

# Recall

- Last class we looked at alternative medicine.
- This class we look at:
  - Interpersonal strategies; and
  - Extrasensory perception (ESP)
- All extended examples of the application of critical thinking to real-world cases.

# Questionable interpersonal strategies

- Strategies include: self-handicapping, name dropping, boasting, coming on strong
- Gilovich is trying to figure out why such strategies are both common and persistent.
  - despite their being poor strategies
- Not surprisingly, error tendencies we have discussed play a role

# Self-handicapping

- Two different classes of self-handicapping:
  - 1) "real" self-handicapping in which you place physical obstacles to success in your path (e.g., getting drunk, not studying); and
  - 2) "feigned" self-handicapping in which you merely claim that there are difficulties or obstacles along the path to success (e.g., poor tools, injury).
- In both cases, self-handicapping is an attempt to control how others perceive us.
- In particular, we are making any success more impressive and any failure explicable.

# Self-handicapping (cont.)

- E.g.: If I mention to my teammates in the locker room that I have played six hockey games in the last four days, then any lapses, or seeming laziness in my play can be explained away. If I happen to score some goals, they should be impressed at my physical fitness and tenacity.
- This would be a case of 'real' but unintentional self-handicapping
  - Not handled by Gilovich

# Self-handicapping (cont.)

- Gilovich mistakenly assumes that all such cases are fakery.
- Still, my teammates are likely to consider the fact that I "let it slip" that I had been playing so much hockey to be an attempt to manipulate them.
- As a result, it is as likely ineffectual as Gilovich's cases (the data doesn't speak to this).

# Self-handicapping (cont.)

- A number of interesting questions are raised by the phenomena of self-handicapping:
  1. is it really better to be thought of as a talented drunk?
  2. are we supposed to think less of someone who has applied themselves?
    - Gilovich: society rewards glibness, prowess and beauty
    - Eliasmith: Thai x-country, Jamaican bobsled
  3. who is the self-handicapper trying to fool?
    - Definitely others, maybe self (hard to measure)
  4. why do people believe the strategies are effective?
  5. why do people continue to employ the strategies if they are ineffective?

# Name dropping and boasting

- Trying to emphasize our social connections or past exploits in an attempt to increase our esteem in the eyes of others.
- Again, the examples Gilovich presents are all cases in which the boasting or name dropping is presumed to be false.
- Boasting and name dropping probably have the same effects whether true or false (like self-handicapping?), although the extent of the effect may depend on whether it is true or false (no data).

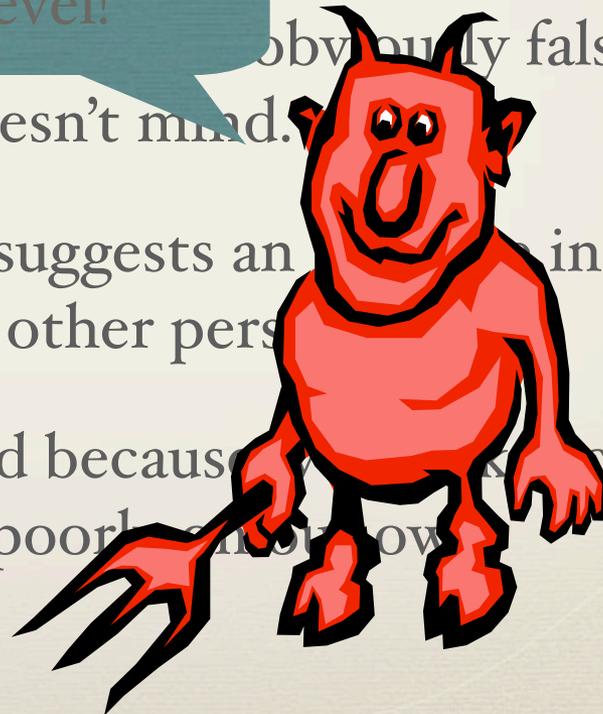
# Name dropping and boasting

- Name dropping and boasting tends to result in the audience losing patience with, or being annoyed by the speaker
  - This may be out of either jealousy, or annoyance at having their time wasted
- Both do not seem like a good way of improving how other people perceive you
- The question is:

***Why do people persist?***

# Flattery (aside)

- Gilovich's discussion of flattery is quite interesting: flattery might be a **To the 2<sup>nd</sup> level!** strategy.
- Even cases in which the flattery is obviously false, the person being flattered doesn't mind.
- Perhaps because flattery suggests an increase in their esteem in the eyes of the other person.
- Perhaps it is underutilized because increasing others skill level reflects poorly on one's own.



# Coming on strong

- Gilovich claims that some believe "the only way to get anywhere with the opposite sex is to come on strong" (p. 153).
- Although Gilovich does not cite any evidence, he presumably thinks that this is generally an unsuccessful strategy
  - NeXT, or Dismissed, or 'Mystery'
- Assuming that it is, we must again ask why is it then so persistent?

# Explaining persistence

- These questionable interpersonal strategies demonstrate error tendencies including:
  - assessing statistical relationships
  - one-sided events
  - partial reinforcement
  - self-fulfilling prophecies

# Assessing statistical relationships

- To determine if a strategy is good, the user of the strategy must be able to determine the relationship between that strategy and various social outcomes (2x2 table)
- As we know, people sometimes have difficulties with:
  1. noticing limitations in the available evidence; and
  2. evaluating that evidence.

# Statistical relationships (cont.)

- In handicapping, name dropping, and boasting, the available evidence is limited in two ways:
  1. information regarding effectiveness is biased; and
    - there is a general reluctance on the part of our peers to relay negative information. As a result, the success of our strategy becomes a one-sided event
  2. information about alternative strategies is not available.
    - current strategy seems successful, so...

# Statistical relationships (cont.)

- We can summarize these in this 2x2 table.

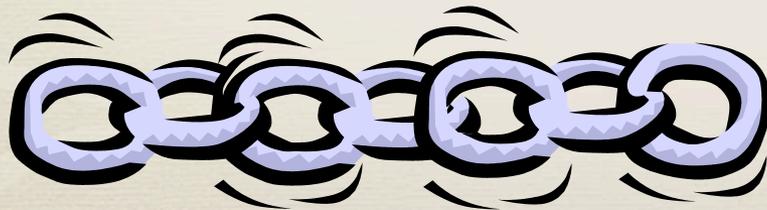
	impressed	~impressed
use strategy	avail	less avail
~ use strategy	not avail	not avail

# Partial reinforcement

- Like gamblers, people explain away failures and take credit for successes (i.e. turn partial reinforcement into positive evidence).
- E.g., for 'coming on strong', people attach too much significance to occasions when it is effective.
- An asymmetry: A single success generally does more to confirm the strategy than a single failure.
- No matter how dysfunctional, strategies seem to work sometimes

# Partial reinforcement (cont.)

- Why? Maybe people think that to achieve an outcome, every step in a complex causal chain must work correctly; any break leads to failure.
- So:
  - A failure could be the result of any number of breaks in the chain.
  - Success must mean that the strategy (one part of the chain) forms a solid link in it.



# Partial reinforcement (cont.)

- But we *should* consider multiple possible explanations for success of the causal chain (to determine which is the best).
- Doing so makes it clear that
  - success sometimes comes about despite a faulty strategy; and
  - failure can be due to a faulty strategy.

Strategy?



# Self-fulfilling prophecies

- Coming on strong: it may seem that this tactic is necessary once it is adopted.
- Such aggressiveness may foster a kind of resistance in other people, thus creating a hostile world in which it's very important to come on strong, or success will never be garnered.
- This can be seen as a result of the previous problem of not testing alternative strategies.

# A mystery

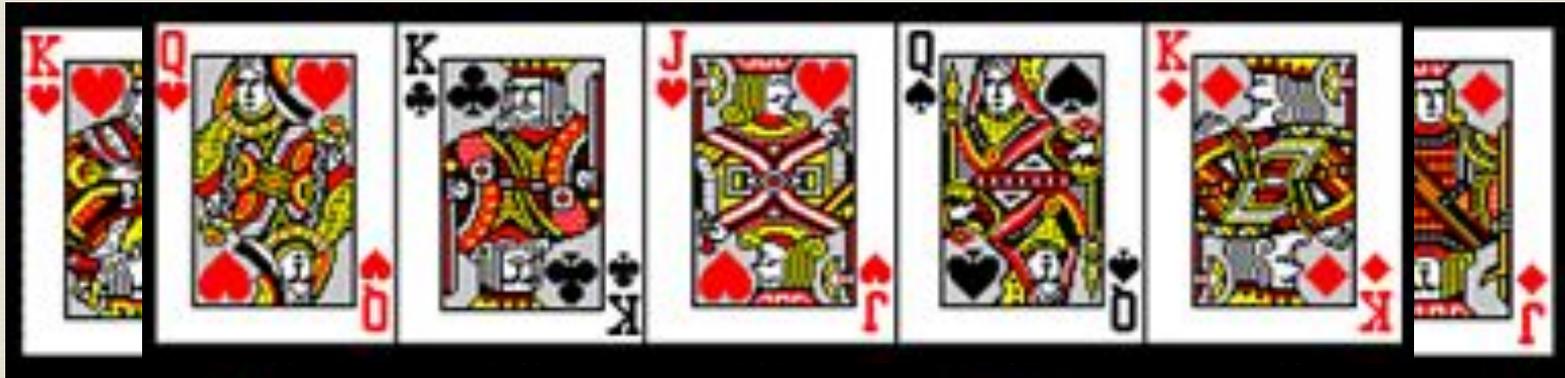
- Gilovich asks, but never answers: "if people are so disgusted by the name dropping and boasting of others, why do they attempt it themselves?" (p. 152).
- Perhaps this is because most people consider themselves to be better social manipulators than average (Lake Wobegon).

# Extrasensory perception



# ESP at work

- Pick a card, any card ([http://urbanlegends.about.com/library/bl\\_card\\_trick1.htm](http://urbanlegends.about.com/library/bl_card_trick1.htm))



# Extrasensory perception

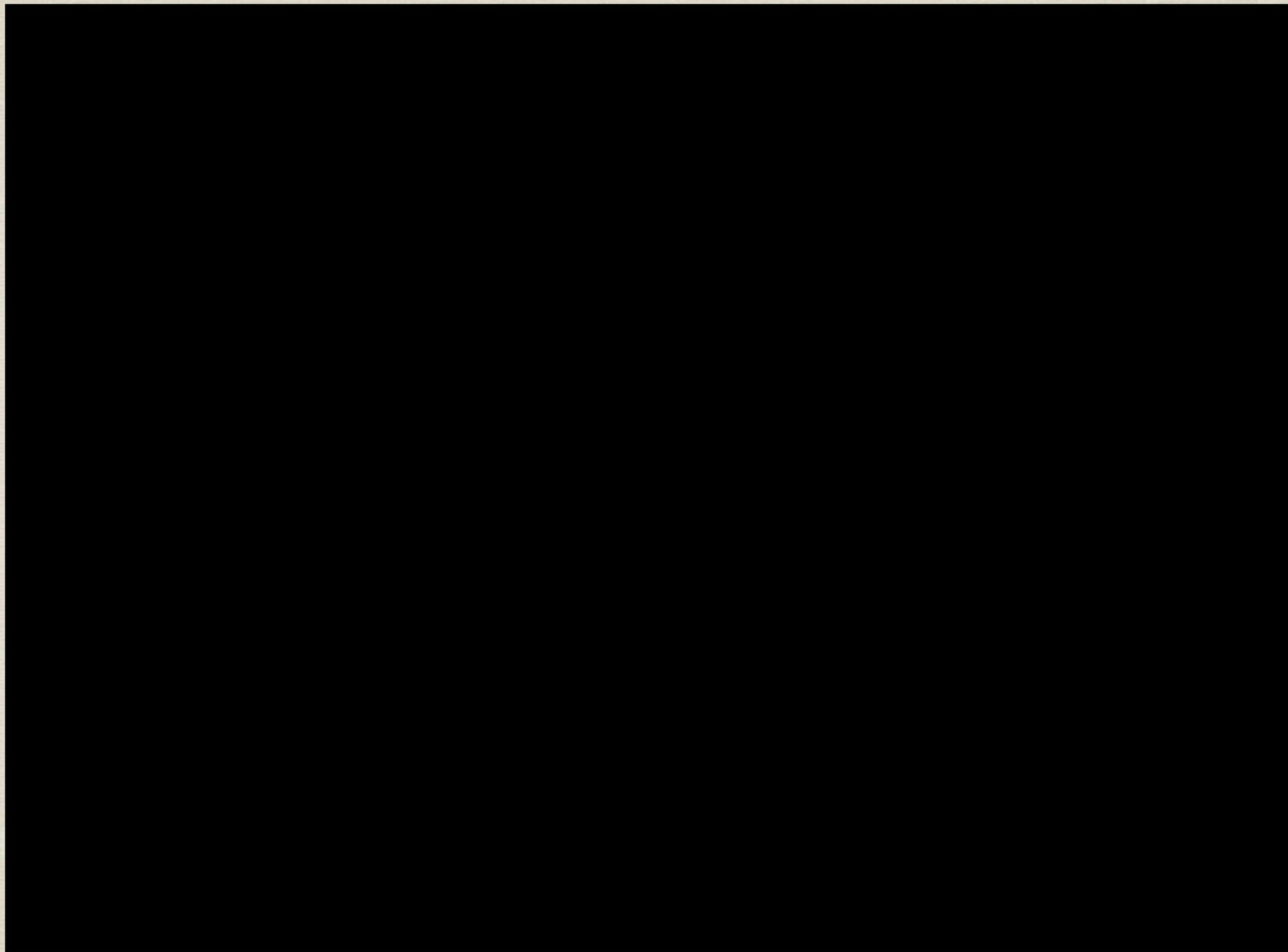
- The ESP case is a study in the evaluation of scientific evidence.
- ESP is an interesting case because while the ESP theory scores high on some criteria for the scientific theories (e.g., unity) it scores very low on others (e.g. content, testability, etc.).
- As well, each case in which ESP is a explanation for particular phenomena, the alternative explanation must be compared to it.
- This provides for many different examples of IBE.

# ESP (cont.)

- ESP is also interesting because so many people believe that it is true.
- Examining why so many people hold an unjustified theory can give us some idea about what to 'watch out for' in other cases.
- One central lesson is that just because we hear about something a lot does not mean that it is true.
- Also, we should be especially careful when the "more exciting" theory is the one that we hear about the most.

# What is ESP?

- Extrasensory perception (ESP) is a class of phenomena included under the broader class of phenomena denoted by the term "psi".
- ESP itself includes telepathy, clairvoyance, and precognition.
- Psychokinesis/telekinesis is also often included in the class of psi phenomena.
- More generally, ESP is a kind of paranormal phenomena.



# ESP History - J. B. Rhine



- Study of telepathy (5 symbols, see if someone can guess above chance at the card being looked at by someone else).
- Many possible methodological artifacts (e.g., hand shuffling, reused/damaged cards, 'shyness' effect, etc.)
- Results were reproduced by shuffling and comparing two decks.

# ESP History - Soal-Goldney

- Like Rhine, but with randomized digits generated by a computer (1-5)
- Much better experimental control
- Initial analysis showed no effects, but later found 'displacement effects' for two individuals
- Re-tested these two individuals and found real effects (this time no displacement)
- But, Soal faked the data (changed 1 to 4 appropriately).

# ESP History - Remote viewing

- A subject stays in the lab, another goes to sites. The one in the lab writes a transcript of the site that the other is at. Judges later revisit the sites and order the transcripts.
- Published in *Nature*, and very high success rates for some individuals
- The transcripts gave times, and previously visited sites, cluing in the judges (judges were given an ordered list of sites).
- Erasing all cues except these 'extraneous' ones allowed for reproduction of the results.

# ESP Now – Remote viewing

- **Conclusion** (<http://www.fpc.edu/pages/Academics/behavior/psych/web93-2.htm>)
  - "In conclusion, I feel that there is a significant amount of research on the subject of remote-viewing to state that there is indeed an alternative mode of communication other than what is known through normal sensory cues. Despite all the arguments against the existence of such a form of communication, there are still experiments with good experimental procedures that have results that are better than would be expected from chance. No matter how slightly better than chance these results are, they are still higher than expected and must be examined, thus proving that there are forces that even science does not understand."
- Consider some of the 'techniques' endorsed:
  - "But in a post-hoc analysis the discovery was made that the subject actually had ten out of the twelve scores correct, but at a +2 sequence to the actual target order."

# Work continues

- The conscious universe: The scientific truth of parapsychology research (Dean Radin)
- See the thorough [book review](#) by Morten Pederson.

# ESP - Evaluation

- What other science has the following record:
  - 70 years of research no solid results
  - All reported effects are statistically tiny (and stay that way).
    - Normally an effect, once observed, can be amplified by designing new experiments to test for it more carefully
  - Experimental test paradigms constantly shift for no apparent reason
    - Cards comparison, remote viewing, random number generation (micro-PK), Ganzfeld viewing, remote staring, etc.
  - Meta-analyses of high-quality studies tend to make all effects disappear.

# The extent of belief in ESP

- Apparently, a survey of Canadian college students showed that 80 percent reported a belief in psi.
- In a study on the prevalence of belief in astrology (admittedly somewhat different, but known to be related), 45% of arts students and 37% of science students believed in astrology.
- These numbers, while more reasonable, are still surprisingly high

# Extent of belief

- Reader's Digest ("God and other mysteries", 2003, 1000 respondents in Canada):
  - 45% personal auras; 43% out-of-body experiences; 38% psychic ability; 29% past-life regression; 29% astrology;

# The extent of belief in ESP

- The US NSF report shows that many Americans believe in parapsychology and related pseudosciences. They say:
  - Nearly half or more believe in extrasensory perception or ESP (Gallup 1996; Southern Focus 1998). According to one poll, the number of people who have consulted a fortune-teller or a psychic may be increasing: in 1996, 17 percent of the respondents reported contact with a fortune-teller or psychic, up from 14 percent in 1990 (Gallup 1996).

# The extent of belief in ESP

- It's a more general problem:
  - Consider the rate of belief in evolution, a well-established scientific theory: 44% pure creationism, 40% theistic evolution, 10% evolution (US numbers. However, in the National Post results of a poll showed an almost 50/50 split over the question in Canada)
- What's the big deal?

# The extent of belief in ESP

- People have a say in important matters of public policy through their votes.
- Some individuals (e.g. prime ministers (McKenzie King) and presidents (Reagan)) do even more so.
- If people can't tell good from bad reasons, or justified from unjustified claims, bad decisions will be made (money wasted, people hurt, etc).
- Why are well-supported theories not believed and poorly supported ones believed so often?
  - We've seen many reasons in this course...

# 'Expert' evidence

- One of the biggest problems for evaluating ESP claims is accessibility to evidence.
- Most people get their evidence from "experts" who are quoted in the media. Unfortunately, the media is highly biased towards presenting the paranormal side of the debate.
- At the First Amendment Center's forum on science and the media: 57 percent of the student journalists believed in ESP; 57 percent believed in dousing; 47 percent in aura reading; and 25 percent in the lost continent of Atlantis (J. Franklin cited in Hartz and Chappell 1997).

# 'Expert' evidence

- As Gilovich notes, apparent demonstrations of ESP or any other "exciting" claims from paranormal researchers will get coverage (entertainment value)
- This is even true if the perpetrator of the paranormal is a skeptic himself (recall the case of Mr. Freid; like Stan vs. John Edwards).

# 'Expert' evidence

- People who watch paranormal shows are more likely to believe in the paranormal. NSF report:
  - Those who regularly watch shows like *The X-Files*, *Unsolved Mysteries*, *Sightings*, and *Psychic Friends* were significantly more likely than those who did not watch these programs to endorse paranormal beliefs (Sparks, Nelson, and Campbell 1997).[46]
  - Shows about paranormal phenomena, including UFOs, without disclaimers are more likely than those with disclaimers to foster belief in the paranormal. (Sparks, Hansen, and Shah 1994; Sparks and Pellechia 1997).

# 'Expert' evidence

- As a result, the evidence confronting the majority of the public is highly one-sided. Thus there seems to be more support for the paranormal than their actually is.
- Of course, the question arises, why do we find such claims exciting?
  1. they suggest a greater reality that we have yet to fully understand (but "is a garden more beautiful for imagining the faeries underneath?"); and
  2. they imply that we have more 'power' that we have yet to develop (like "the force").

# 'Expert' evidence

- But there must be more. After all, people do not believe whatever they want to believe.
- We need to look at how people interpret everyday experience and how that experience seems to support these beliefs in order to understand why people think beliefs about psi are justified.

# Everyday data

- Surveys that have asked people to explain the origin of their beliefs in psi point to the importance of personal experience. What kind of experience could they have in mind?
- Let's consider some...

# Mundane psychokinesis

- We have all probably experienced (really) wanting to influence the outcome of some random event.
- This isn't possible. Nevertheless, there will be hits. People remember hits and weight them more than misses.
- Like any random process, we will be likely to 'experience' a cluster of results.
- Clusters will sometimes be in our favour, and thus seem to provide evidence that we get what we want.

# Everyday coincidence

- Seemingly remarkable coincidences do happen.
- There is an over 99 percent probability that two of you have the exact same birthday.
- Luis Alvarez example: he estimated that 10 extremely improbable coincidences happen everyday in United States.

# Everyday coincidence

- Two sources for our misguided intuitions:
  1. the failure to appreciate how often we "sample" from the population of elements; and
  2. a reluctance to consider how many different events we would consider to be coincidental.
- Given the vastness of our experience we should actually expect some odd coincidences.
- 2. is the problem of "multiple endpoints".
- Representativeness: amazing coincidences need amazing explanations.

# Everyday premonition

- Premonitions are special case of coincidence.
- The usual cause (e.g., a plane crash) *succeeds* the usual effect (thinking there is a plane crash).
- A bizarre distortion of the *post hoc ergo propter hoc* fallacy.
- Premonitions are clearly one-sided events.
  - only in cases of premonitions being true do we notice them (recall the diary experiments).
- Premonitions suffer from the same problem of "multiple endpoints"

# The persistence of paranormal beliefs

- The number of Americans believing in ESP and the paranormal has remained fairly constant since the 1960s.
- Why? Ironically, one of the answers might be that paranormal explanations have a degree of unity missing in a hodgepodge set of scientific explanations of the same phenomena.
- However, if we evaluate these beliefs along all of the dimensions for evaluating scientific theories, parapsychological claims are clearly unjustified.

# Persistence (cont.)

- There are other reasons:
  - The tendency of parapsychologists to shift the burden of proof to the skeptic: if it wasn't ESP, what was it?
- But what has been shown by parapsychology?
  - the "experimenter effect"
  - the "decline effect"
  - the "psi-missing effect".
- None of these effects should be found if the theory is a good one; or at the very least they shouldn't be the only effects.

# Question

Question: Give an example of post hoc ergo propter hoc reasoning in a social setting.