

TOK Presentation

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Real Life Situation

“Economists regularly measure the confidence of business and publish data in the form of a business confidence index”

Real Life Situation

THE CONSUMER CONFIDENCE INDEX (CCI)

Compiled monthly by The Conference Board

THE CONFERENCE BOARD
Trusted Insights for Business Worldwide



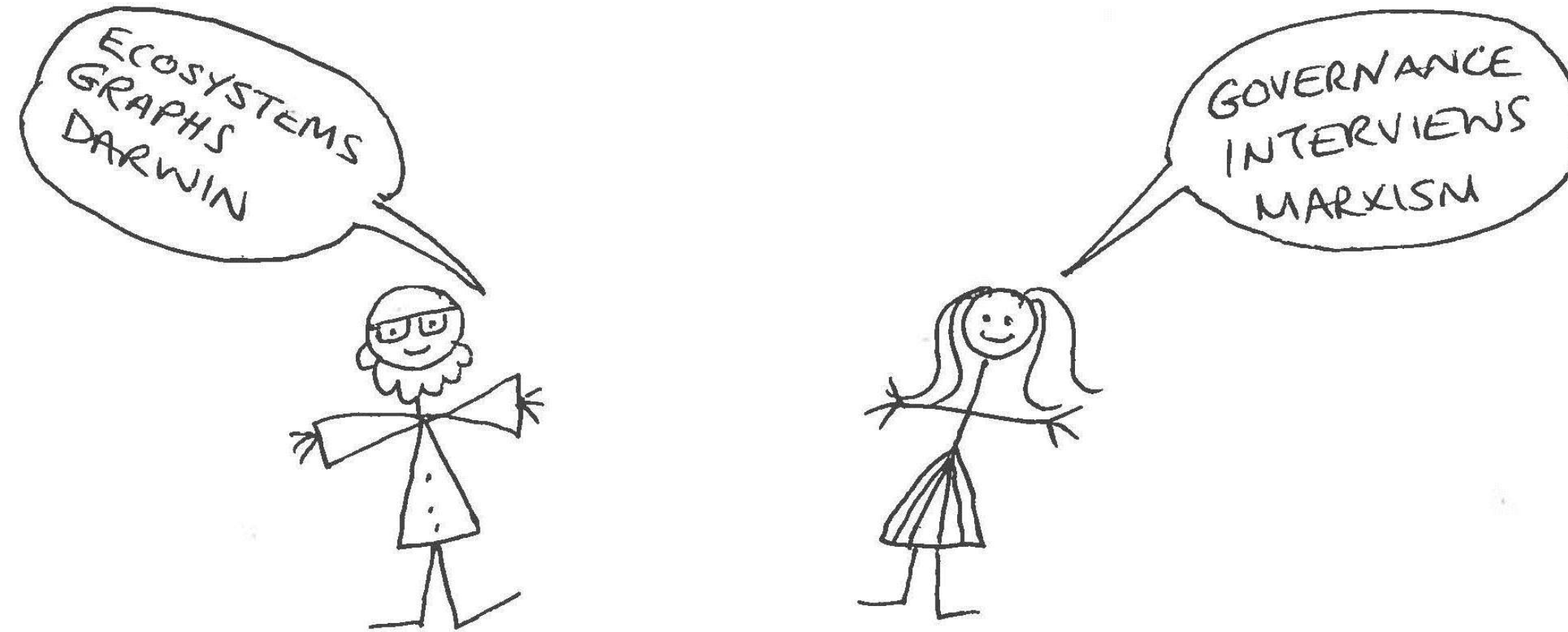
“A survey by the Conference Board that measures how optimistic or pessimistic consumers are with respect to the economy in the near future.”

KQ: How can we determine if laws and conclusions found in the Human Sciences are reliable?

AOK: *Human Sciences*

Investigative approaches in the Human Sciences vs Natural Sciences

- Scientific conclusions have to stem from observation and empirical evidence.
- Natural Sciences in its methodology is far more straightforward than the Human sciences largely because of the 'Free Will' of Humans.

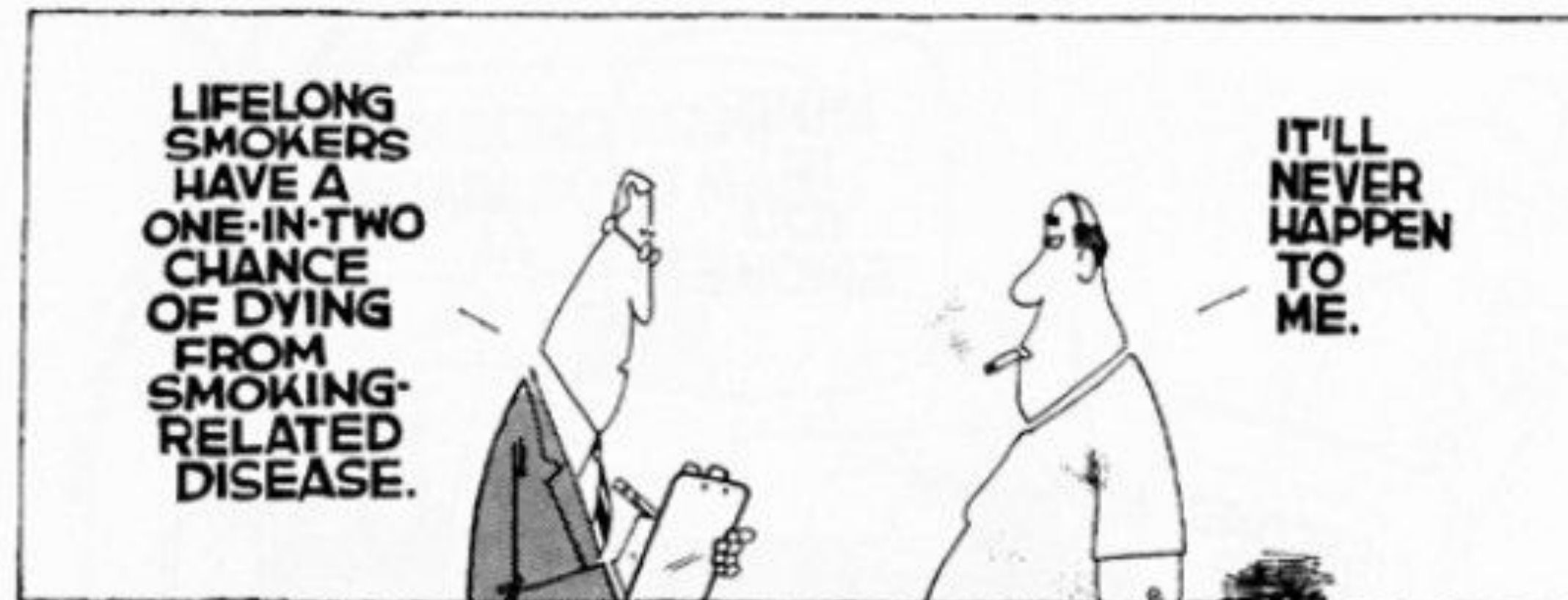


Underlying assumptions of the Human Sciences

In Economics:

“People are rational maximisers of utility”

Major Benefit: A m



can be undertaken



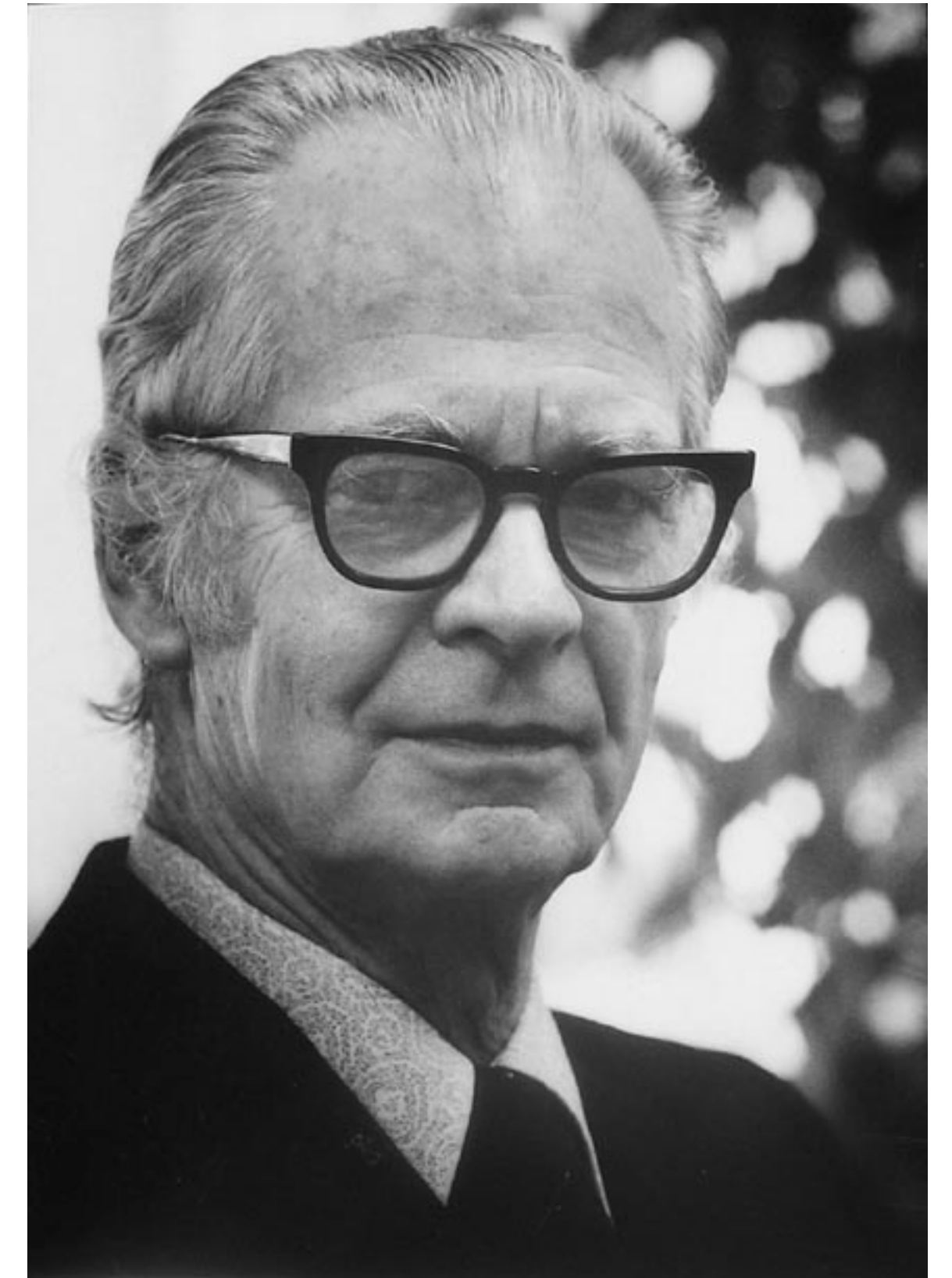
Approaches to the Human Sciences:

Behaviourism

- Stresses the importance of ‘measurable or observable variables’
- A behaviourist is “suspicious of any explanation that is grounded in something that cannot be observed”

“If a state cannot be observed than it cannot be explained and if it cannot be explained it is not a science.”

–B.F. Skinner, American Psychologist, 1980



Approaches to the Human Sciences:

Behaviourism

Disadvantages

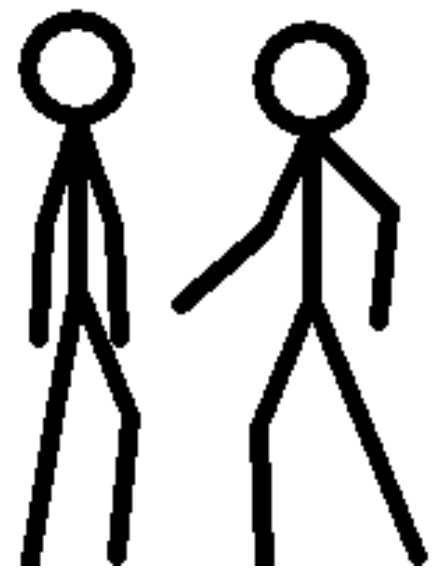
- Quite radical - only draws conclusions from external factors ignoring potential 'inside ones'
- Very likely to cause the classic Causation vs. Correlation fallacy.

Approaches to the Human Sciences:

Behaviourism

Disadvantages

- Becomes strange in everyday life situations. Consider the Q&A below:



Q: Why did Steve hit Bob?

A: Because Steve was annoyed with Bob

Approaches to the Human Sciences:

Humanism

- Humanism: The idea that “a persons experience, thoughts, hopes & desires are as much part of any explanation of human activity as is behaviourism.”
- Humanism takes into account the inside ‘mental state’ of the subject and hence fills in the gaps of Behaviourism.

Approaches to the Human Sciences:

Humanism

Disadvantages

- 'Internal reasons' not directly visible from the outside have to be inferred from the behaviour. Consider the Q&A below:

Q: Why did Steve hit Bob?

A: Because Steve was annoyed with Bob.

Q: How do you know Steve was annoyed?

A: Because he hit Bob.

Approaches to the Human Sciences:

Humanism

Disadvantages

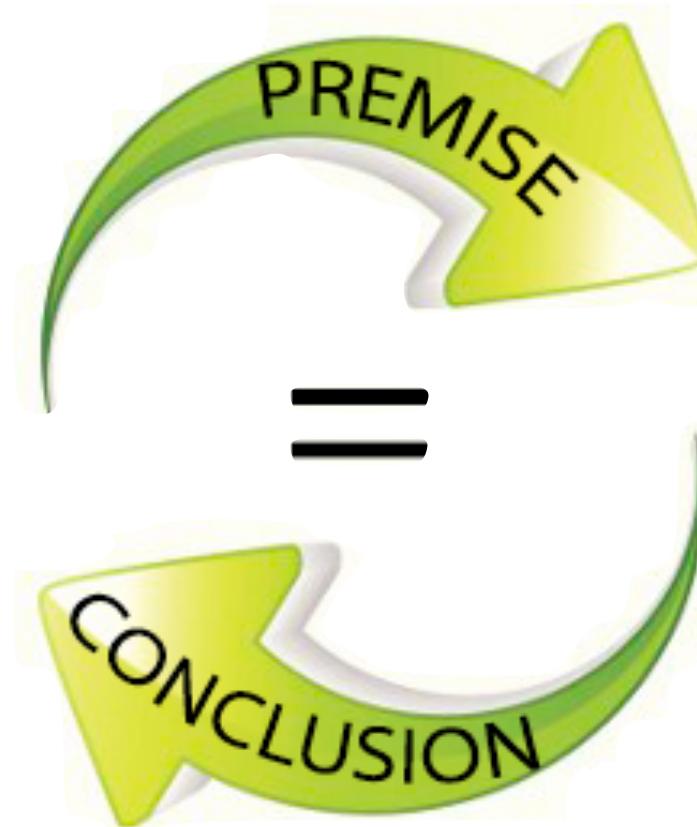
Q: Why did Steve hit Bob?

A: Because Steve was annoyed with Bob.

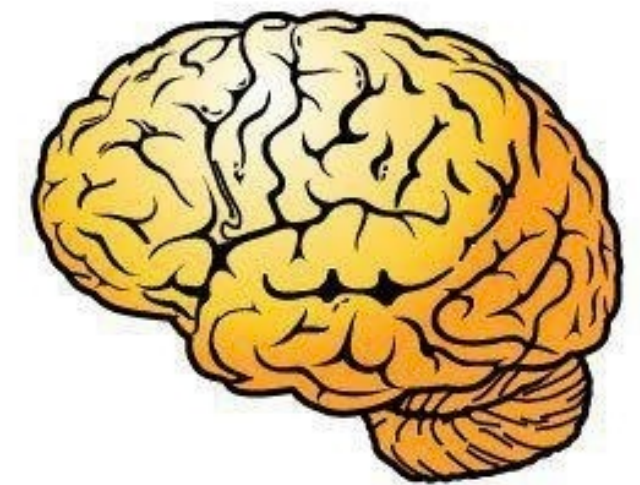
Q: How do you know Steve was annoyed?

A: Because he hit Bob.

- Humanism \therefore has a tendency to introduce nasty unfalsifiable circularity



THE BRAIN IS THE MOST IMPORTANT
ORGAN YOU HAVE



ACCORDING TO THE BRAIN.

Approaches to the Human Sciences: **Introspection/Verstehen Approach**



- The Verstehen (german word pronounced vur-sh-teen) approach stresses the importance of ‘measurable or observable variables’
- A behaviourist is “suspicious of any explanation that is grounded in something that cannot be observed”

Consumer Confidence Index Methodology

1) 5000 households take Surveys monthly

2) 5 questions asked about personal opinions and situations on the following:

- 1. Current Business conditions
- 2. Business conditions for the next six months
- 3. Current employment conditions
- 4. Employment conditions for the next six months
- 5. Total family income for the next six months.

—	Contribute to present situation index
—	Contribute to expectation index

Survey participants are asked to answer each as “positive”, “negative”, or “neutral”.

3) Relative Value separately calculated for each question such that:

$$\frac{(\text{no. of positive responses})}{(\text{no. of positive responses}) + (\text{no. of negative responses})} = \text{Relative Value}$$

4) Values compare to 1985 as benchmark

5) Organisations monitor changes in the CCI to factor in their decision making processes.
(dismissed as inconsequential) < Δ of 5% < (Δ in economy direction)

Approaches to the Human Sciences:

Introspection/Verstehen Approach

Disadvantages

- Doubts about first person testimony
- Issue of honest answering
- Positivity Bias

Approaches to the Human Sciences:

Introspection/Verstehen Approach

Disadvantages

- Ways and orders in which Questions are asked can sway answers.

Consider the questions below:

Students should be punished for Handing in Late work

Yes/No

There should be consequences for students who hand in late work

Yes/No

Students should get off scot free for handing in work late

Yes/No

Maths & Inductive Reasoning

- Steps 3,4, & 5 from the CCI methodology solely relies upon the use of mathematics (as repeated below):

3) Relative Value separately calculated for each question such that:

$$\frac{(\text{no. of positive responses})}{(\text{no. of positive responses}) + (\text{no. of negative responses})} = \text{Relative Value}$$

4) Values compare to 1985 as benchmark

5) Organisations monitor changes in the CCI to factor in their decision making processes.
(dismissed as inconsequential) < Δ of 5% < (Δ in economy direction)

- There is a heavy reliance on Inductive reasoning through the use of inferring population characteristics from a sample group.

Maths & Inductive Reasoning

Disadvantages

- With Inductive Reasoning 3 issues arise (relevant to the RLS)
 - 1.Hasty Generalisations
 - 2.Unrepresentative sample
 - 3.Fallacy of exclusion

Maths & Inductive Reasoning

Hasty Generalisation

- Occurs when the sample size is too small to support the conclusion.
- In terms of the CCI: 5000 homes sample size out of approximately 123.2 million is relatively extremely small $\rightarrow 0.00004058 \%$

Maths & Inductive Reasoning

Unrepresentative Sample

- This issue arises when the sample used in an inductive inference is relevantly different from the population as a whole.
- The possibility of too small of an amount present for each TYPE of home to get a reliable “average of a lower order”.

Conclusion

KQ: How can we determine if laws and conclusions found in the Human Sciences are reliable?

Short answer: They are usually determined in the context of the situation in which the law is being made.

Bibliography

<https://www.conference-board.org/data/consumerconfidence.cfm>

<http://www.investopedia.com/terms/c/cci.asp>

<http://www.investopedia.com/articles/05/010604.asp>

<http://www.investopedia.com/university/releases/consumerconfidence.asp>

- specified rls, not tjust concept
- kq explored in the context of els
- time
-

TOK Practice Presentation Script

SLIDE 2 - REAL LIFE SITUATION

- Reading/revising from Economics text book
- specifically macro economics
- came across how **speculation and business confidence are significant contributing factors to changes in investment and eventually interest rates - obviously.**
- But what really struck me in this section of the book was the following sentence
<read from slide>
“Economists regularly measure the confidence of business and publish data in the form of a business confidence index”
- Right here they were explicitly mentioning how a reasonably subjective, qualitative aspect of business/emotion was being quantified and used in objective analysis - this seemed a little bit dubious and caught my attention.
- After a bit more research I stumbled upon a far more heavily used index based on similar if not exactly the same premises to the Business Confidence Index - the Consumer confidence index.

SLIDE 3 - REAL LIFE SITUATION

- **According to Investopedia it is described as:**
“A survey by the Conference Board that measures how optimistic or pessimistic consumers are with respect to the economy in the near future.”

“The idea is that if the consumers are optimistic, they will tend to purchase more goods and services. This increase in spending will inevitably stimulate the whole economy.”
- The fact that this method of quantification of qualitative data, an almost “emotional coefficient” like index, is widely used as an indicator to private and public firms in their business decisions, got me to form the following Knowledge Question.

SLIDE 4 - KNOWLEDGE QUESTION

<read out KQ and RLS>

SLIDE 5 - HUMAN SCIENCES VS NATURAL SCIENCES - METHODOLOGY

- To keep things short, in Science laws and conclusions have to stem from observation and empirical evidence.
- Empirical evidence is generally gathered through experimentation, where-in a certain methodology is followed, which in the Natural Sciences is far more “straight forward” or “concrete” than in the Human Sciences.
- This is because in the Natural Sciences variables are ‘controllable’ and while undertaken in small scales, they can more often than not represent circumstances in real-world-large-scales (of which experimentation is required to do.)
- Unlike the Natural Sciences however, it is far less straightforward to meet the ideal experimental criteria that are, in a nutshell - controllability, repeatability, and the ability for it to accurately represent larger scale circumstances (i.e. real life).
- ‘Humans exercise Free Will’. This is an issue that is commonly associated with the Human sciences in that the Subject of investigation, Humans, cannot be precisely controlled or predicted as apposed to a a beaker of hot water for example.

SLIDE 6 - ASSUMPTIONS IN ECONOMICS

- Because of this issue of ‘Human Nature’ lying in the path of successful experimentation, some assumptions have to be made about the nature of humans and the way they behave.
- Staying within the context of my RLS, we shall look at the assumptions made in Economics, the most respectable of the Human Sciences.
- One of the underlying assumptions in Economics as a subject is that people are
“Rational Maximisers of Utility”
 which basically means that
“People are rational agents who always aim to to get the best amount of satisfaction (utility) for their given resources (money/capital).”
 (note that each objects consumption has an opportunity cost)
- This assumption completely gets rid of the FREE WILL issue in humans.
- It would seem very dubious in every day circumstances to assume that everyone is a rational maximiser of utility. However this still allows for a good amount of flexibility in the decisions these agents of investigation can make whilst also having a good amount of predictability, instead of reducing Human Behaviour to overly simplified variables.
- This is the sole assumption that describes humans, which brings us to the fact that Economics as a subject (and the index’s, tools, etc they produce, like the Consumer Confidence Index) only looks at Humans as units of consumption and nothing else.

- What this means is that Humans are a collective body of rationally behaving agents and are analysed likewise.

- The major benefit of this:

A more objective and positivistic approach can be undertaken for further study, which would lead to more precise (less subjective) conclusions.

—> A purely positivistic approach however comes with its disadvantages as well, which will be explained shortly.

SLIDE 7 -

APPROACHES TO THE HUMAN SCIENCES: BEHAVIOURISM

- Behaviourism (broader form: positivism) → approach to HS that stresses the “importance of measurable or observable variables”.
- It can be therefore said that the behaviourist is “suspicious of any explanation that is grounded in something that cannot be observed.”

SLIDE 8 - BEHAVIOURISM QUOTE

- Quoting the American physiologist B.F. Skinner ~ “If a state cannot be observed than it cannot be explained and if it cannot be explained it is not a science.”
- Behaviourism takes a potentially subjective situation (Human science) and breaks it down to explicitness allowing a more strict scientific approach.

SLIDE 9 -

APPROACHES TO THE HUMAN SCIENCES: BEHAVIOURISM CONS 1

- It is however taken to be quite radical sometimes as it effectively tries to eliminate any reference to what might be the ‘purpose’ or ‘whats going on inside a person’ that cannot be observed but is obviously significant.
- It only draws conclusions from external factors not including potential inside ones.
- This approach therefore has great potential to cause the popular correlation vs causation fallacy where-in the behaviourist approach might conclude a causation when in actuality it would probably only be a correlation.

SLIDE 10 -

APPROACHES TO THE HUMAN SCIENCES: BEHAVIOURISM CONS 2

- It can also be strange in the context of explaining more specific situations such as those in every day life where-in we are used to having reasons for explanations for behaviour that would be “observable”, like the statements below for example.

SLIDE 11 - APPROACHES TO THE HUMAN SCIENCES: HUMANISM

- On the other side of the fence we have the Humanist approach.
- The Humanist approach is the idea that people's experiences, thoughts, hopes & desires are as much part of any explanation of human activity as is behaviourism.
- Humanism takes into account the "inside mental state" of the subject and hence fills in the gaps that Behaviourism has.

SLIDE 12 - APPROACHES TO THE HUMAN SCIENCES: HUMANISM CONS

- HOWEVER, the Humanist approach isn't w/o its problems either, as these 'internal reasons' not directly visible from the outside have to be inferred from the behaviour. We can interpret this issue by extrapolating on our previous Q&A example:

Q: Why did Steve hit Bob?

A: Because Steve annoyed Bob

<this can then be followed by>

Q: How do you know Steve was annoyed?

A: Because he hit Bob.

SLIDE 13 - APPROACHES TO THE HUMAN SCIENCES: HUMANISM CONS 2

- As we can see Humanism has a tendency to introduce some nasty unfalsifiable circularity.
- As a result Behaviourism and Humanism seem irreconcilable and neither of them would amount to reliable conclusions if strictly adhered to in the Human Sciences.

SLIDE 14 -

APPROACHES TO THE HUMAN SCIENCES: INTROSPECTION/VERSTEHEN

- Another approach to gaining conclusions through empirical evidence in the Human Sciences would be that of Introspection, or rather the 'Verstehen' approach...
- ...which basically states that - "Through the use of the subjects first person reports as evidence in the investigation, we can directly observe the reasons for action, pleasing both the Behaviourist and the Humanist"
- This approach underlines much research that is conducted using surveys and questionnaires, with the expectation that experimental subjects will give direct and accurate responses to questions.
- This approach is also followed in the case of the Consumer Confidence Index.

SLIDE 15 - CCI METHODOLOGY

- 1) Each month surveys are issued to 5000 households in the US.
- 2) Surveys consist of 5 questions asking respondents the following Questions

< read off slide >

- 3) Relative value separately calculated for each question, i.e. each questions positive and negative responses are processed such that

$$\frac{(\text{no. of positive responses})}{(\text{no. of positive responses}) + (\text{no. of negative responses})} = \text{Relative Value}$$

- 4) Values are then compared to each relative value from 1985 as a benchmark because it was the first year when the CCI was calculate & the economy was neither in a peak nor a trough.
- 5) All five values are then arranged to form the CCI
- Q1 & Q3 → average = present situation index
- Q2&4&5 → average = expectation index
- 6) Manufacturers, retailers, banks, and governments monitor changes in the CCI to factor in their decision making processes. While index changes of less than 5% are often dismissed as inconsequential, moves of 5% indicate a change in the economies direction.
- But as always, this approach has problems of its own.

SLIDE 16 -

APPROACHES TO THE HUMAN SCIENCES: INTROSPECTION/VERSTEHEN CONS

- 1) There will always be doubts about the reliability of the first person testimony, particularly about the persons own motives. We cannot avoid the sneaking feeling that perhaps we don't really know why we acted the way we did. After all, not everyone is an economist, so in the case of the CCI when a question is asked - "in your opinion" - an accurate answer is really not guaranteed.
- 2) Then there is always the question of whether the responder answered the question honestly. In some situations, especially where the questions are about delicate or sensitive matters, the responder might be embarrassed to answer honestly even if the survey is anonymous.
- <as a result of points 2 & 3 it is known that the CCI sometimes contradicts other indicators such as the GDP and Labour Report>*
- 3) There is also heuristic known as positivity bias, where in we tend to overestimate our own abilities and underestimate those of others. For example, if a sample of geographers were taken, it is extremely likely that more than 50% of them would say they are better than average. In already undertaken tests, groups of similarly minded people have been known to go over 90%, in which case 40% of them are kidding themselves.

SLIDE 17 -

APPROACHES TO THE HUMAN SCIENCES: INTROSPECTION/VERSTEHEN CONS 2

- 4) Lastly, peoples opinions can be swayed by the ways in which the questions are asked, and even by the order in which they are asked, e.g.

Students should be punished for Handing in Late work	Yes/No
There should be consequences for students who hand in late work	Yes/No
Students should get off scot free for handing in work late	Yes/No

It is \therefore easy to see how the way in which a statement is worded might influence the responses received. Since the Conference Board and the CCI is quite established we could assume a good level of consistency and professionalism, which would to some extent would guarantee consistency Survey question dynamics \therefore ensuring preciseness. However even if we assumed so, their adherence to a certain type of Question forming method might not reflect accurate conclusions however, as precision and accuracy differ.

Say that did improve accuracy over the years by changing their question dynamics, this would reduce the preciseness to previous years answers. Since all generated relative values from these surveys are compared to 1985 as a benchmark, questions different to that of 1985 would greatly increase the unreliability of the CCI during analysis of any sort.

SLIDE 18 - MATHS AND INDUCTIVE REASONING

- Through steps 3,4,&5 of the CCI methodology we can see that maths is heavily relied upon.
- The use of Mathematics in this case is statistical in nature, and the fact that data is being collected from 5000 out of 123.2 million homes to infer tendencies of the whole population shows the heavy amount of inductive reasoning going on here.

SLIDE 19 - MATHS AND INDUCTIVE REASONING - ISSUES

- However, with inductive reasoning 3 potential issues arise:
 1. Hasty Generalisations
 2. Unrepresentative sample
 3. Fallacy of exclusion
 4. False Analogy (<http://onegoodmove.org/fallacy/falsean.htm>)

SLIDE 20 - MATHS AND INDUCTIVE REASONING: HASTY GENERALISATION

- Occurs when the size of the sample is too small to support the conclusion.
- This is extremely relevant in the case of the Consumer Confidence index, as according to investopedia.com one of the widely held criticisms of the CCI is that its sample size of 5000 homes are too small in comparison to the population size of 123.2 million homes for which it infers information upon.

- In statistics through the central limit theorem and Sample and Population estimators we learn that that we can estimate specific population characteristics quite well. However in order to achieve a good level of certainty a reasonably sized sample size is required
- The fact that 5000 homes only account for 0.000041% of the total number of homes in the US is enough to show that the sample size being used in the CCI is too small.
- Even though processing 5000 long answer surveys might be an extremely cumbersome job as it is, especially if they are being processed every month, it does not change the lack of reliability that this relatively small sample size provides.

SLIDE 21 -

MATHS AND INDUCTIVE REASONING: UNREPRESENTATIVE SAMPLE

- This issues arises when the sample used in an inductive inference is relevantly different from the population as a whole.
- In the case of the CCI, 5000 may not be a significant percentage of the TOTAL NUMBER of homes, but it may possibly be large enough to cover the TYPES of homes present in the US. However this isn't even absolutely certain.
- Even if it does, then there still lies the possibility of too small of an amount present for each type of home to get a reliable "average of a lower order".

SLIDE 22 - MATHS AND INDUCTIVE REASONING: FALLACY OF EXCLUSION

- This is when Important evidence which would undermine an inductive argument is excluded from consideration. The requirement that all relevant information be included is called the "principle of total evidence".
- This is highly unlikely to intentionally occur and is avoided simply by the fact that the 5000 surveyed homes are randomly allocated.
- However, since the allocation processes are highly likely to be done using software, the true ability for the software to be able to randomly generate data can be questioned. However due to the scope of this presentation it will not be discussed.

SLIDE 23 - CONCLUSION

- Whether or not the conclusions that the Methods of the Human Science's produce are Reliable depends upon the situation and the degree of Reliability needed. In the case of Economics as a study, while we would love to have the ability to exactly predict outcomes, from the fact that very few economists have been able to predict recessions in the past, we can say that for now, that is not possible.
- Despite this, economic indicators (which are built upon the same premises that underly economics as a subject) are still successfully relied upon to a good extent by many. This substantiates the idea that said indicators are relied upon due to

the fact that they satisfy the accuracy of their applications - i.e. the level of accuracy/reliability needed of them are satisfied.

- This ties in well with the idea that at the end of it all, the Consumer confidence index is only evaluated over a barrier of a 5% relative change, and not the value of the index to the 6th decimal place. It can be therefore said that they do not need to be pin-point accurate but rather “give a sense of direction”. In other words, the Human Sciences can be justifiably satisfied with their conclusions interpreted as just trends.