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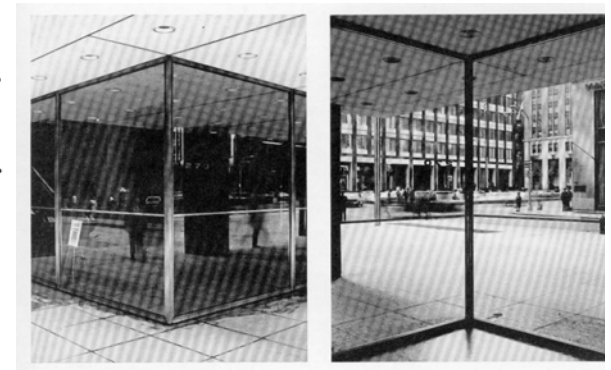
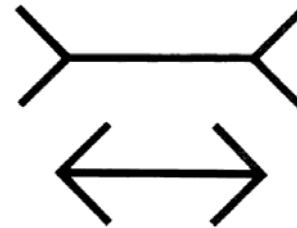
Myths and Mysteries of Human Learning and Memory

Reconstructive Memory /
Memory Distortions

11 Jul 2016

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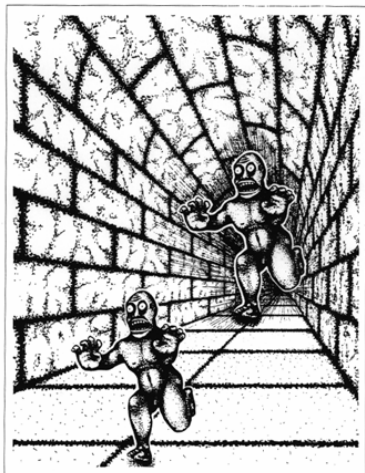
Visual Illusions



(Müller-Lyer, 1889)

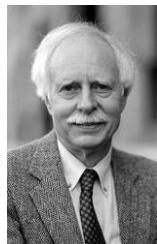
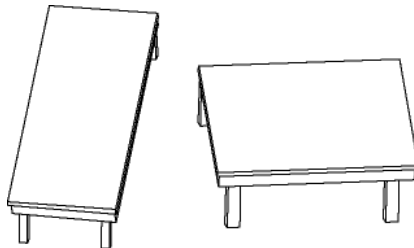
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Visual Illusions



A1 TERROR SUBTERRA

Turning the tables:



(Roger Shepard)

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William James's General Law of Perception

“Whilst part of what we perceive comes through our senses from the object before us, another part (and it may be the larger part) always comes...out of our own head.”

- James, 1890, *Principles of Psychology*

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“Illusions are also tools for discovering processes in perception. In medicine, in engineering, and very frequently in biology, the abnormal and surprising lead to key ideas and facts for understanding the normal. So here we expect abnormal perceptions (deviations from the truth) to give insights and data for understanding normal (correct) perception.”

- Gregory & Gombrich (1973)

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“Memories don’t just fade, as the old saying would have us believe; they also grow. What fades is the initial perception, the actual experience of the events. But every time we recall an event, we must reconstruct the memory, and with each recollection the memory may be changed – coloured by succeeding events, other people’s recollections or suggestions, increased understanding, or a new context.”

- Loftus & Ketcham (1991)

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Memory is *reconstructive* (not a “video recording” of past experience)

A recurring theme in this course... e.g.,

- Bartlett’s (1932) *War of the Ghost* study
- 55% of subjects (falsely) remembered seeing footage of plane crashing into apartment building on TV (Crombag, Wagenaar, & van Koppen, 1996)
- Motivated remembering (John Dean the “human tape recorder”)
- Misleading information experiments (Loftus)
- Flashbulb memories (high confidence, but not necessarily high consistency)

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Neisser (1967)

Reconstruction—the paleontologist metaphor.



“out of a few stored bone chips, we remember a dinosaur”

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The influence of schemas

Do NOT look at the next slide until I say so!

Schema - organised knowledge structure containing one's knowledge, experience, expectations about some aspect of the world. E.g., a schema for an office, a restaurant, etc.

Schemas can help us make sense of information:

"The procedure is actually quite simple. First you arrange items into different groups. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step, otherwise you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complications can easily arise. A mistake can be expensive as well. At first, the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then one never can tell. After the procedure is completed one arranges the materials into different groups again. Then they can be put into their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated..."

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The influence of schemas

Schemas can help us make sense of information:

Subjects who were informed that the passage was about doing laundry rated the passage as being easy to understand, and they recalled almost twice as much as subjects who weren't informed.

(Bransford & Johnson, 1972)

Schemas can also introduce errors in memory:

1 week after reading a passage about a troubled girl, subjects were more likely to (falsely) recognise (as old) the sentence "She was deaf, dumb, and blind" if they had been told the story was about Helen Keller than if they had been told it was about Carol Harris. (Sulin & Dooling, 1974)

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Study this picture of a grad student's office...

DO NOT
LOOK AT
THE NEXT
LECTURE
SLIDE, UNTIL
I SAY SO.



Now write down all the things you can remember

Potential responses:

Chairs
Desk
Table
Boxes
Bottle of wine
Picnic basket
Books
Skull

Brewer & Treyens (1981): ~30% of subjects (falsely) recalled that *books* were present.

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Remembering the pragmatic implications of sentences

People are likely to remember reading sentences that were not presented, if those sentences are likely inferences.

E.g., "... it was late at night when the phone rang and a voice gave a frantic cry. The spy **threw the secret document into the fireplace** just in time since 30 seconds longer would have been too late..."

On a recognition test, subjects are likely to say "old/yes" to the sentence: "The spy **burned** the secret document just in time since 30 seconds longer would have been to late." (Johnson, Bransford, & Solomon, 1973)

"The karate champion **hit** the cinder block." Tendency to recall: **broke**

"The infant **stayed awake** all night." Tendency to recall: **cried**

"The flimsy shelf **weakened** under the weight of the books." Tendency to recall: **collapsed** (Brewer, 1977)

Verbal Overshadowing (some things are better left unsaid)



Jonathan Schooler

Stimulus Figures	
Word list 1	Word list 2
Curtains in a window	Diamond in a rectangle
Bottle	Stirrup
Crescent moon	Letter "c"
Beehive	Hat
Eye glasses	Dumbbells
Seven	Four
Ship's wheel	Sun
Hourglass	Table
Kidney bean	Canoe
Pine tree	Trowel
Gun	Broom
Two	Eight

Providing the verbal label causes memory for the object to be distorted.

(Carmichael, Hogan, & Walter, 1932)



Melcher & Schooler (1996): Novice wine drinkers tasted a red wine, then engaged in either verbalisation (i.e., describe wine in words) or unrelated activity. Impaired wine recognition (4AFC) following verbalisation.

Relatedness effects

- Study the following words

- Recall test
- Recognition memory test

Use ratings: (1) sure new (2) probably new (3) probably old (4) sure old

- TEST:

DO NOT
LOOK AT
THE NEXT
LECTURE
SLIDE, UNTIL
I SAY SO.

Relatedness effects

Critical lures—words not presented at study, but closely associated with studied items

Recall performance:

- Words presented at study – .65
- Critical lures – .40

Recognition results:

	(Sure old)		(Sure new)	
confidence rating	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>
studied items	.75	.11	.09	.05 e.g., DROWSY
(not studied)				
unrelated	.00	.02	.18	.80 e.g., DOCTOR
critical lure	.58	.26	.08	.08 e.g., SLEEP

Relatedness effects

DRM (Deese-Roediger-McDermott) **paradigm**: A technique to reliably elicit false memories for a non-presented item by presenting close associates of the non-presented item.

Inducing false memories through semantic associations

bed
rest
awake
tired
dream
wake
snooze
blanket
doze
slumber
snore
nap
peace
yawn
drowsy

sleep

(Roediger & McDermott, 1995) 17

Remember this picture?

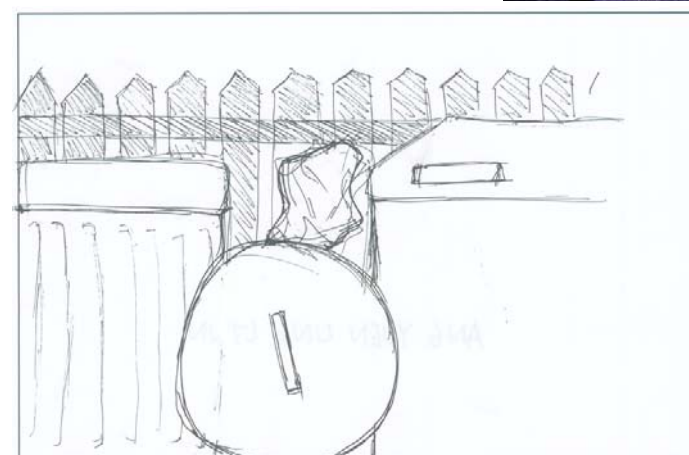


You were asked to draw the picture as accurately as possible from memory.

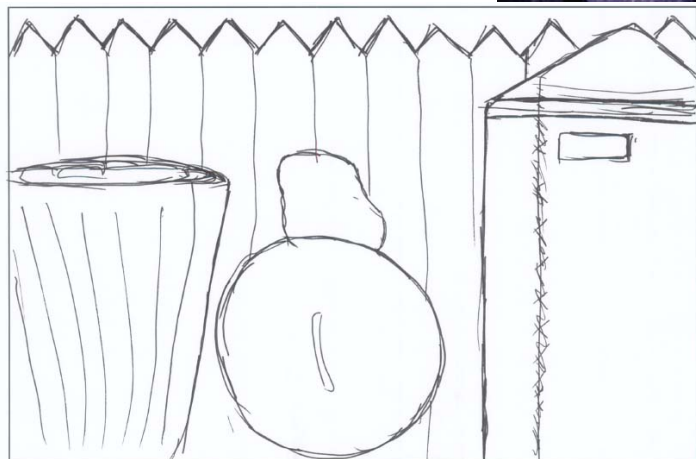
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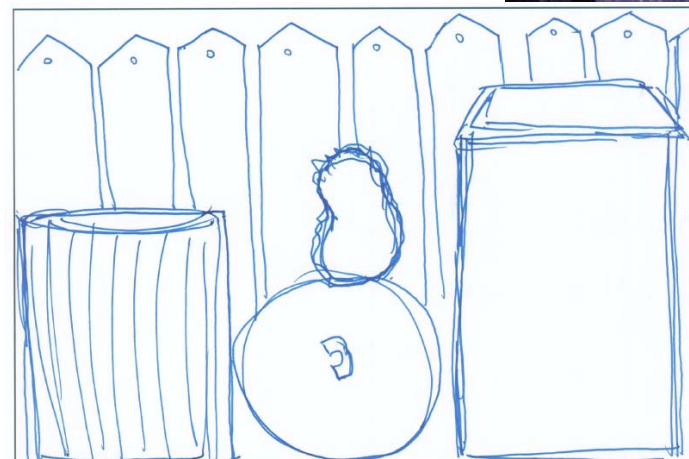
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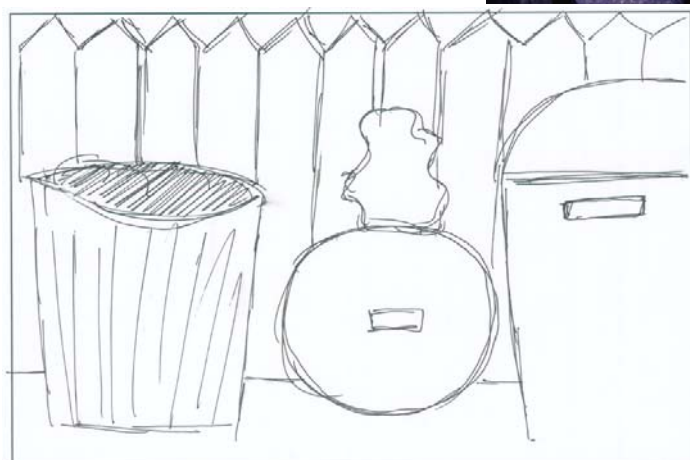
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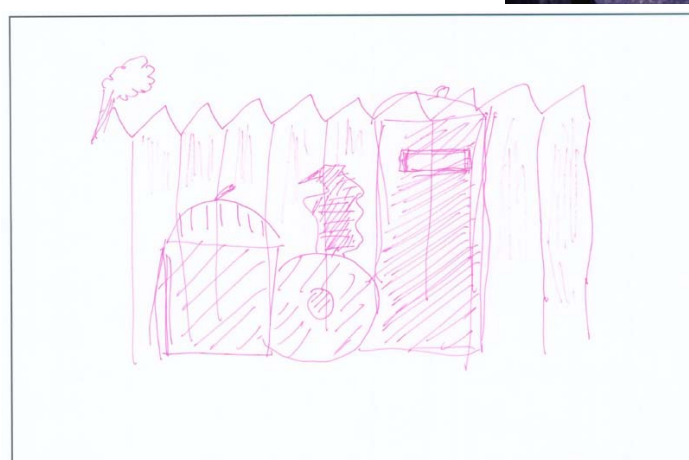
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What do the drawings have in common?

Wide-Angle Memories of Close-Up Scenes

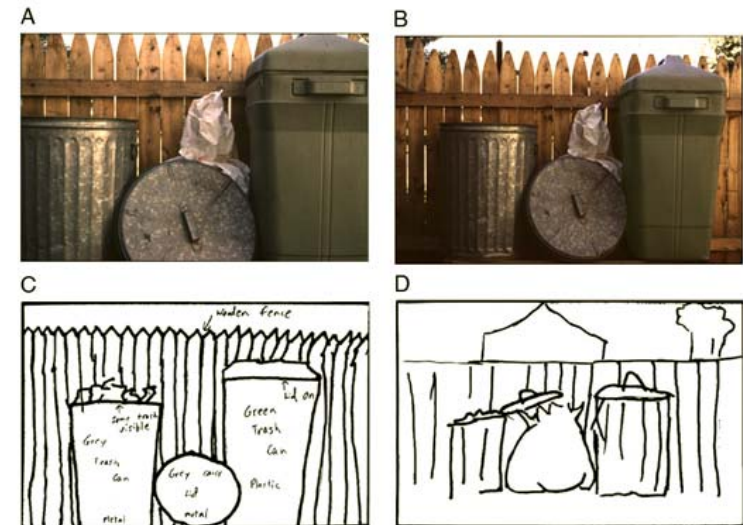
Helene Intraub and Michael Richardson
University of Delaware

We report a picture-memory phenomenon in which subjects' recall and recognition of photographed scenes reveal a pronounced extension of the pictures' boundaries. After viewing 20 pictures for 15 s each, 37 undergraduates exhibited this striking distortion; 95% of their drawings included information that had not been physically present but that would have been likely to have existed just outside the camera's field of view (Experiment 1). To determine if boundary extension is limited to recall and drawing ability, Experiment 2 tested recognition memory for boundaries. Eighty-five undergraduates rated targets and distractors on a boundary-placement scale. Subjects rated target pictures as being closer up than before and frequently mistook extended-boundary distractors as targets.



Journal of Experimental Psychology:
Learning, Memory, and Cognition
1989, Vol. 15, No. 2, 179-187

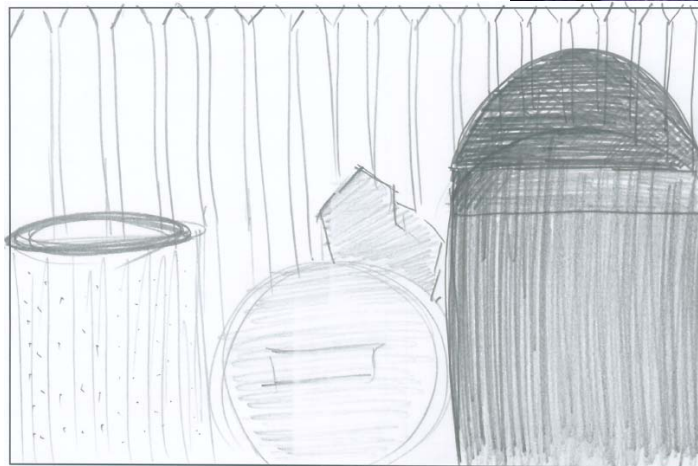
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(Intraub & Richardson, 1989)

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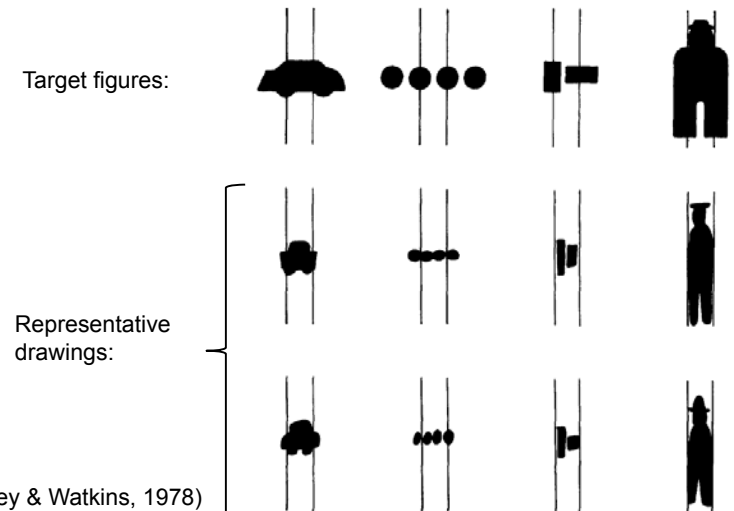
Among your drawings, only one did not display much "boundary extension"



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"Seeing-More-Than-There-Is" Phenomenon

When people see a moving picture through a small aperture, they remember more of the object than was actually seen.



(McCloskey & Watkins, 1978)

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Representational Momentum

+

An observer's memory for the final position of an abruptly halted moving object tends to be distorted in the direction of the implied motion.

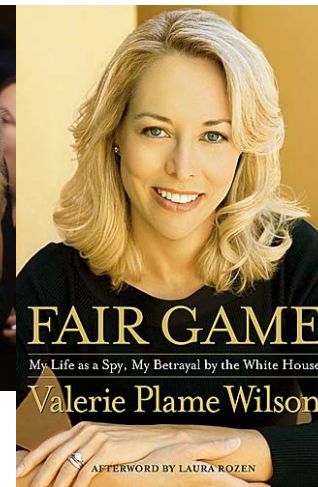


(Jennifer Freyd)

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Ambassador Joe Wilson
& former CIA operative
Valerie Plame



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NBC: Libby to invoke memory defense

Attorneys say issue could be pivotal to his guilt, innocence in perjury trial

By Joel Seidman Producer
updated 4:25 p.m. PT, Mon., July 31, 2006

Attorneys for I. Lewis "Scooter" Libby, in a court filing Monday, are seeking to admit the expert testimony of a memory specialist on behalf of Libby, the former chief of staff for Vice President Cheney, who faces charges of perjury and obstruction of justice for his role in the CIA leak scandal.

Libby's lawyers contend that issues of memory — including how it works and why it fails — will be crucial to the jury's determination of Libby's guilt or innocence.

Libby's attorneys are seeking to admit the statements of Dr. Robert A. Bjork, the chairman of the Department of Psychology at the University of California, Los Angeles.

According to the filing, Libby will argue that, in many cases, it is the government witnesses who have misremembered the facts, and that any errors Libby made in describing the events were the result of "confusion or faulty memory, not any intent to misrepresent the truth."



In an letter to Special Counsel Patrick J. Fitzgerald, Libby's attorneys state that "through a process of 'content borrowing,' persons have been found to construct inaccurate, but seemingly real, memories out of pieces of true memories."

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No memory expert for Libby trial

Judge called proposed key witness a 'waste of time'

By Joel Seidman Producer

NBC News
updated 3:52 p.m. PT, Thurs., Nov. 2, 2006

WASHINGTON - A key defense witness - a proposed memory expert - in the CIA/Leak trial of I. Lewis "Scooter" Libby, the former top aide to Vice President Cheney, will not be allowed to testify at the upcoming trial.

Judge Reggie Walton, in an opinion Thursday, wrote the testimony of memory expert, Dr. Robert Bjork, chairman UCLA's psychology department, would be a "waste of time," and could mislead and confuse a jury.

Libby's attorneys had argued many potential jurors do not understand the limits of memory and Libby should be allowed to call an expert to make that clear to them.

Judge Walton disagreed, and wrote in his opinion, "the average juror may not understand the scientific basis and labels attached to causes for memory error" but jurors encounter the "frailties of memory" as a "commonplace matter of course" and do not need the guidance of a memory expert to use their "common sense" in the understanding of how memory works.

Libby lawyers have argued that a key to their defense is their client simply did not remember "snippets of conversations" with three reporters about how he learned or what he knew about CIA employee Valerie Plame. Libby's defense team has said the pressure of Libby's White House job, "could have easily caused him to confuse or misremember minor details of conversations about his former [Ambassador Joe Wilson's] wife and her job at the CIA - topics Libby did not consider significant at the time."

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Memory distortions can be...

benign (e.g., misremembering where you parked your car)

serious (e.g., confusing what you heard after a crime with what you actually witnessed)

fantastic (e.g., remembering having been kidnapped by aliens)

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By using simplified situations and studying source confusions in the lab, researchers have characterised factors and processes that underlie both true and false memories.

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Different types of source judgments

External judgments (e.g., who said it—Person A or Person B?)

Internal judgments (e.g., did I think about it, or did I say/do it?)
- also known as **reality monitoring**

“A central claim of the *source-monitoring* approach is that **people do not typically retrieve an abstract tag or label that specifies a memory’s source**, rather, **activated memory records are evaluated and attributed to particular sources through decision processes** performed during remembering.”

- Johnson, Hashtroudi, & Lindsay (1993)

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Source Monitoring Framework

Marcia Johnson



On average, memories from various sources differ in their qualities, and we make source attributions on the basis of these differences.

External events/experiences: sensory perceptual details (e.g., colour, shape), emotion, information denoting time, location, spatial arrangement

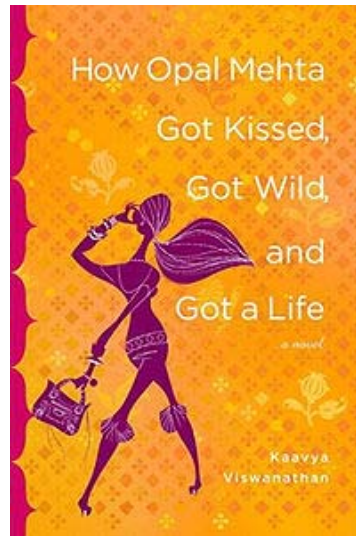
Internal events (thoughts, imagination): less vivid information of the types listed above, but often more information about cognitive operations (e.g., intention and planning, imagery)

And memories for some external sources will differ from those from other sources: e.g., television vs. newspaper – differ in sound, motion, visual details

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Kaavya Viswanathan



Harvard Novelist Says Copying Was Unintentional

By DINITIA SMITH
Published: April 25, 2006

[Kaavya Viswanathan](#), the [Harvard](#) sophomore accused of plagiarizing parts of her recently published chick-lit novel, acknowledged yesterday that she had borrowed language from another writer's books, but called the copying "unintentional and unconscious."

From the *New York Times* (Apr 25, 2006)



Jodi Hilson for The New York Times
Questions have arisen about Kaavya Viswanathan's first novel.

The book, "How Opal Mehta Got Kissed, Got Wild and Got a Life," was recently published by Little, Brown to wide publicity. On Sunday, The Harvard Crimson reported that Ms. Viswanathan, who received \$500,000 as part of a deal for "Opal" and one other book, had seemingly plagiarized language from two novels by Megan McCafferty, an author of popular young-adult books.

In an e-mail message yesterday afternoon, Ms. Viswanathan, 19, said that in high school she had read the two books she is accused of borrowing from, "Sloppy Firsts" and "Second Helpings," and that they "spoke to me in a way

few other books did."

"Recently, I was very surprised and upset to learn that there are similarities between some passages in my novel, 'How Opal Mehta Got Kissed, Got Wild and Got a Life,' and passages in these books," she said.

Calling herself a "huge fan" of Ms. McCafferty's work, Ms.

Viswanathan added, "I wasn't aware of how much I may have internalized Ms. McCafferty's words." She also apologized to Ms. McCafferty and said that future printings of the novel would be revised to "eliminate any inappropriate similarities."

Aggrieved Publisher Rejects Young Novelist's Apology

By DINITIA SMITH
Published: April 26, 2006

Related

A 'How to Get Into College by Really, Really Trying' Novel (April 6, 2006)

Harvard Novelist Says Copying Was Unintentional (April 25, 2006)

Comparing Passages (boston.com)

Readers' Opinions

Forum: Book News and Reviews

Correction Appended

A day after [Kaavya Viswanathan](#) admitted copying parts of her chick-lit novel, "How Opal Mehta Got Kissed, Got Wild and Got a Life," from another writer's works, the publisher of the two books she borrowed from called her apology "troubling and disingenuous."

On Monday, Ms. Viswanathan, in an e-mail message, said that her copying from Megan McCafferty's "Sloppy Firsts" and "Second Helpings," both young adult novels published by Crown, a division of Random House, had been "unintentional and unconscious."

But in a statement issued today, Steve Ross, Crown's publisher, said that, "based on the scope and character of the similarities, it is inconceivable that this was a display of youthful innocence or an unconscious or unintentional act."

He said that there were more than 40 passages in Ms. Viswanathan's book "that contain identical language and/or common scene or dialogue structure from Megan McCafferty's first two books."

Mr. Ross called it "nothing less than an act of literary identity theft."

From the *New York Times* (Apr 26, 2006)

Novelist Says She Read Copied Books Several Times

By DINITIA SMITH
Published: April 27, 2006

Publisher to Recall Harvard Student's Novel

By MOTOKO RICH and DINITIA SMITH
Published: April 28, 2006

For a Harvard Student and Aggrieved Novelist, Plagiarism Generates Interest

By MOTOKO RICH and GLENN RIFKIN
Published: April 29, 2006

May 3, 2006

'Opal Mehta' Won't Get a Life After All



Helene Hegemann in Berlin.
By NICHOLAS KULISH
Published: February 11, 2010

"... the publication last month of her novel about a 16-year-old exploring Berlin's drug and club scene after the death of her mother, called 'Axolotl Roadkill,' was heralded far and wide in German newspapers and magazines as a tremendous debut, particularly for such a young author. The book shot to No. 5 this week on the magazine *Spiegel's* hardcover best-seller list... a blogger last week uncovered material in the novel taken from the less-well-known novel

'Strobo,'... **In one case, an entire page was lifted with few changes.**"

"... On Thursday, Ms. Hegemann's book was announced as one of the finalists for the \$20,000 prize of the Leipzig Book Fair."

"... Although Ms. Hegemann has apologized for not being more open about her sources, she has also defended herself as the representative of a different generation, one that freely mixes and matches from the whirling flood of information... 'There's no such thing as originality anyway, just authenticity,' said Ms. Hegemann in a statement released by her publisher after the scandal broke."

Excerpts from NYT (Feb 11, 2010)

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Cryptomnesia (inadvertent/unconscious plagiarism)

"Cryptomnesia refers to generating a word, an idea, a song, or a solution to a problem, with the belief that it is either totally original, or at least original within the present context. In actuality, the item is *not original, but one* which has been produced by someone else (or even oneself) at some earlier time."
- Brown and Murphy (1989)

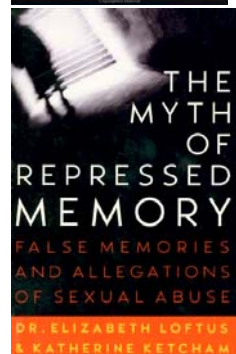
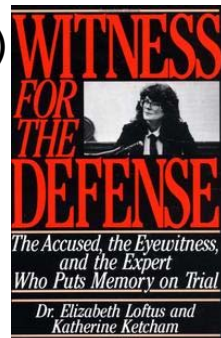
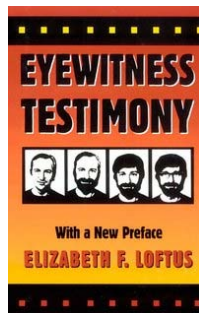
"... one of the most disheartening experiences of old age is discovering that a point you have just made—so significant, so beautifully expressed—was made by you in something you published a long time ago."

- B.F. Skinner (1983)

Can be explained by source confusion or source amnesia

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Elizabeth Loftus (UC Irvine)



The American Association for the Advancement of Science (AAAS) awarded her its Scientific Freedom and Responsibility Award in 2010 "for the profound impact that her pioneering research on human memory has had on the administration of justice in the United States and abroad."

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Misleading Information Experiments

Witness event → Misleading Suggestion → Test

Subjects viewed a movie of an accident involving 2 cars.
Different expressions used to describe car contact.
Subjects estimated speed of a car at time of contact.

VERB	MEAN SPEED ESTIMATE
Smashed	40.8
Collided	39.3
Bumped	38.1
Hit	34.0
Contacted	31.8

Source: From "Reconstruction of Automobile Destruction: An Example of the Interaction between Language and Memory" by E. F. Loftus & J. C. Palmer, 1974, *Journal of Verbal Learning and Verbal Behavior*, 13, pp. 585-589. Copyright 1974 by Academic Press. Reprinted by permission.

"Did you see any broken glass?"
32% - "Smashed"
14% - "Hit"
12% - Control grp, not given suggestion about car speed
(there was NO broken glass in the actual video)

(Loftus & Palmer, 1974)

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Planting false memories

Familial informant false-narrative procedure:

Obtain from family members descriptions of actual events that occurred to the subject when s/he was a young child. Insert a false narrative into the mix, and ask subject to try recalling the events each day for several days.

LOST IN THE MALL

"It was 1981 or 1982. I remember Chris was 5. We had gone shopping at the University City shopping mall in Spokane. I was 12. Somehow, we had lost Chris. After some panic, we found Chris being led down the mall by a tall, oldish man (I think he was wearing a flannel shirt). Chris was crying and holding the man's hand. The man explained that he had found Chris walking around crying his eyes out just a few moments before and was trying to help him find his parents."

Chris was asked to write about this (and 3 other *real* events) each day for 6 days. Chris was 14 years old when the study was conducted.

(Loftus & Coan)

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What Chris remembered about the incident after a week:

"I was with you guys for a second and I think I went over to look at the toy store, the Kay-bee toy and uh, we got lost and I was looking around and I thought, 'Uh-oh. I'm in trouble now.'I thought I was never going to see my family again...And then this old man, I think he was wearing a blue flannel, came up to me...he was kind of old. He was kind of bald on top...he had like a ring of gray hair... and he had glasses.



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Psychonomic Bulletin & Review
2002, 9 (3), 597-603

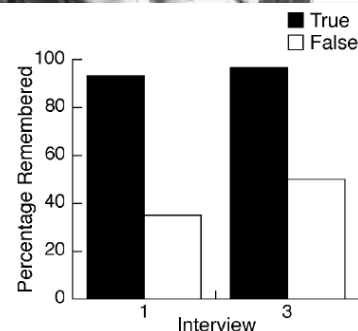
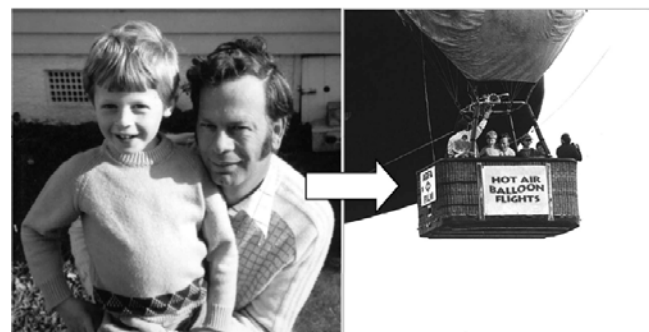
A picture is worth a thousand lies: Using false photographs to create false childhood memories

KIMBERLEY A. WADE and MARYANNE GARRY
Victoria University of Wellington, Wellington, New Zealand
and

J. DON READ and D. STEPHEN LINDSAY
University of Victoria, Victoria, British Columbia, Canada

Because image-enhancing technology is readily available, people are frequently exposed to doctored images. However, in prior research on how adults can be led to report false childhood memories, subjects have typically been exposed to personalized and detailed narratives describing false events. Instead, we exposed 20 subjects to a false childhood event via a fake photograph and imagery instructions. Over three interviews, subjects thought about a photograph showing them on a hot air balloon ride and tried to recall the event by using guided-imagery exercises. Fifty percent of the subjects created complete or partial false memories. The results bear on ways in which false memories can be created and also have practical implications for those involved in clinical and legal settings.

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Subjects were asked to look at the photos each day and try to recall the events. By the time of Interview #3 (6-14 days after Interview #1), 50% of subjects had at least some partial memory of being in a hot air balloon when they were young.

The subjects' comments during debriefing suggests that they were not suspicious of the photographs. For example, when told that one of the photos was a fake, Subject A.G. replied, "That's amazing, 'cause I honestly started to talk myself into believing it! ... I still feel in my head that I actually was there; I can sort of see images of it, but not distinctly, but yeah. Gosh, that's amazing!"

(Wade, Garry, Read, & Lindsay, 2002)

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True Photographs and False Memories

D. Stephen Lindsay,¹ Lisa Hagen,¹ J. Don Read,¹ Kimberley A. Wade,² and Maryanne Garry²

¹University of Victoria, Victoria, British Columbia, Canada, and ²Victoria University of Wellington, Wellington, New Zealand

ABSTRACT—Some trauma-memory-oriented psychotherapists advise clients to review old family photo albums to cue suspected “repressed” memories of childhood sexual abuse. Old photos might cue long-forgotten memories, but when combined with other suggestive influences they might also contribute to false memories. We asked 45 undergraduates to work at remembering three school-related childhood events (two true events provided by parents and one pseudoevent). By random assignment, 23 subjects were also given their school classes’ group photos from the years of the to-be-recalled events as memory cues. As predicted, the rate of false-memory reports was dramatically higher in the photo condition than in the no-photo condition. Indeed, the rate of false-memory reports in the photo condition was substantially higher than the rate in any previously published study.

In the photo condition, subjects were given an actual photo of their 1st-grade class together with the false narrative.



False narrative:
I remember when Jane was in Grade 1, and like all kids back then, Jane had one of those revolting Slime toys that kids used to play with. I remember her telling me one day that she had taken the Slime to school and slid it into the teacher’s desk before she arrived. Jane claimed it wasn’t her idea and that her friend decided they should do it. I think the teacher, Mrs. Smollett, wasn’t very happy and made Jane and the friend sit with their arms folded and legs crossed, facing a wall for the next half hour.

Subjects’ memories of the psuedo-event:

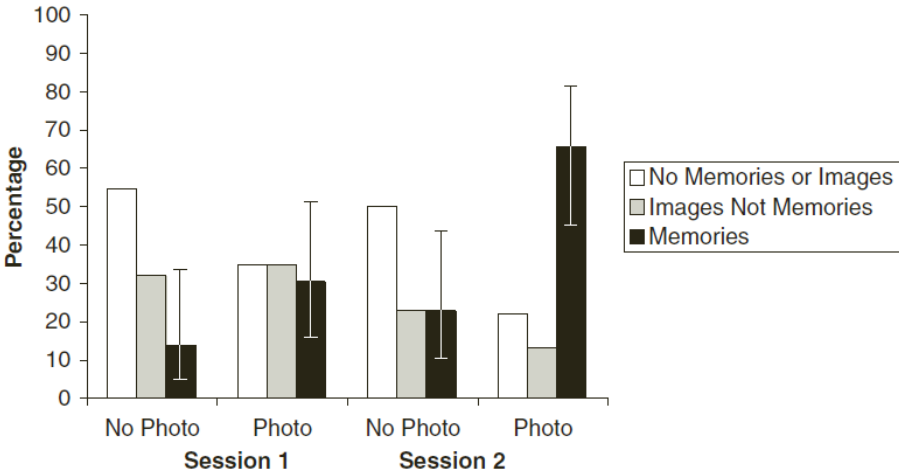


Fig. 2. Percentage of subjects classified as having no memories or images, images but not memories, and memories of the pseudoevent, as a function of experimental condition and session.

Planting more false memories...

16% of subjects who were exposed to a fake Disney ad featuring Bugs Bunny later remembered personally meeting Bugs Bunny at Disneyland. (Braun, Ellis, & Loftus, 2002)

After reading articles about demonic possession and receiving false feedback about their childhood fears (that witnessing a possession probably led to those fears), subjects became more confident that they had witnessed possession as a child. (Mazzoni, Loftus, & Kirsch, 2001)

Getting Alan Alda (actor in the classic TV series M*A*S*H) to believe that when he was a child he had gotten sick from eating too many hard-boiled eggs. At a later picnic he refused to eat hard-boiled eggs. (Loftus)



Jean Piaget's false memory

"One of my first memories would date, if it were true, from my second year. I can still see, most clearly, the following scene, in which I believed until I was about fifteen. I was sitting in my pram, which my nurse was pushing in the Champs Elysées, when a man tried to kidnap me. I was held in by the strap fastened round me while my nurse bravely tried to stand between me and the thief. She received various scratches, and I can still see vaguely those on her face... When I was about fifteen, my parents received a letter from my former nurse... she wanted to confess her past faults, and in particular to return the watch she had been given as a reward... She had made up the whole story... I, therefore, must have heard, as a child, the account of this story, which my parents believed, and projected into the past in the form of a visual memory."

- Piaget (1972)

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One shortcoming of studies examining the planting of false autobiographical memories...

we usually cannot be 100% sure that the pseudo-event never took place!

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Memory & Cognition
1998, 26 (1), 20-33

Imagination inflation for action events: Repeated imaginings lead to illusory recollections

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In two experiments, subjects heard simple action statements (e.g., "Break the toothpick"), and, in some conditions, they also performed the action or imagined performing the action. In a second session that occurred at a later point (10 min, 24 h, 1 week, or 2 weeks later), subjects imagined performing actions one, three, or five times. Some imagined actions represented statements heard, imagined, or performed in the first session, whereas other statements were new in the second session. During a third (test) phase, subjects were instructed to recognize statements only if they had occurred during the first session and, if recognized, to tell whether the action statement had been carried out, imagined, or merely heard. The primary finding was that increasing the number of imaginings during the second session caused subjects to remember later that they had performed an action during the first session when in fact they had not (imagination inflation). This outcome occurred both for statements that subjects had heard but not performed during the first session and for statements that had never been heard during the first session. The results are generally consistent with Johnson, Hashtroudi, and Lindsay's (1993) source monitoring framework and reveal a powerful memory illusion: Imagining performance of an action can cause its recollection as actually having been carried out.

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Memory & Cognition
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Digitally manipulating memory: Effects of doctored videos and imagination in distorting beliefs and memories

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In prior research on false autobiographical beliefs and memories, subjects have been asked to imagine fictional events and have been exposed to false evidence that indicates that the fictional events occurred. But what are the relative contributions of imagination and false evidence toward false belief and memory construction? In the present study, subjects observed and copied various simple actions; then they viewed doctored videos that suggested that they had performed extra actions and they imagined performing some of those and some other actions. Subjects returned 2 weeks later for a memory test. False evidence or imagination alone was often sufficient to cause belief and memory distortions; in combination, they appeared to have additive or even superadditive effects. The results bear on the mechanisms underlying false beliefs and memories, and we propose legal and clinical applications of these findings.

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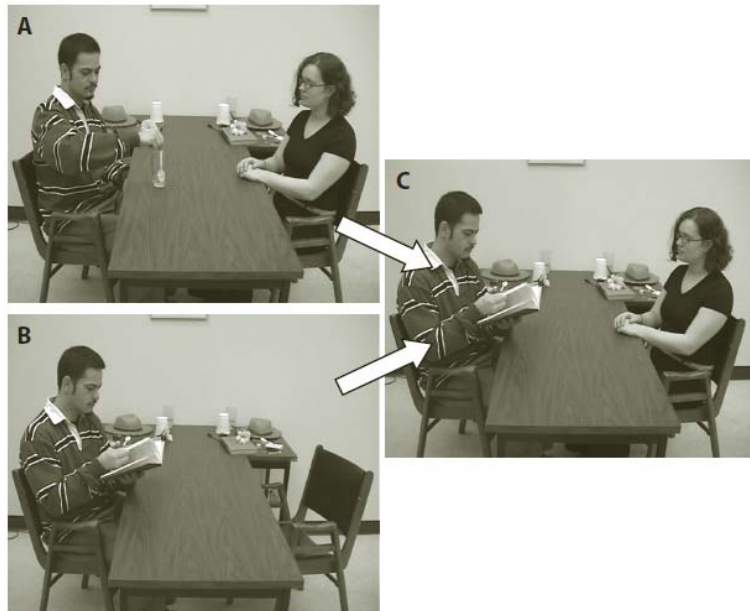
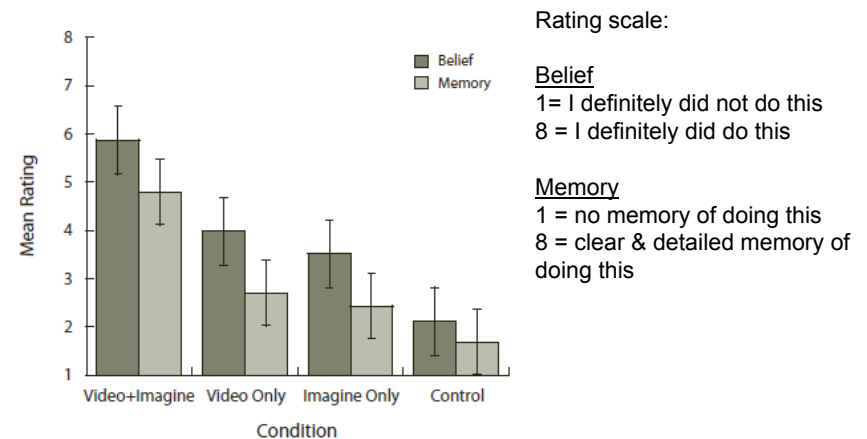


Figure 1. The video-doctoring process. (A) The subject (right) observes the research assistant (RA) perform an action during Session 1. (B) The RA performs an extra action after the subject has gone. (C) Composite of the right side of panel A and the left side of panel B.

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(Nash, Wade, & Lindsay, 2009)

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Recovery of Repressed Memories?

Several court cases have relied on testimony based on recovered memories of childhood abuse. These memories often recovered with the help of a therapist.

The claim is that some memories are so horrific/stressful that they are repressed. But the repressed memories can resurface or return to consciousness with the removal of the stressor.

At the point of recovery, the person has the experience of currently remembering the event but also believes that s/he had not previously remembered the event.

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Recovery of Repressed Memories?

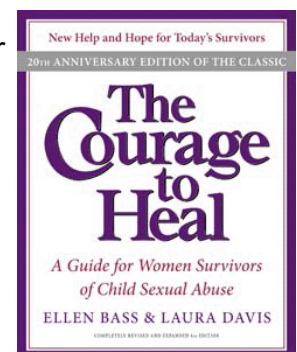
Problem:

Are these recovered memories veridical or are they just false memories?

Therapists can be a potent source of *suggestion*, using highly suggestive techniques like:

- Guided imagery
- Hypnosis
- Dream interpretation

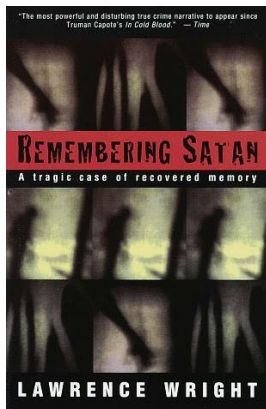
Moreover, the client is often also very motivated to find a reason for his/her depression, marital problems, insomnia, etc.



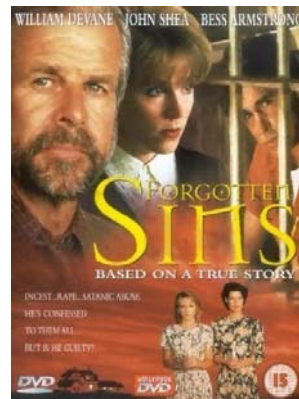
"No book did more to spread false memory syndrome..."

- False Memory Syndrome Foundation (2009)

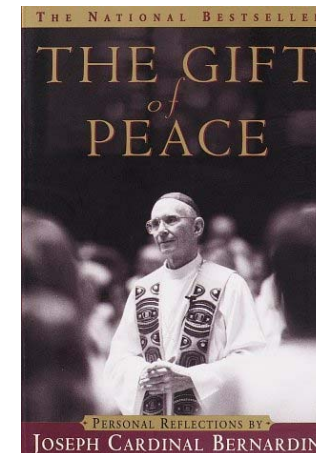
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The case of Paul Ingram



Ingram was a long-time deputy sheriff in Washington state. In 1988 his 2 (adult) daughters accused him and other prominent men in the community of sexual abuse. It started at a Pentecostal church retreat—one of the daughters was crying and a church minister prophesied that the Holy Spirit told her (the minister) that the girl was a victim of sexual abuse by her father. The daughters' claims became more and more bizarre – raped in > 800 satanic rituals and given abortions by their father. Ingram, convinced by his pastor that he was possessed by demons, eventually confessed and pled guilty to the charges. While in prison, he changed his mind about his guilt. Released in 2003 after serving his sentence. No physical evidence to substantiate daughters' claims. 61



Cardinal Bernardin (d. 1996), Archbishop of Chicago. In 1993, Steven Cook, who was dying of AIDS, accused Bernardin of sexually abusing him in the 1970s when he was a high school student. Cook's \$10 million lawsuit stated that he waited > 15 years to make the allegations because he had repressed the memories, and only recovered them recently. In 1994, Cook dropped the charges because he was no longer sure if the memories that arose during hypnosis were true and accurate. 62



Remember her? Jennifer Freyd – Psychology Prof at U of Oregon.

In 1990 Jennifer (then in her early 30s) accused her father, Peter Freyd, of sexually abusing her when she was a child. Jennifer had recently entered therapy, when horrible images started to haunt her. (Red Flag: Her therapist reported that almost all her clients were women, and about 85-90% of them had been sexually abused as children.)

".... Jennifer Freyd told a Michigan conference on recovered memory that recollections of abuse started filtering back when her therapist asked if she had ever been sexually abused. "I was immediately thrown into a strange state; no one had ever asked me such a question. I responded 'no, but...' and blurted out some of the events. . . "After the session, I walked in a daze to my husband's office and whispered the words, 'sexual abuse.' I went home and within a few hours I was shaking uncontrollably, overwhelmed with intense and terrible flashbacks."" (excerpt from *The Baltimore Sun*; Dec 9, 1994)

Jennifer's parents, Peter and Pamela Freyd, have not had any contact with their daughter since the accusations. They started the False Memory Syndrome Foundation in 1992 to study the phenomena of false memories and support parents who have been accused of abuse on the basis of recovered memories by their adult children.

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SJC denies ex-priest Paul Shanley's bid for new trial

By Rachelle Cohen | Friday, January 15, 2010 | <http://www.bostonherald.com> | Local Coverage

The state's highest court today affirmed the 2005 conviction of pedophile priest Paul Shanley and along with it the introduction of so-called "repressed memory" of victims in prosecuting cases of sexual abuse.

In denying Shanley's appeal, the unanimous Supreme Judicial Court decision rejected a laundry list of grounds raised by his legal team, including whether his conviction raised statute of limitations issues (it didn't, the court said) or an abuse of judicial discretion (again, no).

"There was no abuse of discretion in the admission of expert testimony on the subject of dissociative amnesia," the court found, using the term used in the Diagnostic and Statistical Manual of the American Psychiatric Association – the virtual bible of psychiatry and psychology.

The case, which came to trial in 2005, involved a then 27-year-old victim, who testified to being abused by Shanley from the age of 6 until he was a 13-year-old. He testified that Shanley used to pull him out of religious classes at Newton's St. Jean's Parish.

However, the victim also testified that he had repressed the memory of his abuse for years only realizing that he was a victim after he began reading about cases in Boston and looking at photographs of Shanley in the papers and on the Internet. At the time he was stationed at an Air Force Base in Colorado Springs.

"The victim's testimony about what he remembered of that abuse constituted the core of the evidence against the defendant at trial," said Justice Robert J. Cordy, writing for the court.

And so it was the use of repressed memory itself that was also ultimately put on trial, and today as earlier in the case found to be a legitimate psychological disorder that could explain the inability of abuse victims to report their abuse in what courts would usually consider a timely fashion.

Shanley, now age 79, who had been sentenced to 12 to 15 years on two counts of child rape, remains in prison.



Photo by AP (File)

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Former Catholic priest's bid for new trial rejected

The Boston Globe

Use of recovered memories upheld

By John R. Ellement, Globe Staff | January 16, 2010

The state's high court yesterday upheld the sexual assault convictions of former Roman Catholic priest Paul M. Shanley, who claimed he was wrongly accused by a man who fabricated memories of being abused as a child.

Shanley was a key figure in the clergy abuse scandal that rocked the Boston Archdiocese beginning in 2002, and his appeal drew national attention by experts who view "recovered memories" as a valid psychiatric condition and those who see it as "junk science."

In a unanimous ruling, the Supreme Judicial Court said a Superior Court judge made the right decision when he allowed repressed memory evidence to be used against Shanley during his 2005 trial.

"In sum, the judge's finding that the lack of scientific testing did not make unreliable the theory that an individual may experience dissociative amnesia was supported in the record, not only by expert testimony but by a wide collection of clinical observations and a survey of academic literature," Justice Robert Cordy wrote for the SJC.

Shanley, now in his late 70s, was originally prosecuted by Martha Coakley, who is now attorney general and a Democratic candidate for US Senate. Her successor, Middlesex District Attorney Gerard T. Leone Jr., whose prosecutors defended the conviction before the SJC, applauded the ruling.

"As the SJC recognized, repressed memories of abuse is a legitimate phenomenon and provided a valid basis for the jury to find that the victim, a child at the time of the assaults, repressed memories of the years of abuse he suffered at the hands of Paul Shanley, someone who was in a significant position of authority and trust," Leone said.

But Shanley's appellate attorney, Robert F. Shaw Jr. of Cambridge, said the SJC had made a grievous mistake. Shaw, who argued in court papers that recovered memory was "junk science," said Shanley deserved a new trial.

"We believe that it's the wrong decision and that a great injustice was done in this case," said Shaw, who added he respects the SJC but disagrees with its thinking. Shanley's conviction "rested on a foundation that is invalid."

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"... 'repressed-recovered memories,' 'dissociative amnesia' and related concepts are best described as pernicious psychiatric folklore devoid of convincing scientific evidence. Such theories are quite incapable of reliably assisting the legal process."

- Excerpt from an amicus curiae ("friend of the court") brief, signed by ~100 prominent psychologists, psychiatrists, and other scientists, submitted to the Massachusetts Supreme Judicial Court

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"Psychiatrists are advised to avoid engaging in any 'memory recovery techniques' which are based upon the expectation of past sexual abuse of which the patient has no memory. Such 'memory recovery techniques' may include drug-mediated interviews, hypnosis, regression therapies, guided imagery, 'body memories,' literal dream interpretation and journaling. There is no evidence that the use of consciousness-altering techniques, such as drug-mediated interviews or hypnosis, can reveal or accurately elaborate factual information about any past experiences including childhood sexual abuse. Techniques on regression therapy including 'age regression' and hypnotic regression are of unproved effectiveness."

Royal College of Psychiatrists, Reported Recovered Memories of Child Sexual Abuse, 1997. (UK)

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Summary

Cognitive processing is constructive
perception, memory

False memories can be highly compelling and persist over time. The vivid recollection of a prior event does not necessarily indicate that the event occurred.

Factors that enhance the likelihood of false memories include inferential processing, repeated retrieval attempts, imagery, social pressure to remember, misleading suggestions.

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