Why My International Relations Degree Trumps your Computer Science Degree

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In this talk I'm going to....

– assert some ludicrous ideas
– justify those ideas with something resembling logic
– make outrageous claims

... for I am a Liberal Arts major
Objectives

In this talk I'm going to....

– assert some ludicrous ideas
– justify those ideas with actual persuasive tactics
– make claims that will sound outrageous at first
– convince you that liberal arts isn't actually that bad for programmers
– most of all, show you that programming is not a CS-driven career
First things first:

A poll of the room is in order
First things first:

A poll of the room is in order

Next:

About me
First things first:
   A poll of the room is in order

Next:
   About me

Lastly:
   Why war?
International Relations

What, exactly, is it?
International Relations

- "International relations is the study of an international system composed of territorial states which acknowledge no superior authority over matters which they consider of vital interest. It deals with the nature of the changing relations between states and with non-state actors."

http://www.lse.ac.uk/study/undergraduate/DegreeProgrammes2016/internationalRelations/overview_and_features.aspx
What makes up IR?

– Geography
– History
– Political Science
– Economics
– Sociology
– Anthropology
– Psychology
– Philosophy

and a smattering of Law, Rhetoric/Communication, and a few others
History

The study of the past
What is it?
"Those who cannot remember the past are condemned to repeat it."
Some questions of history for you:

– What was the first O-O language?
– Who was Alan Kay? Gregor Kizcales?
– Why was GOTO considered harmful?
– What problem did Fortran seek to solve?
– What was the first bytecode compiler?
Political Science

Understanding the 'polis'
What is PoliSci?

"Political science concerns the governments of various societies. It considers what kind of government a society has, how it formed, and how individuals attain positions of power within a particular government. Political science also concerns the relation of people in a society to whatever form of government they have."
Political Science
Some questions of political science for you:

- How will different voting systems affect voter behavior in crowdsourced projects?
- What kind of governance (of an OSS project) should you put into place?
- How does the open-source world resemble the Communist system of government, and what lessons could/should it learn from that?
Economics

The dismal science
What is economics?

"Economics focuses on the production and distribution of society’s goods and services. Economists study why a society chooses to produce what it does, how money is exchanged, and how people interact and cooperate to produce goods."
"If only I had a dime for every time somebody said, 'If only I had a dime...'"
Some questions of economics for you:

- What happens when demand far outstrips supply?
- What is an inelastic good or service, and what often happens to those goods/services?
- What is a commodity? Are programmers a commodity good?
Sociology

The study of human social life
What is Sociology?

"Sociology is a branch of the social sciences that uses systematic methods of empirical investigation and critical analysis to develop and refine a body of knowledge about human social structure and activity, sometimes with the goal of applying such knowledge to the pursuit of government policies designed to benefit the general social welfare."
Sociology is one of the "social sciences"

- comprehend human behavior using scientific method
- establish predictive models
- explain historical incidents
- isolate identifying characteristics
- look for ways to improve human interaction and life
Sociology

Two approaches to sociology

- qualitative sociology
  
  obtain an accurate picture of a group by getting close

- quantitative sociology
  
  obtain large data sets and perform analysis
General Sociological Theory

- Structural-Functionalist
  - **organic solidarity**
- Conflict Theory
  - Society is made up of individuals competing for limited resources
- Symbolic Interactionism
  - Human action/interaction are understandable only through the exchange of meaningful communication or symbols
- Role Theory
  - Human behavior is guided by expectations held both by the individual and by other people
- ... and others
Anthropology

The study of cultural and subcultural groups
What is Anthropology?

"Anthropology concerns individual cultures in a society, rather than the society as a whole. ... Anthropologists place special emphasis on language, kinship patterns, and cultural artifacts."
"Those... engineers in the mist."
Sociology/Anthropology

Some questions of sociology/anthropology for you:

– Is programming ever a solitary activity?
– How should you approach an OSS project in each of those ecosystems?
– Why is "brogramming" a problem? How do we fix it?
– Can (and how would) an organization actually productivity while keeping work/life balance?
– Why do managers just not "get it" when it comes to development?
– Is agile a successful methodology, or just lucky?
Psychology

The study of behavior
Psychology

Five main perspectives

- Biological
  the relationship of the body and the mind
- Learning
  long-lasting change in the way a person/animal behaves that is attributable experience
- Cognitive
  study of memory, perception, thought and other mental processes
- Sociocultural
  how social environment and cultural beliefs shape our lives
- Psychodynamic
  study of unconscious motives and desires
'Psychomysology'

"Common sense is not so common"

--Voltaire (1764)
"Opposites attract"
"Spare the rod, spoil the child"
"Familiarity breeds contempt"
"There's safety in numbers"
These are popular sayings/platitudes

- most people hold them to be self-evident
- when, in fact, science repudiates all of the above
- many of these "facts" come from the "pop psychology" world
Some popular psychological "facts"

- "We only use 10% of our brain capacity"
- "If we are angry, it's better to express the anger directly than hold it in"
- "Most sexually-abused children grow up to become abusers themselves"
- "People with schizophrenia have 'split' personalities"
- "People tend to act strangely during a full moon"
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ALL OF THESE ARE **VERIFIABLY** FALSE
Reasons for Psychomythology

Why do we believe in falsehoods?
In some cases, we are misled by supposed experts

- "Dr Phil" likes to use the lie detector on his show

  *when in fact lie detectors are not nearly as accurate as assumed*

- popular authors will sometimes get the psychology wrong

  *we are forced to accept their claims on faith alone*

- or they will explain only parts of it

  *because they want to keep our attention*

- or their readers will only hold on to the simplest parts of it

  *because our memory is fallible and we seek patterns*
In some cases, we believe we are the experts

- or close enough, anyway--how hard can it really be?
- "if I am smart enough to do (some complicated activity), I am smart enough to understand this other stuff"

  it's what leads doctors to believe they are lawyers, and lawyers to believe they are rocket scientists, and so on

- this is hubris

  it is a difficult thing to overcome; it requires a constant self- or externally-imposed monitoring of our thoughts and actions
In some cases, the science is "close enough"

- ... but not perfect

- example: 'ulcers are caused by body's reaction to stress'
  
  - no cure; "lower-stress lifestyle and a managed diet"
  - two Australian researchers (Barry Marshall, Robin Warren) discovered bacterium in the stomach
  - "not possible--nothing could survive human stomach acid"
  - meet "Helicobacter pylori": it does, in fact survive in the stomach
  - ... and these ulcers can be treated by everyday antibiotics
  - ... and they won a Nobel Prize for it
  - they weren't the first to "discover" it; it had been spotted by at least three separate teams of researchers a century earlier
In some cases, it contradicts our common sense

- our brains are good at interpreting the world
- our brains are terrible at interpreting our brains

Jacob Bronowski (1966) called this "reflexivity"
- there is not yet any kind of "debugger" for the brain
  though we may be getting closer....
Psychological Science vs "Common sense"

– Talk show host Dennis Prager:

"There are two kinds of studies in the world: those that confirm our common sense, and those that are wrong"
"Use your common sense. Whenever you hear the words 'studies show'--outside of the natural sciences--and you find that these studies show the opposite of what common sense suggests, be very skeptical. I do not recall ever coming across a valid study that contravened common sense. (Prager, 2002, p 1)"

– Malcolm Gladwell gets into this ("Blink")
Reasons

And yet... science is "uncommon sense"

– "Phrenology can determine your personality"
– "X-Rays are harmless festival entertainment"
– "Emotions originate from the heart"
– "Women are less intelligent than men"
– "The body is made up of four 'humours': blood, bile, phlegm and"

**those last three were Aristotle's beliefs**
And yet... science is "uncommon sense"

"Nothing could be more obvious than that the earth is stable and unmoving, and that we are the center of the universe. Modern Western science takes its beginning from a denial of this commonsense axiom ... Common sense, the foundation of everyday life, could no longer serve for the governance of world. (Borstin, 1983, p. 294)"
This doesn't mean all common sense is wrong
  – happy employees get more work done than unhappy ones

But it does mean that we need to treat common sense with skepticism
  – if "everybody knows", then maybe they're wrong
Busting psychomythology

Clearing out the garbage
A mythbusting toolkit

– these are ten common sources of error
– compensate for them whenever used or seen
Psychomythbusting

Ten sources of error

- Word-of-Mouth ("urban myths")
- Desire for Easy Answers and Quick Fixes
- Selective Perception and Memory
- Inferring Causation from Correlation
- Post Hoc, Ergo Propter Hoc Reasoning

"after this, therefore because of this"
Psychomythbusting

Ten sources of error

– Exposure to a Biased Sample
– Reasoning by Representativeness
  *beware of heuristics (mental shortcuts/rules of thumb)*
– Misleading Film and Media Portrayals
– Exaggeration of a Kernel of Truth
– Terminological Confusion
Philosophy

What, exactly, is it?
What is philosophy?

– "love of wisdom" (Ancient Greek)
– the fundamental root of all thinking
– the basis of all science
– "science in one hand, and religion in the other"
– the central question that philosophy seeks to answer
Ironically, most of us are (already) philosophers

- what should we do?
- what is there?
- how do we know? if we don't know, how should we set about finding out?
Major branches of philosophy

- Metaphysics
  examining what exists, the difference between mind and matter, and so on
- Epistemology
  how do we know a thing? how do we acquire knowledge? what is the nature of knowledge?
- Logic
  Aristotelian syllogisms up through mathematical and symbolic logic
- Moral philosophy and ethics
  what is right? what is evil? what is virtue? what does it mean to live a good life?
- Political philosophy
  what are the "unassailable human rights"? what is the relationship between government and the governed?
Roger Scruton ("A Short History of Philosophy")

- two distinguishing characteristics of philosophical thought
  - abstraction
  - concern for truth
- "Problems of philosophy and the systems of design to solve them are populated in terms which tend to refer not to the realm of actuality, but to the realms of possibility and necessity: to what might be and what must be, rather than what is"
Philosophy is characterized by several things

- students are encouraged not to accept the conclusions of their teachers, but to discuss, argue and disbelieve
- arguments are rooted in logic and reason, not faith or belief
Most science begins as philosophy

- "It has often been remarked that when an area of inquiry begins to find its feet as a discipline, with clearly agreed methods and a clearly agreed body of knowledge, fairly soon it separates off from what has up to then been known as philosophy and goes its own way."

- such as....

  - physics
  - chemistry
  - astronomy
  - psychology

- some continue to maintain tight relationships
Philosophy

The love of learning
Some questions of philosophy for you:

- How does epistemology help you in debugging a program?
- How do you track the Sorites paradox in an inventory system?
- Why are Asimov's Three Laws worded the way they are?
- What is the first step to gaining knowledge?
Egoless Programming

- Egoless programming
  - First described by Jerry Weinburg in 1971
    "The Psychology of Computer Programming"
    "a style of development environment relying heavily on peer reviews"
    he coined the phrase to describe programmers who had worked within this environment for some significant period of time
    not surprisingly, code written in this environment has a much higher quality than code written elsewhere
  - Much of "agile" implies many of these principles
    agile will tend to lead towards egoless, but an organization can be agile without egoless, and egoless without agile
Egoless Programming

- The Ten Commandments of Egoless Programming
  - Understand and accept that you will make mistakes
  - You are not your code
  - No matter how much "karate" you know, somebody else will always know more
  - Don't rewrite code without consultation
  - Treat people who know less than you with respect, deference, and patience
  - The only constant in the world is change
  - The only true authority stems from knowledge, not position
  - Fight for what you believe, but gracefully accept defeat
  - Don't be "the guy in the room"
  - Critique code instead of people--be kind to the coder, not the code
● Understand and accept that you will make mistakes

  Unless you were conceived by a virgin, you are human, and humans make mistakes

  This is not an "if", but a "whem"

  Therefore, it makes sense to assume that if something is wrong, it is in your code and not somebody else's, until you can prove otherwise
Egoless Programming

- You are not your code
  - Too many programmers believe their sense of self-worth stems from what they can do, not who they are
    
    Therefore, their code is their ego, and criticism of the code is attacking them, personally
    
    This makes them react badly when the code is criticized
  - This isn't unique to programmers, by the way; lots of artists do the same
    
    Leon Uris is famous for saying, "Writing is easy: all you have to do is sit down to some paper, and open a vein"
  - You are a valuable person; you have things about you that are worthy of respect, even envy
    
    (Insert other feel-good statements here)
No matter how much "karate" you know, somebody else will always know more

- Even people who invent a technology find other people who use new ways of using it that they hadn't thought of
- By assuming you "know it all", or know more than everybody else, you close yourself off to suggestions, ideas, and other beneficial things
Don't rewrite code without consultation

- Too often, we get lost in the tactical decisions around a particular subject or implementation, and this causes us to lose sight of the bigger picture

  One of the casualties is how these changes affect the rest of the system

  Another of the casualties is both respect for and from other programmers
Treat people who know less than you with respect, deference, and patience

- You were there once
- You will be again
- Golden Rule: "Do unto others as you would have them do unto you"
- This is not just true of other programmers; treat users with respect

You never know who among your users will be able to help you with a problem they have a deep expertise in
The only constant in the world is change

  - Unless you just came out of university, you know this already
    
    languages, databases, platforms, computing power, device size, networkability, ...

  - Either embrace that fact, or get out; it's not likely to change soon
The only true authority stems from knowledge, not position
  – Meaning, don't fall back to your title to get something done
  – At the same time, don't always assume you know what's "right"
Egoless Programming

- Fight for what you believe, but gracefully accept defeat
  - Yes, we all like the stick-to-his-guns hero, the lone wolf warrior
  - But realize that nobody likes emotional blackmail
  - Know when to fold 'em
    - For me, when I've argued the same point three times...
    - ... and I'm the only one arguing it
    - ... then it's time to simply note my objections and move on
Don't be "the guy in the room"
Egoless Programming

- Critique code instead of people--be kind to the coder, not to the code
  - People have feelings
  - Code is an artistic expression sometimes
    - When you're criticizing the code, you're criticizing the coder
    - So be gentle and find good things as well as improvable things
    - Don't nitpick; focus on what's really important
  - At the same time, don't invest your ego into your code
    - You can still be smart if your code sucks
Yes, you guessed it: these aren't just about programming

- In fact, these are really just good life lessons
Who is this guy?

- Principal, Neward & Associates

  ask me how I can help your project, your team or your firm

- Microsoft MVP (F#, C#, Architect); Java Expert (JSRs 175, 277)

- Author

  Professional F# 2.0 (w/Erickson, et al; Wrox, 2010)
  Effective Enterprise Java (Addison-Wesley, 2004)
  SSCLI Essentials (w/Stutz, et al; O'Reilly, 2003)
  Server-Based Java Programming (Manning, 2000)

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