

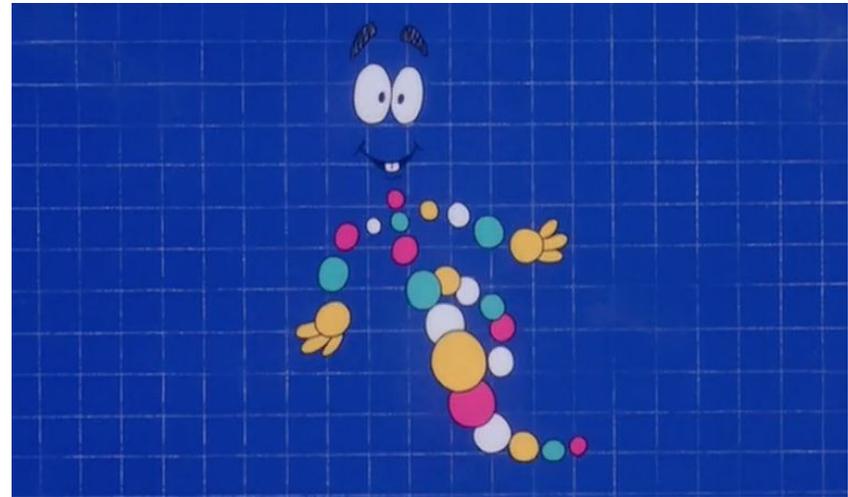
The Nature of Behavior

By: Joe, Stephen, and Elisha

Genes- The Fundamentals

Biology and its affects on us is most easily understood through starting small, molecular even, and working upwards until a whole is constructed and it resembles life.

Scientists have done so with genes.



Genes and Psychology- Relations

To condense it into easily memorized bullet points, genes are:

- The basic physical and functional units of heredity
- Are made up of DNA
- Humans are estimated to have between 20,000 and 25,000 genes
- Everyone has two copies of each gene, one inherited from each parent
- Most of these genes are the same in all people, but a small number of these genes are slightly different than all the rest (Less than 1%)
- These genes are called Alleles
- They are responsible for you existing exactly as you are, in every way, on every plane.

More Genes



To be more precise however, genes are essentially the outline of our biology. They are the most important factors of definition and self in science, they are what scientists have identified as what makes someone tick, what makes them an individual. The entire point of genes is definition and function. Genes are simply a region of DNA encoding a function. Chromosomes consist of a long strand of DNA containing many genes. A single human chromosome can have up to 500 million base pairs of DNA, each containing thousands of genes.

Why genes are important

With this in mind, one could see why genes matter so much. All it takes is a little inference. A few genes, a few pieces of coding, separate you so drastically from other members of your species its startling. You are defined in all ways by them, remember, physicality is just a formality, a polite obligation our genes have to fulfill to ensure we are at least passably normal. But your genes define your mind as well, your complex, spiderwebbed mind that confuses not only you, but literally everyone else who has ever lived because no one has ever thought the exact same way as you, know one has ever truly “gotten” you in that way.

Why genes are good

A rather sad thought, isn't it? Because it is true that you are yourself, in a sense, the only you that has and maybe ever can exist. The only person that can truly know you is yourself, but we all know that no one knows themselves, not really. All we can be, is all alone.

But this actually a rather gratifying thought, I think. Genes, in the same way that they separate us all from one another, are also what binds us together like stitches. Remember, the genes you have that make you so very different from everyone else number less than one percent of your total gene chemistry; all the rest is dedicated to making you familiar and relatable to everyone you've ever known. You are indeed so very different from everyone else, but you are also so very connected, on so many levels, and for that reason, you can never really be all alone.

In Conclusion

Sorry for being a bit more poetic than scientific back there, but science and poetry have a lot in common I think. Without a little poetry, science would have no soul.

Besides, I think a little nuance and art is necessary for a firm and whole understanding of the science you consume and learn about. Facts and statistics only go so far to relate those facts and statistics to something real, something felt by all of us.

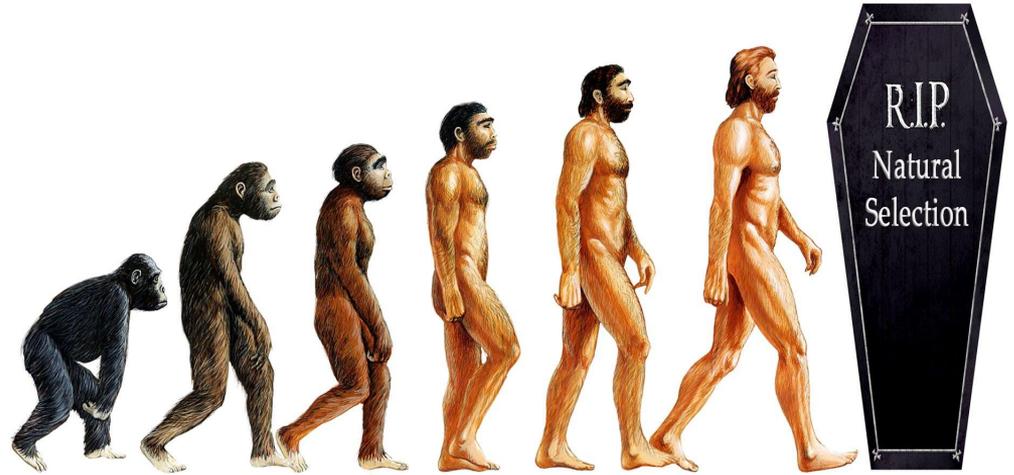
I think genes are a pretty simple concept to understand in and of itself, what's more difficult, I think, is realizing how even the most basic and simple things are why everything can be so complicated at times, and that understanding those simple things are a pretty good way to sort things out when they get too heavy :)

Evolutionary Psychology

Evolutionary Psychology is one of four sciences that brings human nature back into the picture.
- Steven Pinker

Evolutionary Psychology

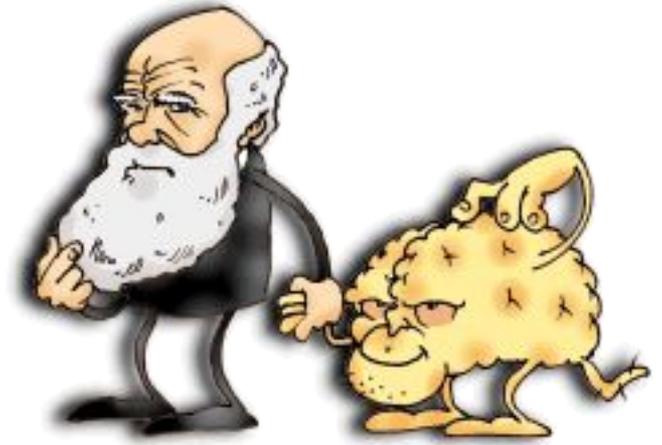
- Evolutionary psychology is the application of **Darwinism** to the understanding of human nature.
- Our brains have developed through the process of **Natural Selection** to solve specific survival problems



Principles

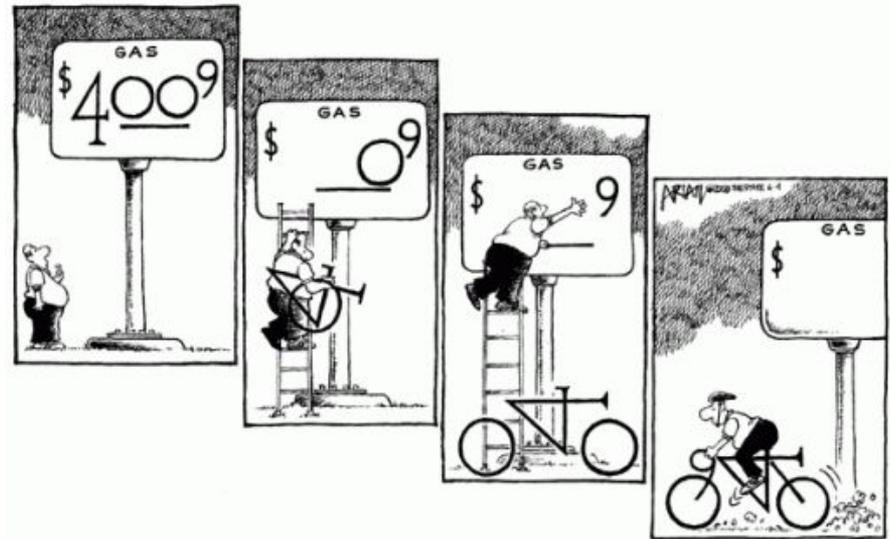
Four principles of Evolution Theory

- Principle of **variation** - individuals within a species show variation in their behavioral traits
- Principle of **inheritance** - some variation is inheritable
- Principle of **adaptation** - individuals are in competition and inherited variations will have survival advantages
- Principle of **evolution** - individuals that inherited the variation will produce more offspring, who also inherited the variation



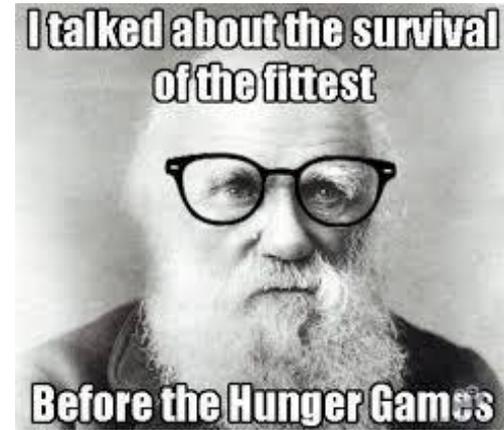
Adaptation

- Individuals face many problems that affect reproduction
 - eg. finding food, fighting off diseases, finding mates, etc
- These problems have been tackled with through physical and behavioral adaptation
- Evolutionary psychologists believe that **our cognitive mechanisms and behaviors have been shaped by evolutionary forces**
- They argue that our behaviors have their **adaptive benefits**



Natural Selection

- The basic mechanism of evolution
 1. “Survival of the fittest”
 2. “Survival of the fittest”
 3. “Survival of the fittest”
 4. “Survival of the fittest”
 5. “Survival of the fittest”
 6. “Survival of the fittest”
 7. ...



Evolutionary Psychology

- According to evolutionary psychology, the brain has evolved specialized neural mechanisms
- These mechanisms are specifically designed for solving problems that have recurred over the long process of evolution
- Evolutionary psychologists predict that humans have inherited special mental capabilities for adaptation
 - Such as acquiring language, inferring emotions, cooperating with others, etc



evolutionary
Psychology

Limitations

- Adaptation is forged over a long period of time, we can't go back and determine if certain selective forces caused the adaptation of certain feature
- Modern environment is vastly different, so what is adaptive in the past might not be adaptive today
- It's easy to come up with competing hypothesis for the same phenomena



Behavior Genetics

Individual differences come from different genes given to you by your parents. You cant really predict genetic differences because you never know what genes you will get from your parents.

Behavior Genetics: Predicting Individual Differences

Predicting Individual Differences relies on the environment they grew up in. Individual Differences are also genetic, when we are born we are given genes from our parents and farther in the family line, we receive dominant and recessive genes which give all of us diversity, Predicting Individual differences is not hard, in one study a person surveyed multiple people grown up in different environments and showed that people read better in more free homes than strict homes.

Review Questions

1. Based on what you learned about how do you predict individual differences