

I. A. (Individually) follow the powerpoint review/mini-lecture about the answers for today's assignment. Put a check ✓ against largely correct answers, an X against largely wrong answers and a question mark ? if you aren't sure

II. Lecture/Discussion: Review of Correlation Arguments.

III. .New Material on Empirical Theories What is an empirical theory? Empirical Theories explain why patterns or regularities occur. Some examples: Theory of disease, theory of evolution, theory about a crime or criminal behavior.

A. In small group apply this test to each of following pairs of statements: identify the theory-statement (the one that does the explaining) and the The key to identification what explains what? An explanation answers the question "Why did something happen"regularity statement (the pattern that is being explained)

1. a. Engine blocks containing water with no antifreeze tend to crack in very cold weather .
b. Water expands when it freezes.
2. a. Among college students in the 1970's and 1980's, women were less likely to smoke marijuana than men.
b. American society is less tolerant of women engaging in deviant behavior that it is of men, which tends to constrain deviant behavior in women.
3. a. The judge, prosecutor, and defense attorney form a workgroup that carries out shared goals such as disposing of its caseload
b. In the United States, a high percentage of criminal defendants plead guilt in plea bargains.

B. Marks of an Empirical Theory As chapter 10 indicates the mark of an empirical theory is that they can be used to provide explanations. The statements that make up the theory can often be recognized in prose passages by certain clues: (1) the presence of indicator words, (2) a broader scope, and (3) specialized or technical language.

In small group use these techniques to analyze the following passages, pick out what is explained as well as the theory or theories that are put forward to do the explaining.

1. During the 1980s, numerous banks and savings and loans in the United States have failed. Between 1981 and 1984, over 150 failed, and the number has increased since that time. Before that time, since the Great Depression, the number of bank failures for a typical three-year period has been much lower than 150. Why this recent increase in failures? One reason that has been suggested is that banks have been largely deregulated, resulting in less-conservative practices by bankers willing to take risks.
2. Bruce poured some sulfuric acid over some zinc in the chemistry lab and hydrogen gas was released. This reaction is captured by the formula:

$$\text{H}_2\text{SO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{H}_2$$
sulfuric acid + zinc yields zinc sulfate + hydrogen gas
3. Natural Selection is an immensely powerful yet beautifully simple theory that has held up remarkably well, under intense and unrelenting scrutiny and testing, for 135 years. In essence, natural selection locates the mechanism of evolutionary change in a "struggle" among organisms for reproductive success, leading to improved fit of population to changing environments. (Struggle is often a metaphorical description and need not be viewed as overt combat, guns blazing. Tactics for reproductive success include a variety of non-martial activities such as earlier and more frequent mating or better cooperation with partners in raising offspring.) Natural selection is therefore a principle of local adaptation, not of general advance or progress (**Hint: Look for a theory that explains why the members of a species often have different characteristics at one time than their ancestors at a previous time and this improves the fit of the population to changing local environments**).

C. Plenary Discussion

IV. Criticizing Empirical Theories

- A. Think about empirical theories that you have heard about or read about. Pick one that you think is a bad theory—one that you don't accept. Write down in a phrase what the theory is. Exchange thoughts with a least one member of your group concerning what the theory is and why you are inclined to reject it.
- B. Chapter 10 describes an approach for a first stage criticism of empirical theories. In small group review the sample criticism on p. 292-293. Use this sample as a guide for criticizing the following passages by filling in the boxes for plausible *alternative theories* and *doubtful predictions* in the schema below

1. French sociologist Emile Durkheim undertook a study of suicide. Included among his data was evidence from various European countries about the relationship of suicide to marital status and religion. For example, the recorded suicides for Catholics in Austria for 1852–1859 were 51.3 per million persons and 79.5 per million for Protestants. Similarly, in Prussia for the years 1849–1855 the recorded suicides were 49.6 per million for Catholics and 159.9 per million for Protestants. He also found that during this period the recorded suicides for unmarried men were 975 per million, while there were only 336 per million for men with children. He used this and other evidence to support the view that in general Catholics have a lower recorded suicide rate than Protestants, and that married persons living with spouses have a lower recorded suicide rate than single persons living alone. Why? He believed that suicide rates are a function of detachment; a sense of not belonging, which he called “anomie.” When we are members of a closely-knit group with well-defined norms, we have a sense of belonging; of knowing the expectations of the group. When norms are not present, our appetites become unrestricted and we have no means of satisfying them. This leads to disillusionment and self-destruction.

Initial Theory Being Evaluated

Suicide is caused by detachment from a social group or “anomie.” When we are members of a group with well-defined norms, we have a sense of belonging and knowing expectations of the groups.

Alternative Theories?

Regularities Being Explained by Both Initial Theory and Alternatives

1. Catholics have lower (recorded) suicide rates than Protestants.
2. Married persons living with a spouse have a lower (recorded) suicide rate than people living alone.

Predicted Regularities that might not Occur?

2. **Explanation X** Many explanations have been advanced for the political apathy of Generation X [the American generation born from 1965 to 1978], but none seems to tell the entire story. One theory holds that television, which the average child now watches for forty hours a week is to blame for the cynicism and lack of civic education among the young. Another is that growing up during the Reagan and Bush presidencies, when government-bashing was the norm, led many Xers to internalize a negative attitude towards politics and the public sector. A third theory blames the breakdown of the traditional family, in which much of the child's civic sensitivity and partisan orientation is said to develop. And, of course, the incessant scandals in politics deserve some blame for driving young people into political hiding. Each of these theories undoubtedly hold some truth, but a simpler and more straight-forward explanation is possible--namely, that younger Americans are reacting in a perfectly rational manner to their circumstances, at least as they perceive them.

As they enter adulthood this explanation goes, Xers are facing a particularly acute economic insecurity, which leads them to turn inward and pursue material well-being above all else. They see the outlines of very real problems ahead--fiscal social and environmental. But in the nation's political system they perceive no leadership on the issues that concern them; rather, they see self-serving politicians who continually indenture themselves to the highest bidders. So Xers have decided for now, to tune out. After all, they ask, what's the point?

Theory	<div style="border: 1px solid black; padding: 10px; min-height: 80px;"> Plausible Alternative Theory </div>
Regularity	<div style="border: 1px solid black; padding: 10px; min-height: 80px;"> Predicted Regularities that Might Not Occur </div>

C. Plenary Discussion

V. Second Stage Criticism of theories.

A. In small group. The following passages contain response to criticism of theories. In each case indicate (i.) the theory being defended, (ii) the criticism (evidence) against which it is being defended, (iii) how the original theory is modified, and (iv) briefly discuss whether the defense appears to be *ad hoc.*,

1. **Psi:** A neutral term for parapsychological phenomena. Psi, psychic, and psychical are synonyms. Psi is not an acronym! *Why aren't psychics breaking the bank in Las Vegas casinos?* The theoretical house advantage for some casino games is fairly small, e.g., about 1% for optimally-played craps. This means that over the long term, a good craps player might get back 99 cents for each dollar they play. If they hit a "hot streak," they might even win some money. In practice, the actual house take for most games is fairly large (about 25% for table games) because people rarely play consistently, they reinvest their winnings, and the casino environment is intentionally designed to be noisy and visually distracting. Thus, for a given psychic to make any notable differences in long-term casino profits, they would have to (a) understand the strategies of each game they play, (b) consistently play according to those strategies, (c) stop when they are ahead, and (d) consistently apply strong, reliable psi.
Over the long term casino profits are predictably stable, but given that some psi effects are known to be genuine, in *principle* a good, consistent psychic (who knows how to play the casino games) might make some money by gambling. In addition, many people applying weak psi may cause small fluctuations in casino profits, but testing this would require analyzing an enormous amount of casino data, and such data is difficult to obtain.

2. The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference. Yet Darwin was so wedded to gradualism that he wagered his entire theory on a denial of this literal record. Paleontologists have paid an exorbitant price for Darwin's argument. We fancy ourselves as the only true students of life's history, yet to preserve our favored account of evolution by natural selection we view our data as so bad that we almost never see the very process we profess to study...The modern theory of evolution does not require gradual change. In fact, the operation of Darwinian processes should yield exactly what we see in the fossil record. It is gradualism that we must reject not Darwinism.

The history of most fossil species includes two features particularly inconsistent with gradualism:

1.*Stasis.* Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking much the same as when they disappear; morphological change is usually limited and directionless.

2. *Sudden appearance*. In any local area, a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and "fully formed." Stephen Jay Gould, *The Panda's Thumb*, (New York: W.W. Norton, 1980) pp. 181-2.

B. Plenary Discussion

C. (**In small group**) The following passage raises questions about Testability. Describe whether, and if so, how the following theories might be tested.

1. Suppose we theorize that individual organisms have a personal space, a kind of "shell" surrounding them that is especially "intimate" and provokes "strong" generally negative reaction when another organism enters it. For example, human beings often react negatively when another (particularly a stranger) is "too" close. On this view, the boundary of their personal space is the distance at which they become uncomfortable and will typically move back a little or otherwise react to express their discomfort, so as to remove the errant individual from their personal space. The size of the personal space might vary by individual, gender, cultural background, context, and other characteristics.

2. How are fossils to be explained? One early defender of the Biblical account, a nineteenth-century naturalist named Philip Henry Gosse, suggested that God created the earth with the fossils already in it (Cited in Daisie Radner and Micheal Radner, *Science and Unreason*)

D. Plenary Discussion

Revised Schedule for Weeks 7-10

WK 7 May 10 May 13	Am SR: <i>Arguments from Controlled Experiments</i> (Read: C&P Ch 9 to p 260.) Video: <i>Prisoners of Silence</i> Pm ER: <i>Virtue Ethics II</i> : (Read handout on Virtue Ethics	Am: CR : <i>Explanation and Theories</i> (Ch. 10) Pm <i>More Explanation and Theories</i> Idea Fair for Critical Exchange Topics
WK 8 May 17 May 20	Am Review of Theories Assessing Intelligent Design Read: Handouts Pm ER: <i>A satisfactory moral theory?</i> (Read: R&R Ch 13, handout on Deontology and Consequentialism)	Am: CR: <i>Non-deductive arguments and Six Step procedure</i> (Read: C&P Ch. 9 from p. 260 to end & Ch. 11) Pm ER: <i>Assessing Moral Arguments</i> Read Handout
WK 9 May 24 May 27	Am CR: <i>Experts and You</i> (Read: C&P Ch 12) Pm ER: <i>Ethical Reasoning and You</i>	Am Review for Exam II, Take Home portion of Ethics exam Due Pm <i>Critical Exchange Preparation</i>
WK 10 May 31 June 3	Am Exam II plus Makeup exam Pm Critical Exchange preparation	<i>Critical Exchange</i> : Portfolio Due



Assignment for Tuesday May 17. Review : Ch. 10, **Read:** Handout on Intelligent Design, **Submit: Exercise 10.1** A2, A4, A6; B2, B4, B8; **Exercise 10.2** Passage 2, Passage 4, Passage 5; **Exercise 10.3** A2, A4, B2 B4