MINDS, CULTURE AND THE EVOLUTION OF INTELLIGENCE

What’s Going to Happen to Us?

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Overview of the Talk

1. Introduction (How I Got Myself Into This)
   - Overview of my background and research outlook

2. Trend Spotting: Recent Work on the Evolution of Human Cognition
   - Niche Construction and the Informational Environment
   - Social Learning and Cumulative Cultural Evolution
   - Technology and Extended Minds

3. Post-Singularity: What’s Going to Happen to Us?
   - Us and Them
   - Can I Upload Myself?
My Research Outlook
(Or: How I Got Myself Into This)

• Me
  • **Naturalistic** philosopher of **mind** and **cognitive science**
  • Interested in **evolutionary approaches** to **human minds, behaviors, social arrangements** and **intelligence**

• Have worked on:
  • **Disgust** and its role in **morality** and **moral judgment**
  • The evolution and cognition of **social norms**
  • The psychology of **sociality**
    • **Group membership** and **group boundaries**
    • Implicit biases towards members of certain **social groups**

• On the agenda:
  • The character of **persons** and **personal identity**
  • Nature of **human selves**
Trend Spotting:
Evolution and Human Cognition

• **Externalism** as a Big Tent
  • A general drift, tendency in a lot of recent work
  • The common thread is an insistence that from the point of view of, broadly speaking, psychology
Trend Spotting: Evolution and Human Cognition

- **Externalism** as a Big Tent
  - A *general drift, tendency* in a lot of recent work
  - The *common thread* is an insistence that from the point of view of, broadly speaking, *psychology*
  - The *boundaries* of an individual’s *skin* and *skull*, between the *biological organism* and its *external environment*, are *relatively unimportant*
    - The nature & content of individual human *minds*
    - The *evolutionary pressures* that shaped them
    - The bases of individual & collective *behavior*
Trend Spotting: Evolution and Human Cognition

- **Externalism** as a Big Tent
  - A general drift, tendency in a lot of recent work
  - Many more specific topics, approaches, theses, and views fall under the idea of **externalist** in the broad way I’m construing it
    - Accounts of **cognition** that break with **orthodoxy** in various ways
      - Embedded, embodied, ecological and **enactivist** approaches to understanding **minds** and they way they work
    - Accounts of **character traits & personality** (or lack thereof)
    - **Situationist** critique of character and virtue ethics
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Evolution and Human Cognition

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- Four Ideas
  - Extended Phenotype
  - Niche Construction
  - Culture and Coevolution
  - Technology and Extended Minds
Trend Spotting:
Evolution and Human Cognition

• **Extended Phenotype**
Trend Spotting: Evolution and Human Cognition

• **Extended Phenotype**

• **Core Idea**
  
  • Given the *genotype/phenotype* distinction, our conception of a *phenotype* should **not** be **limited** to the biological elements “*internal*” to the organism.
  
  • Rather, an organism’s *genes* can also be expressed in ways that **extend** beyond its immediate *biological* boundaries, reaching outward to include:
    
    • Birds' nests & spiders’ webs & beavers’ dams & human… (language? technology?)
  
  • Aspects of many organisms’ putatively “*external*” environment satisfy the conditions of a *phenotype* i.e. causal correlation w/ the *genome*.

• **Interesting Details**
  
  • General idea in *biological evolution*, not specifically human.
  
  • Early breakdown of the intuitive but perhaps limited sense of importance of the *organism/environment* boundary.
Trend Spotting: Evolution and Human Cognition

- Niche Construction
Trend Spotting: Evolution and Human Cognition

• Niche Construction

• Core Idea

  • Many animals *actively shape* their habitats, rather than *passively* inhabit environments as they find them. By being proactive in restructuring their “*external*” environments, these *ecosystem engineers* thus
    • Produce and refine a kind of “*external*” *scaffolding* that then helps *facilitate* different kinds of adaptive activity
    • Generate, over the course of evolutionary time, a system of complex *feedback loops* and *selective pressures* between *themselves* and their *custom made niches*
Trend Spotting: Evolution and Human Cognition

- **Niche Construction**
  - Interesting Details
    - Sterelny and others use this general evolutionary idea to develop a sophisticated, discipline-spanning view of human behavior, cognition and evolution
      - Humans reshape & add to the physical aspect of our environments
      - But also fastidiously engineer our epistemic environment
      - Actively enhance & organize the informational niches in which we live, learn, and (most importantly) raise children
        - Structured apprenticeships, technological scaffolding
        - Once externalized, these enhancements created more pressures that further shaped & enhanced human cognitive functioning
Trend Spotting: Evolution and Human Cognition

• **Culture and Coevolution**
Trend Spotting: Evolution and Human Cognition

• **Culture and Coevolution**

• **Core Idea**

  • **R&B** hold that key to human evolution, cognition & intelligence is our hypertropied capacity for social learning, a sophisticated set of abilities for acquiring and transmitting culture from one person to the next.

  • The term “culture” here includes any information, ideas, skills, norms, beliefs, etc. that is **not innate or internal**, but starts out external to you & is learned from parents, peers, or anyone else.

  • Cultural information is often contained in brains, but can also be external to them: manifest in behavior, embodied in artifacts, written in books, realized in technology.
Trend Spotting: Evolution and Human Cognition

• Culture and Coevolution

• Core Idea

• R&B claim that in humans (and only humans)
  • The socially transmitted information began to accumulate
  • The snowballing repository of information, containing hard won wisdom of the forebears, came to act as a cultural inheritance system operating in parallel with our genetic inheritance system
  • But the 2 systems interacted w/ each other in an internal/external, increasingly complex system of coevolutionary feedback loops
  • Over evolutionary time, being able to acquire and use of socially transmitted cultural information became more & more important to human survival
Culture and Coevolution

Interesting Details

- Human level intelligence & culture are unique in nature
  - “The human species is a spectacular anomaly, … the evolutionary system behind it is pretty anomalous as well.”
  - “Culture itself is part of the design problem for human minds”
  - For individuals, dealing with the external cultural environment was a recurrent, hugely important, adaptive problem
  - As a result, part of the intelligence of individual human minds comes from the fact that unlike other animals minds, they are equipped with cognitive mechanisms that were selected for
  - Accessing, transmitting, and using culture and technology
Trend Spotting: Evolution and Human Cognition

• Culture and Coevolution

• Interesting Details

• On this view, a lot of “human intelligence” is itself a feature of the repository of culture that our species has collectively created, rather than something internal to any one individual mind.

• The power of the cultural inheritance system as a whole is found in the fact that over time it can “do our learning for us.”

• Cultural evolution is cumulative but also gradual.
  • Intelligence is assembled over the course of many generations.
  • Small improvements are made by individuals.
  • The best of those innovations are favored by selection, other eliminated.

• Different cultural traditions lead to salient group differences.
Trend Spotting:
Evolution and Human Cognition

• Technology and Extended Minds
Trend Spotting:
Evolution and Human Cognition

- Technology and Extended Minds
- Core Idea
- Cognitive processes, mental states — human minds themselves — ain’t (all) in the head
- When an “external” part of the epistemic environment, or part of culture, or piece of technology is properly functionally organized and become sufficiently integrated with an individual’s other mental processes
  - That piece of the “external” environment is, properly speaking, just as much a part of her mind what’s going on inside her head
  - Actual mental states and genuine mental processes can extend beyond the biologically salient but psychologically unimportant boundaries the skin and skull
• Technology and Extended Minds

• Interesting details
  
  • This is the **most extreme** form of externalism

  • It’s emphasis is **here** and **now** rather than historical - it was not primarily motivated by reflecting on **human evolution**, but it **dovetails** nicely w/ externalist trends in current **evolutionary work**
Technology and Extended Minds

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  - “Again and again we act so as to stabilize our local environments in ways that simplify or enhance … problem-solving”
- “much of our prowess at thought and reason depends upon the robust and reliable operation, often (but not always) in **dense brain-involving loops**, of a variety of **non-biological problem-solving resources** spread throughout our social and technological surround.”
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Humans in a Post-Singularity World:
What’s Going to Happen to Us?

• The very idea of cognition & intelligence being artificial
Humans in a Post-Singularity World: What’s Going to Happen to Us?

• The very idea of cognition & intelligence being artificial
  • The broadly externalist perspective that I’ve been outlining gives (further?) reason to doubt that “artificial” here entails
    • Non-biological
    • Located outside of brains
    • Technologically or culturally enhanced
    • Constructed or improved by human innovation and effort
  • Indeed, on this view, components of our own individual minds and cognitive processes, and much of human intelligence in general, satisfy one (or several) of these descriptions
    • Many promising theories suggest that our ability to externalize intelligence & accumulate information was key to the evolution of modern humans
    • In our species, intelligence “escaped purely biological constraints” long ago
Humans in a Post-Singularity World: What’s Going to Happen to Us?

• Will we eventually “merge with our technology”?

  “In the next epoch this species that ushered in its own evolutionary process - that is, its own cultural and technological evolution, as no other species has - will combine with its own creation and will merge with its technology. At some level that's already happening, even if most of us don't necessarily have them yet inside our bodies and brains, since we're very intimate with the technology—it's in our pockets.”
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• From the externalist informed evolutionary point of view
  • “We’ve” been “merging” with our own technology for as long as “we’ve” been human – it’s how we got here!
    • What we may be approaching is an increased volume and intimacy in this kind of interfolding of the biological and non-biological
    • But its nothing new in kind: human nature has never been purely biological
Humans in a Post-Singularity World: What’s Going to Happen to Us?

- Us versus Them?
Humans in a Post-Singularity World: What’s Going to Happen to Us?

• **Us** versus **Them**?
  
  • Reflecting on
    
    • The *malleable*, and often *culturally variable* ways the *human mind* carves up the *social world* into “us’s” and “them’s”
    
    • Together with the *cultural* and *evolutionary* pressures that lead the *human* to have those idiosyncratic perhaps parochial *tendencies*
    
    • Suggests we have *very little idea* how another kind of autonomous intelligence would see *social groups*, make divisions btwn **them** (families, races, tribes, species), or if it would see “us/them” at all

  *Maybe we’re projecting, anthropomorphizing this*
Humans in a Post-Singularity World: What’s Going to Happen to Us?

- Human integration into a post-singularity world:
Humans in a Post-Singularity World: What’s Going to Happen to Us?

**Human integration** into a post-singularity world:

- Could a human **dispense with his or her biological core** entirely and still survive, retain the **same identity**, be the **same person**?
- If and when the technology becomes available, will I be able to “**upload**” myself into a computer network, and still be **me**?
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  - The **externalist perspective**, and the broadly **naturalistic orientation** it’s embedded in, provide us reasons for **optimism**
    - The **biological/non-biological** division is not important from the point of view of psychology
    - The physical, putative **internal/external** division is also mere a surface distinction for psychological categories
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  - **Uploading** is really just a new twist on an old chestnut type puzzle of philosophy, namely the problem of personal identity
Uploading and Personal Identity

Richie C.
Uploading and Personal Identity

Same person?          Same person?
Uploading and Personal Identity

Psychological continuity?

Same person?

Same person?
Uploading and Personal Identity

Psychological continuity = Yes

Same person? (Boy to Man) YES!

Same person? (Man to Boy) YES!
Uploading and Personal Identity

Biological aging

Uploading
Uploading and Personal Identity

Psychological continuity?

Same person?

Same person?
Uploading and Personal Identity

Psychological continuity = Yes

Biological aging
YES!

Uploading
YES!
The End
Thanks!

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