Memory is born every day, springing from the past, and set against it.
– Eduardo Galeano

1. How Do We Determine if a Premise is True?

Arguments have premises; sound arguments have true premises rather than false premises. How do we determine that a premise **P** is true?

- **P** is true because it is common sense
- We confirm **P** by personal experience, experiment, investigation
- We accept **P** since experts testify to **P** (chapter 10)
- We reason to **P** (deductively or inductively) on the basis of some other premises that are accepted as true.
- We accept **P** because we accept an eyewitness account of **P**

Eye witness testimony is testimony given by an individual where s/he describes what they remember having perceived during a past event.

Some eyewitness testimony is about what happened at an **event** and it offers a description of what happened and where. For example, consider the following eyewitness report from Boston.com sports reporter Steve Silva about the April 15th explosion at the Boston Marathon:

> "I was there at the finish, shooting finish line scenes, and then bang, it just went off, and then less than 15 to 20 seconds after there was a second explosion, closer to Fairfield street," Silva said. "It was just immediately [evident] there were injuries, right in the middle of the spectator crowds. There was blood everywhere, there were victims being carried out on stretchers. I saw someone lose their leg, people are crying, people are confused."
> [1]

Other eyewitness testimony not only includes a description of what happened at an event but also includes **identifying** people who were at an event. For example, Vic might testify in court that she saw John murder Liz.

2. How to Evaluate Eyewitness Testimony

We should not accept eyewitness testimony at *face value* but instead critically evaluate it. [2] There are at least **four** criteria used to evaluate eyewitness testimony:

2.1. Condition #1 (Situational / Perceptual Factors)

When an eyewitness testifies to **P**, we want to know whether the eyewitness was in a situation (or position) where s/he could **use his/her senses** in a reliable way to acquire information. Several things can cause us to regard eyewitness testimony as potentially *unreliable*:

- Visual testimony: Poor lighting, bad eyesight, obstructed scene (too many people), event was too far away, speed of event, etc.
- Testimony about what someone said: loud environment, too far away, poor hearing
- Testimony about what someone smelled: it smelled like a dead person?

2.2. Condition #2 (Mental / Cognitive Factors)

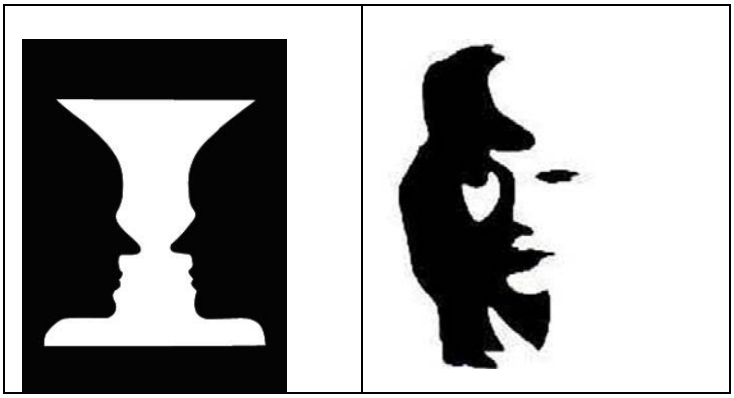
When an eyewitness testifies to **P**, we want to know whether the eyewitness is in a **state of mind** where s/he could acquire information in a reliable way. Several things can cause us to regard eyewitness testimony as potentially *unreliable*:

- **Intoxicated**
  - Problems processing information if you are intoxicated or even if you *think* you are intoxicated (or think you are hypnotized).[3]
- **Stress / Anxiety / Terror / Fear**
  - *Flashbulb Memory*: some people think that when you are in a stressful or traumatic situation, you observe and remember the information more accurately.
    - Objection: studies show that stress *negatively* affects your ability to accurately observe and remember information.

- **Preconceptions / Expectations / Allegiances**

We initially *conceptualize* the objects of our perceptions objects in terms of what we are more accustomed to seeing. That is, the objects that we *recognize* are, to some degree, conditioned:

Example #1: Ambiguous Images



Example #2: It is often the case when we see something that goes against our expectations, we have **trouble recognizing it** or **misrecognize** it. This has implications for the memories we have of what we perceived and for the testimony we give about what we saw.

Bruner & Postman Card Experiment[4]
Twenty-eight subjects were shown successively five different playing cards. Cards were of two sorts: *normal cards* and *trick cards*, the latter being cards where color and suit were reversed. One to four of the

five cards shown to subjects were trick cards, e.g. two of spades (red). Subjects were exposed to cards at varying intervals, 10ms, 30ms, 50ms, 70ms, …, 1000ms until they were able to correctly identify the card.

Subjects had roughly four different reactions:

(1) *Dominance Reaction*: We see a two of spades (red), but confidently identify it as a *two of hearts* because our categorization is dominated by the color.
(2) *Compromising*: We see a two of spades (red) and split the difference by reasoning like this (i) I see red but spades are black, (ii) black and red give us purple, so (iii) I saw a purple two of spaces or (iv) I saw a purple two of hearts.
(3) *Disruption*: Subject is faced with an incongruity and so concludes: "I don't know the hell I saw"
(4) *Recognition*: Subject recognizes that the two of spades is red.

This study showed that it took longer for subjects to recognize trick cards than normal cards (28ms vs. 114ms).

- 27 out of 28 subjects had dominance responses
- 14 out of 28 subjects had compromise responses
- 16 out of 28 subjects had a disruption response at least once

The **point** is that oftentimes when we are viewing something that is **contrary to our expectations**, there is a longer threshold to accurately recognize what is perceived. So, if we don't have time to examine it long enough, we can **misidentify** what we have perceived (compromising / dominance). This has implication for how the biases we have shape our perception.

Example #3: If we have an allegiance to a side, our perception of an event often is distored.

- P.302, Hastorf & Cantril: Princeton-Dartmouth football game (or sporting events in general); P.302, ship collisions

- **Expectations & Overzealous Testimony**

Sometimes individuals are overzealous in their efforts to testify. Their testimony is shaped by (i) what they think the questioner wants, (ii) the desire to solve a problem, or (iii) perhaps some other motive, e.g. greed.

Example #1: A witness may testify *differently* depending upon on the sort of question asked.

- "How slow was the car moving when it bumped into the other car?" – 35mph
- "How fast was the car moving when it smashed into the other car?" – 70mph

Example #2: Overzealous Reporting

After the April 15th Boston Marathon explosion, a number of individuals began the work of using pictures of people at the finish line and then trying to identify them. The *New York Post* took one of these pictures (see right) and claimed that the FBI wanted two teenagers in connection with the explosion.[5] The *Post* identified them as "Bag Men" indicating that they were suspects rather than unidentified individuals.

The *Post* subsequently argued that the photo was circulated among law enforcement agencies and that they "did not identify them as suspects"[6]

2.3 Condition #3 (Factors involving Memory)

Has the **memory** of the eyewitness been affected or influenced in a way that makes the information they acquired unreliable? Your memory is not an HD recording of events and is susceptible to decay and corruption.

- **Decay**: A witness's *memory* of an event can decay over time. We forget details and creatively fill in the blanks.
- **The Misinformation Effect**

A witness's *memory* of an event can be corrupted by (i) picking up false information from other sources and (ii) merging that information with the original memory of the event. The misinformation effect occurs when *after* a memory about an event *e* has been formed, a subject is given misinformation *i* about that event *e*, and the subject incorporates *i* into his/her memory of the event.

Misinformation Effect						
Event (e)	→	Perception / cognition of event & formation of memory	→	you are given misinformation about an event you have witnessed (i)	→	You form a new memory of event that makes use of the misinformation

Example #1: Misinformation & Eyewitness Testimony

An individual's memory of a face or event is susceptible to what other people report about that event.

Loftus & Greene[7]: The Misinformation Effect
Experiment #1: 200 subjects viewed a film clip, read a "professor's description" of that clip from another witness, and then wrote their own description of the clip. Part of the clip contained a scene of a young man attempting to break into a car (his face was visible for 10-12 seconds). 50 subjects were then given a factual description of the clip, while the remaining 150 subjects were given a description that contained **one and only one** of the following erroneous details: (i) the man had **wavy hair** (his hair was **straight**), (ii) the main had a **thin moustache** (he **didn't have a mustache**), (iii) the man had **crooked teeth** (his teeth were **straight** and not readily visible)

Result: Of the 50 who read the factual description, only 5% reported one of the above details, whereas **34% of the 150** included one of the above erroneous details.

Experiment #2: 90 subjects viewed a photograph taken from a college yearbook. They then read a 1-page description from a "professor" who had seen the slide. Half (45) of the subjects read a factual description. The other half (45) read a description that contained an erroneous detail: **the subject had a mustache**. Subjects were then asked to view 12 mugshots and to pick out the person in the photograph they had previously viewed. They were informed that the individual may not be in the 12 mugshots.

Result: Of the 45 subjects who read the factual description, **6 (13%)** chose mugshots with a mustache, 28 (62%) chose mugshots without a mustache, and 11 (24%) did not choose any mugshot. Of the 45 subjects who read the erroneous description, **31 (69%)** chose an individual with a mustache, 10 (22%) chose an individual without a moustache , and 4 (9%) did not choose any mugshot.

- Several Factors Make the Misinformation Effect Worse
    - *Source of Misinformation*: more susceptible to misinformation when the source is a respected person, e.g. lawyer/professor rather than some unknown person.
    - *Gender bias*: Studies show that individuals are *more susceptible* to corruption by misinformation when they are testifying about a member of the opposite sex.

Since the eyewitness testimony of an event relies on memory, and memory is not a high-fidelity representation of an event, when evaluating the testimony of an eyewitness, it is important to ask ourselves whether or not their memory has been influenced by (i) **decay** over time or (ii) the **misinformation effect**.

Classroom Exercise: You now have three conditions for thinking about the reliability of an eyewitness's testimony. Suppose that on November 12th, 2012, John claims he was at Inferno (a bar in State College) and he claims that he saw Liz punch Vic in the face. If you were a defense attorney, what questions might you ask John to try and cast doubt on the reliability of his testimony?

2.4 Condition #4 (Honesty)

While conditions (1)-(3) have to do with whether the testified statement is accurate, we also want to know whether the eyewitness is ***telling us what s/he believes to be true*.** How can we determine whether or not someone is lying or telling the truth?

	YES or NO?
Polygraphs? (Lie Detectors)?	UNKNOWN YES. They work, its accuracy ranges from 81 to 91 percent.[8] NO. The accuracy of polygraphs is closer to chance.[9] It is unscientific.[10] However, it can effectively "con" people into telling the truth as they believe they are hooked into a device that can actually detect lies.[11]

Non-verbal behaviors?	NO. Average person's ability to detect a lie is close to chance (in rare cases above 60%).[12] NO. Professional lie detectors (customs agents, law enforcement, and judges) are no better than unskilled observers. [13] Although, Secret Service perform slightly better than chance (approximately 66%) Some people are better than others at detecting lies from non-verbal behaviors. **Unskilled observers (**e.g. students) and **professional lie detectors** (e.g. detectives, prison guards) tend to *wrongly* associate an increase of certain behaviors (e.g. gaze aversion, posture shifts, foot and leg movement). In contrast, **criminals** (e.g. prisoners) are better than the norm at detecting lies (32% vs. 25% students vs. 22% police detectives)[14]
Internally Inconsistent Testimony?	YES. If someone testifies that **P, Q, and R** but later says something that conflicts with **P, Q, and R**, then we have an indication that they are lying.
Testimony that conflicts with known facts?	YES. If someone testifies that **P** but it is known for a fact that **P** cannot be the case (because it is so implausible or conflicts with a known fact), then we have an indication that they are lying (or mistaken).
Training in Interrogation?	Maybe NOT. Some studies suggest that training in interrogation makes you *more confidant* in your determination that someone is lying but *less accurate* at detecting lies.[15] Other studies show that certain interrogation methods yield false confessions.[16]

3. Conclusion

We don't just want our arguments to be *valid/strong* but we also want them to be *sound/cogent*. For this, we need to know if the premises are true. There are several ways of determining whether the premises are true but one way is to rely on **eyewitness testimony.** However, we must be cautious and critically evaluate eyewitness testimony because witnesses can *lie* and they can be wrong about what they testify about (even if they strongly believe what they are saying).

Homework Exercises

1. What are some of the ways that we determine the truth or falsity of a premise?
2. What are four major factors that make eyewitness testimony unreliable? Give an illustration of each of the major factors.
3. What are some practical reasons why we might not want to accept someone's testimony at face value? Can you think of some negative consequences of doing so?
4. How do we determine if someone is lying? What means are not reliable in determining whether or not someone is lying?
5. Suppose that John is an average citizen and he testifies that he saw Vic murder Liz. Unfortunately, Vic is not alive to verify this because John claims that after Vic murdered Liz, he killed himself. Further suppose that John knows both Vic and Liz. He views Vic as an evil person and he views Liz (and all women) as inherently harmless. Finally, consider that it was **not** Vic who killed Liz and then killed himself. But the reverse! How might the *Bruner & Postman Card Experiment* explain John's unreliable eyewitness testimony?
6. What is the misinformation effect?
7. What are the two ways in which an individual's memory of an event or person can be distorted?

[1] For another example, see the reports from 2002 that the D.C. sniper was driving a white van: Kennedy, H. Beltway sniper notches no. 8. Kills man gassing car in Va., dodges dragnet. NY Daily News [online], (cited 12 October 2002), http://www.nydailynews.com/news/crime_file/story/26305p-24892c.html (2002).
[2] Huff estimates that in 1999. 7,500 people were wrongly convicted for serious crimes in the United States. Huff, C. R. What can we learn from other nations about the problem of wrongful conviction? *Judicature* **86**, 91–97 (2002).
[3] Assefi & Maryanne (2003). Absolut Memory Distortions: Alcohol Placebos Influence the Misinformation Effect
[4] Bruner, Jerome S. and Leo Postman 1949. On Perception of Incongruity: A Paradigm. *Journal of Personality* 18(2):206-223
[5] From the 18 April 2013 *New York Post*: http://www.nypost.com/archives/covers/;jsessionid=01DD51B7F23DD4FB895C473FFACE3246?dateChosen=04182013
[6] Of course, this is nonsense since (i) "bag men" is a slang term for a criminal who collects dirty money and (ii) the previous day the title of the *Post* was "Bomb Bag". For more on this, see http://www.policymic.com/articles/36411/salah-barhoum-teen-feels-unsafe-after-new-york-post-falsely-identified-him-in-boston-marathon-bombings
[7] Loftus, Elizabeth F. and Edith Greene. 1980. Warning Even Memory for Faces May Be Contagious. *Law and Human Behavior* 4(4):323-334. See also Loftus, Elizabeth F. (12/01/1996). "TheMyth of Repressed Memory and the Realities of Science". Clinical psychology. Loftus, Elizabeth (03/01/2003). "Science and Society: Our changeable memories: legal and practical implications". Nature reviews. Neuroscience (1471-003X), 4 (3), p. 231. Loftus, Elizabeth. Our Changeable Memories: Legal and Practical Implications. Nature Reviews Neuroscience 4, 231-234 (March 2003). Loftus, Elizabeth F. 2011. Intelligence Gathering Post-9/11 The American Psychologist66. 6 (Sep 2011): 532. Loftus, Elizabeth F. 2004. Editorial: The Devil in Confessions. Psychological Science in the Public Interest 5(2),
[8] National Research Council: The Polygraph and Lie Detection. Committee to Review the Scientific Evidence on the Polygraph. Washington, DC: The National Academies Press, 2003
[9] A. S. Brett, M. Phillips, J. F. Beary III, *Lancet* i(8480), 544 (1986).
[10] Board on Behavioral, Cognitive, and Sensory Sciences and Education (BCSSE) and Committee on National Statistics (CNSTAT) (2003). The Polygraph and Lie Detection. United States National Research Council (Chapter 8: Conclusions and Recommendations, page 212-221
[11] Jones EE, Sigall H: The bogus pipeline: a new paradigm for measuring affect and attitude. Psychol Bull 76:349–64, 1971
[12] Grubin, Don. 2010. The Polygraph and Forensic Psychiatry. *Journal of the American Academy of Psychiatry* 38(4):446-451.
[13] Grubin, Don. 2010. The Polygraph and Forensic Psychiatry. *Journal of the American Academy of Psychiatry* 38(4):446-451.
[14] Aldert Vrij and Gun R. Semin. Lie Experts' Beliefs about Nonverbal Indicators of Deception. 1996. *Journal of Nonverbal Behavior* 20(1):65-80. See also Granhag, Par Anders and Leif A. Stromwall 2002. Repeated Interrogations: Verbal and Non-verbal cues to deception. *Applied Cognitive Psychology* 16:243-257.
[15] Kassin, Saul M. and Christina T. Fong. 1999. "I'm Innocent!": Effects of Training on Judgments of Truth and Deception in the Interrogation Room. *Law and Human Behavior* 23(5):499-516.
[16] Kageliry Jr., Peter. 2007. Psychological Police Interrogation Methods: Pseudoscience in the Interrogation Room Obscures Justice in the Courtroom. *Military Law Review* 193: 1-51. Note that 25%-51% of cases that were determined to be wrongful convictions involved false confessions.