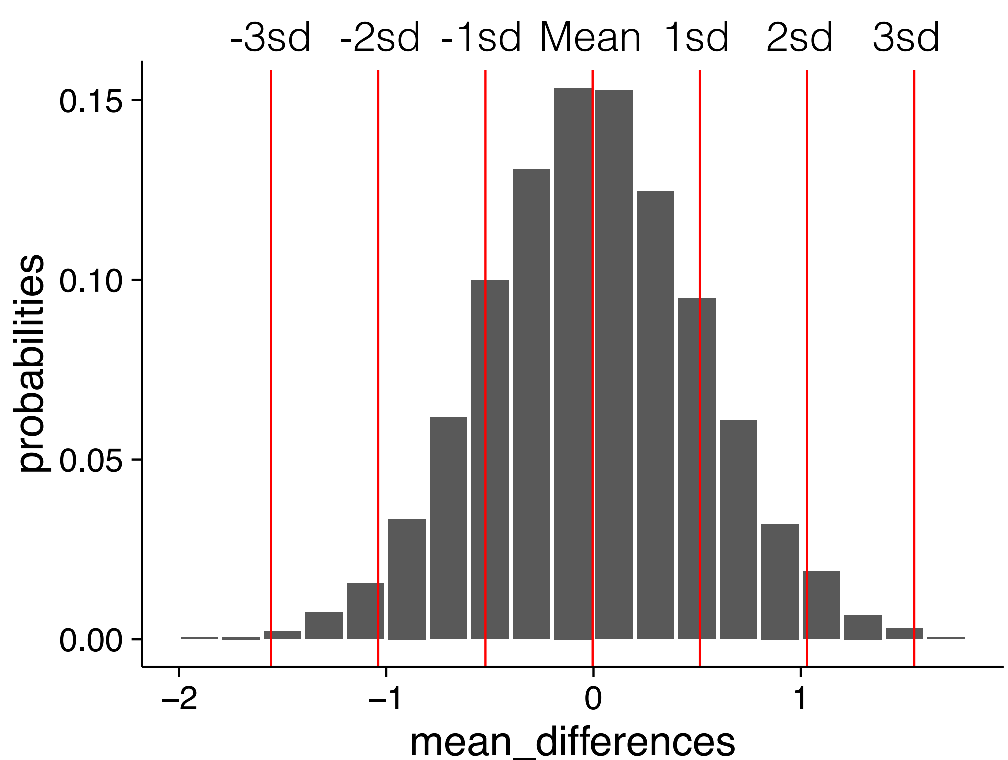
X2 mean = 8



Difference = X1-X2 = -1

If we could repeat the experiment many times, then we would produce the distribution of possible differences between sample means

Hypothetical distribution of differences between sample means



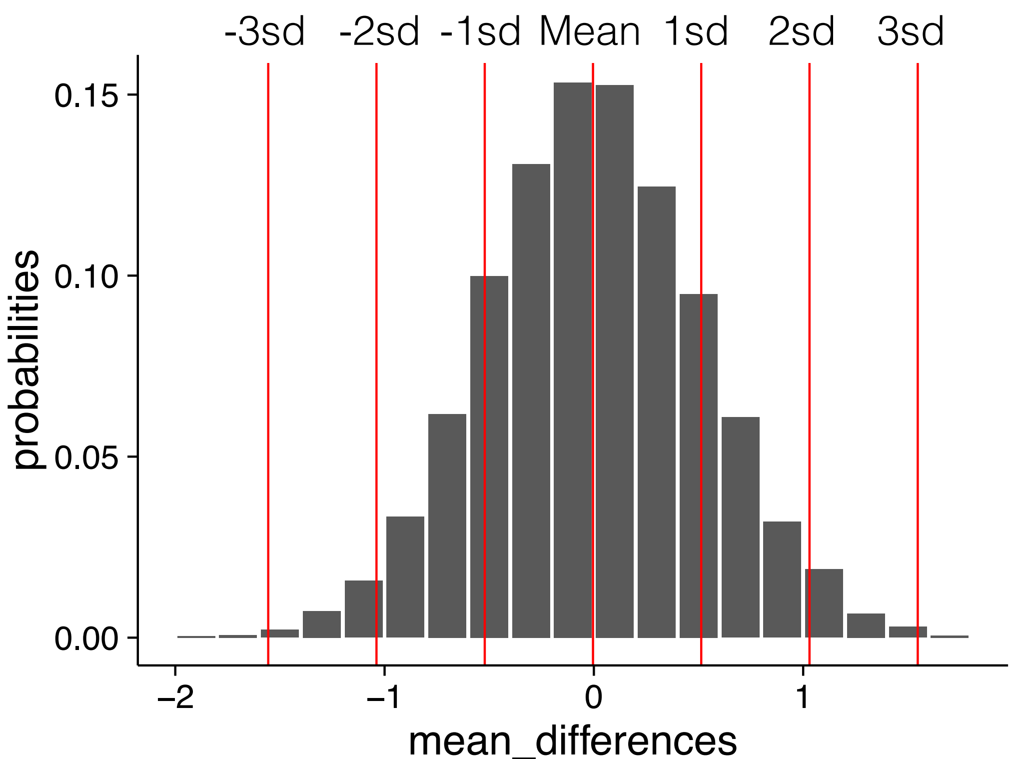
$$t = \frac{\text{Difference between conditions}}{\text{Variability in sampling distribution of the differences}}$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{SD_{\text{sampling distribution}}}$$

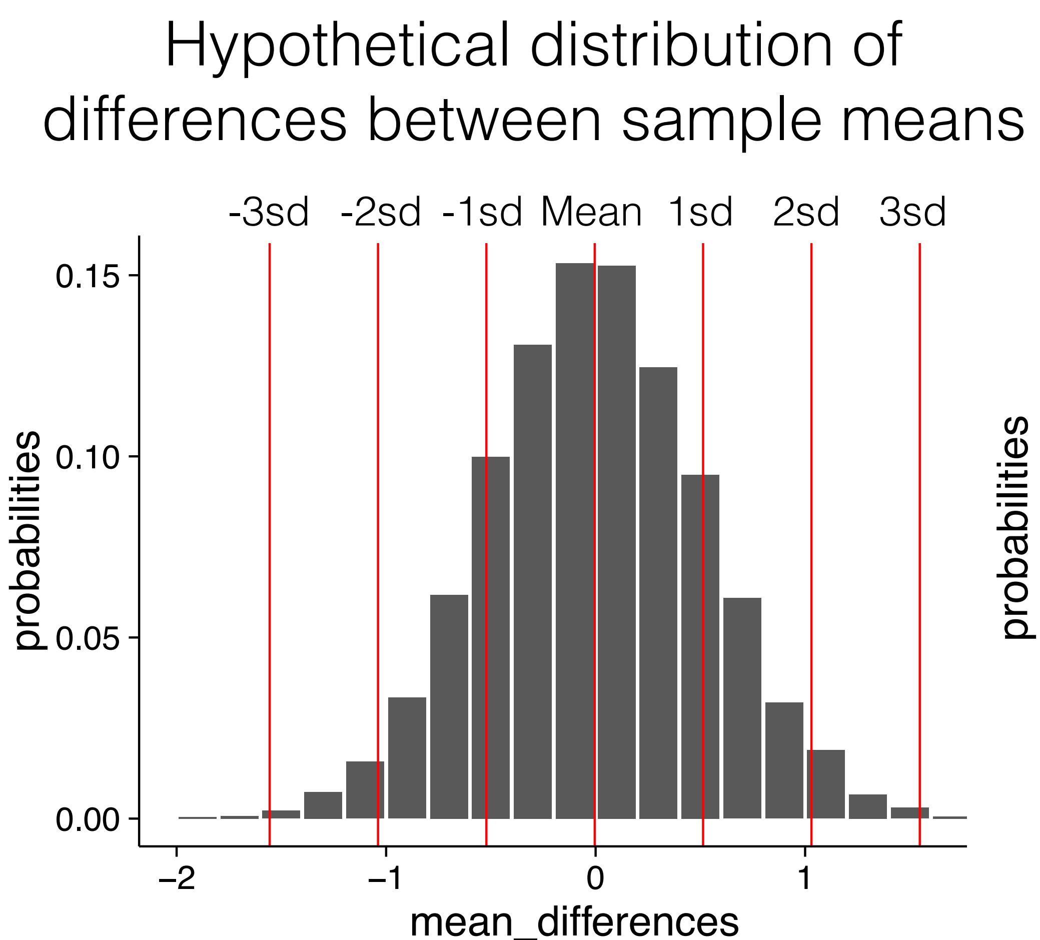
$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_p^2}{n_1} + \frac{S_p^2}{n_2}}}$$

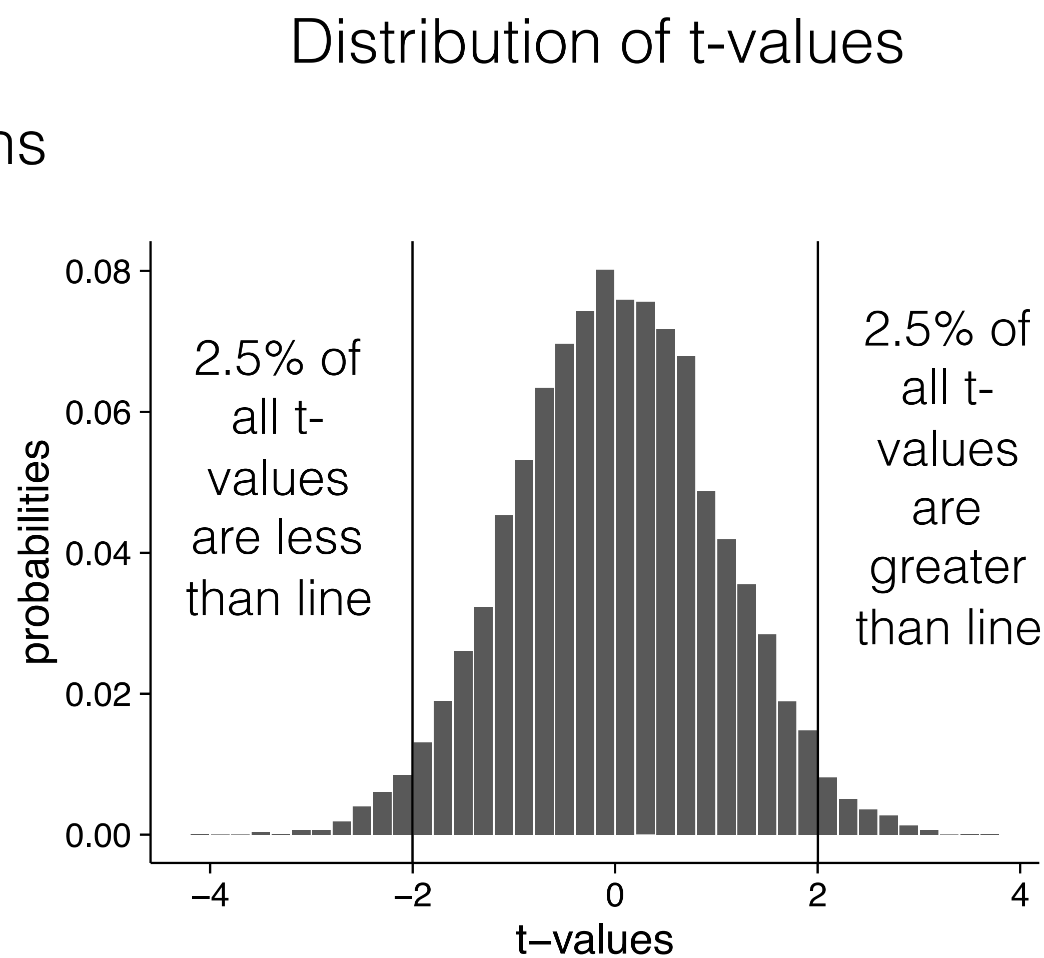
This is an estimate of the standard deviation of the sampling distribution based on our sample data

Hypothetical distribution of differences between sample means



We get the t-distribution by dividing the differences by their standard deviation





Example calculations for Independent Sample t-test

	Neutral	Aging	SSneutral	Ssaging	Pooled Standard Deviation	
	7	7	1	0	SSneutral+SSaging	86
	4	6	4	1	dfneutral+dfaging	34
	5	5	1	4		
	4	7	4	0	Pooled SD	2.52941176
	4	5	4	4		
	5	6	1	1	t	
	6	9	0	4	differences	1
	8	8	4	1	SEM	0.53013748
	7	9	1	4		
	6	8	0	1	t=	1.88630314
	5	9	1	4	p=	0.06781937
	7	8	1	1		
	9	8	9	1		
	8	6	4	1		
	7	7	1	0		
	5	5	1	4		
	4	9	4	4		
	7	4	1	9		
Means	**6**	**7**				
		SS	**42**	**44**		
		df	**17**	**17**		
		variance	**2.47058823**	**2.58823529**		

Reporting a t-test

- Report the means for each condition
- Report the degrees of freedom
- Report the t-value
- Report the associated p-value

Reporting a t-test

Results

Experiment 2a. A t test was computed to ascertain the effect of the priming manipulation on walking speed. Participants in the elderly priming condition $\boxed{(M = 8.28\text{ s})}$ had a slower walking speed compared to participants in the neutral priming condition $\boxed{(M = 7.30\text{ s})}$, $\boxed{t(28) = 2.86, p < .01,}$ as predicted.

Experiment 2b. In the replication, analyses revealed that participants in the elderly priming condition ($M = 8.20$ s) again had a slower walking speed compared to participants in the neutral priming condition ($M = 7.23$ s), $t(28) = 2.16$, $p < .05$. Thus, across both studies, passively activating the elderly stereotype resulted in a slower walking speed (see Figure 2).