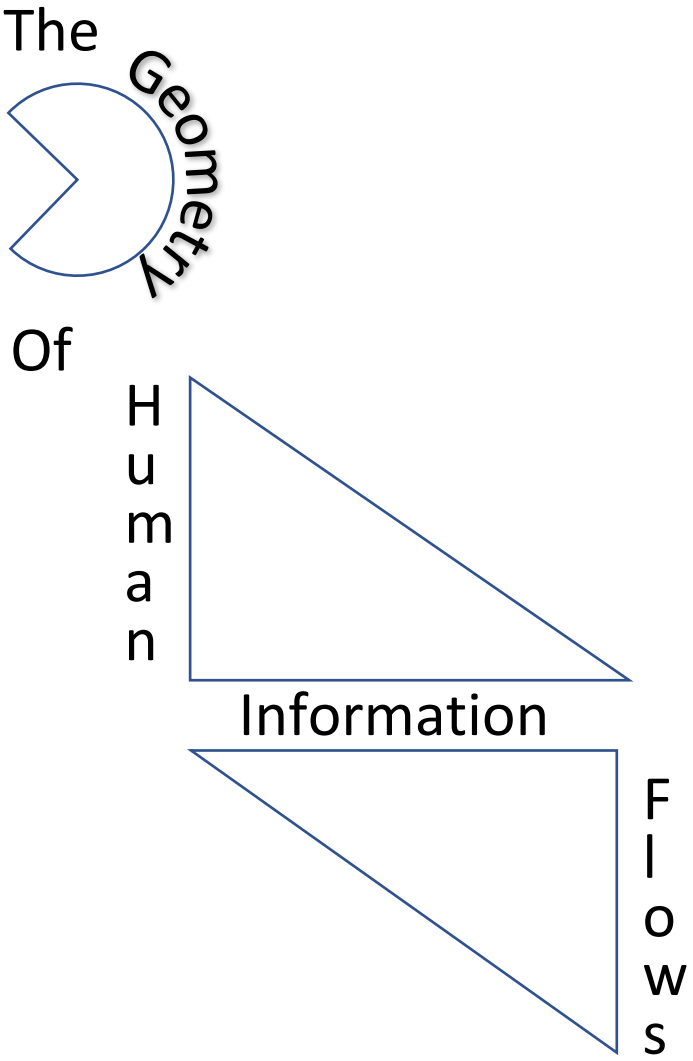
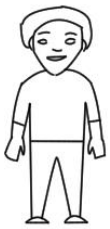
The Geometry Of Human Information Flows



Coloring Book

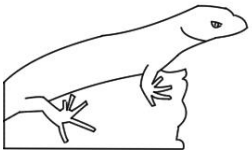
Bill Hibbard

Before* we were people



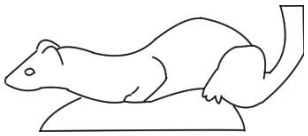
we were germs,

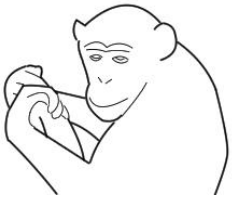
zebra fish,



lizards,

weasels [ripped my flesh],

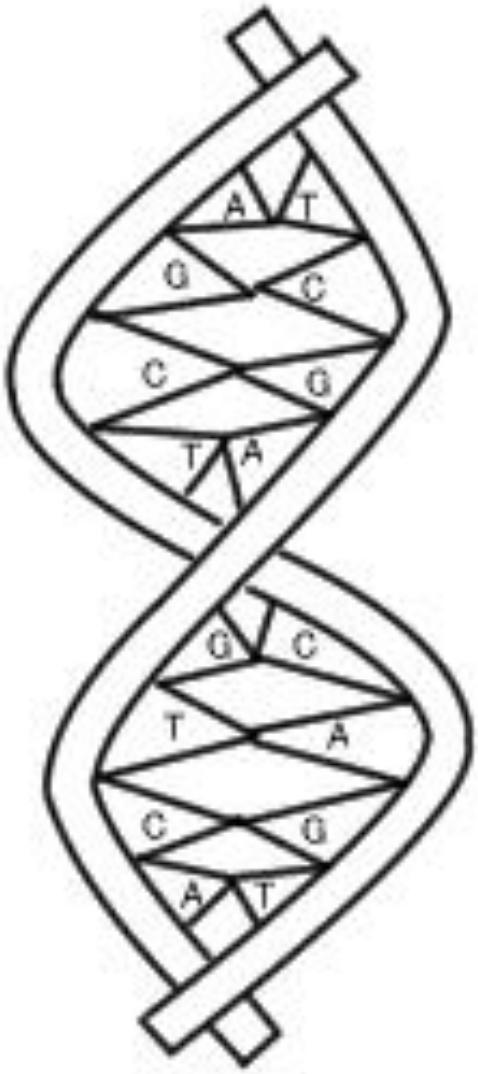




chimpanzees,

and a lot of other stuff in between.

*Phylogeny is approximate.

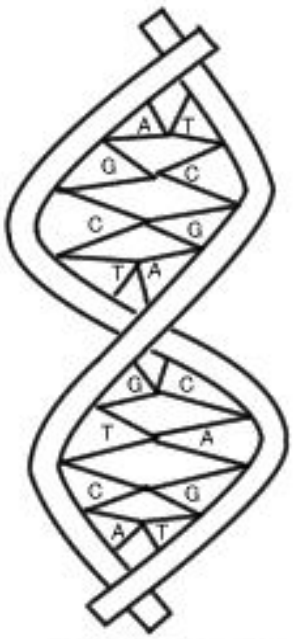


DNA DOUBLE HELIX

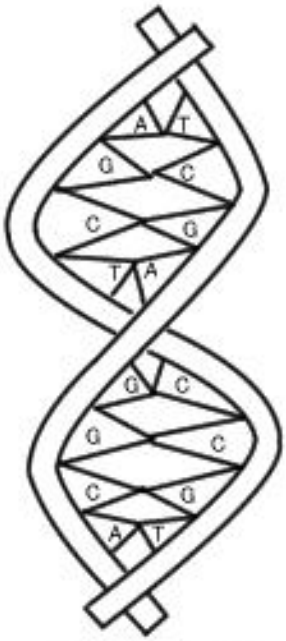
Germs, zebra fish, lizards, weasels, chimpanzees, and people all grow according to the information in their DNA.

The letters "C", "G", "T", and "A" represent the information in DNA. Can you color each letter with its own color?

Sometimes animals are born with mistakes in their DNA. Color the letters to see the mistakes.



DNA DOUBLE HELIX



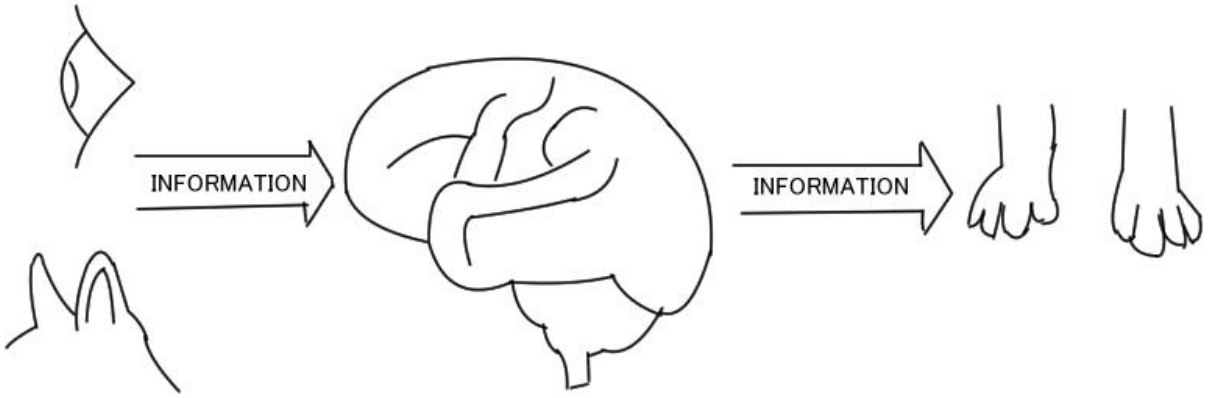
DNA WITH MISTAKE

Sometimes mistakes make animals better.

Sometimes mistakes make new kinds of animals, and that's how nature goes from germs to zebra fish to lizards to weasels to chimpanzees to people.

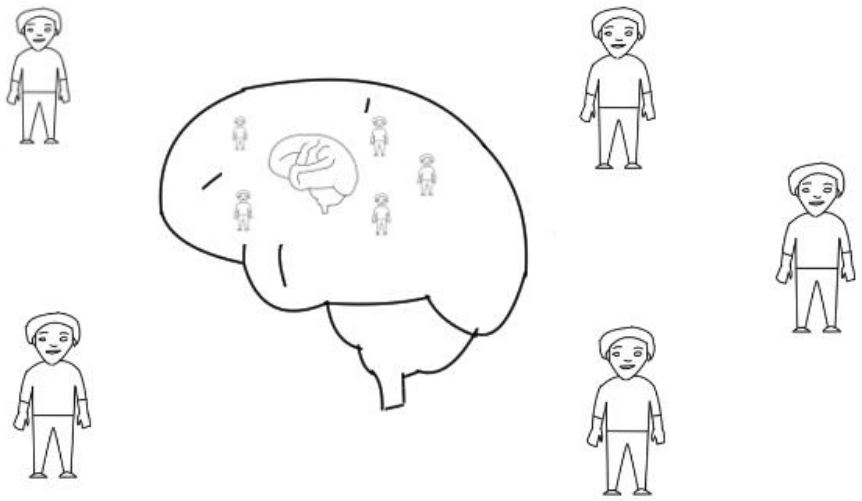
DNA information flows from past to future, getting better all the time.

Very, very slowly the mistakes that make animals better added up to the DNA information to make animals with brains.



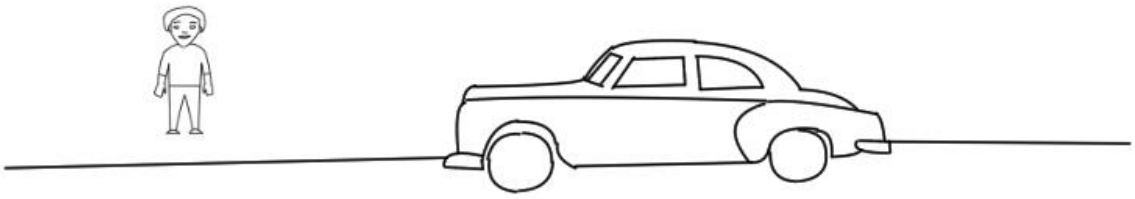
Information about the world flows from eyes, ears, and noses to brains, and information about acting in the world flows from brains to feet, claws, and mouths.

Brains have models of the world.

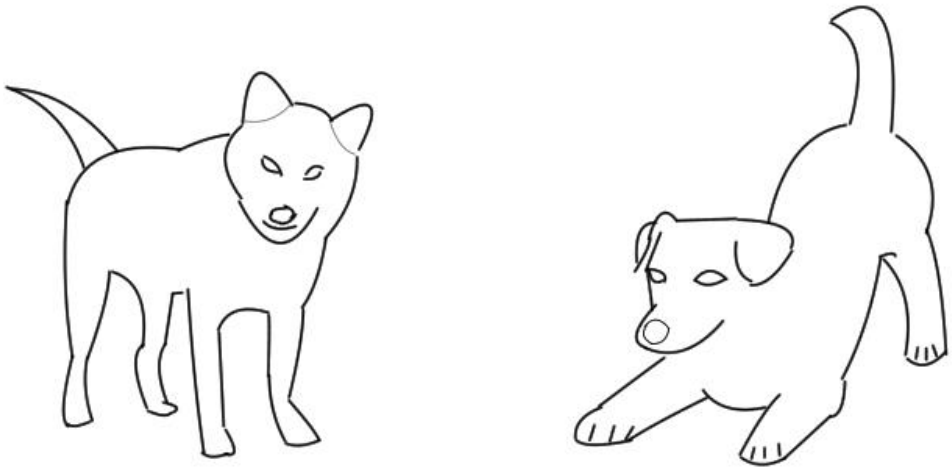


Shown here as a little world inside the brain, models are a complex kind of information that lets animals predict the world. Predictions help animals choose actions that satisfy their goals.

When you see a car coming you can predict you will get hurt if you step into the road. That's the model of the world in your brain.

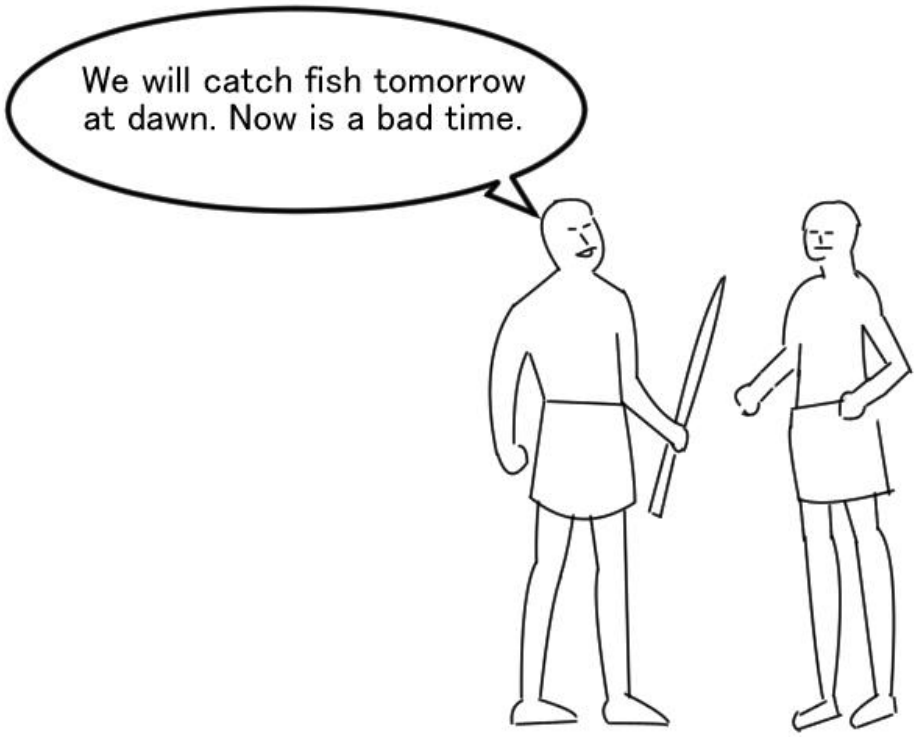


Animals can communicate with other animals.

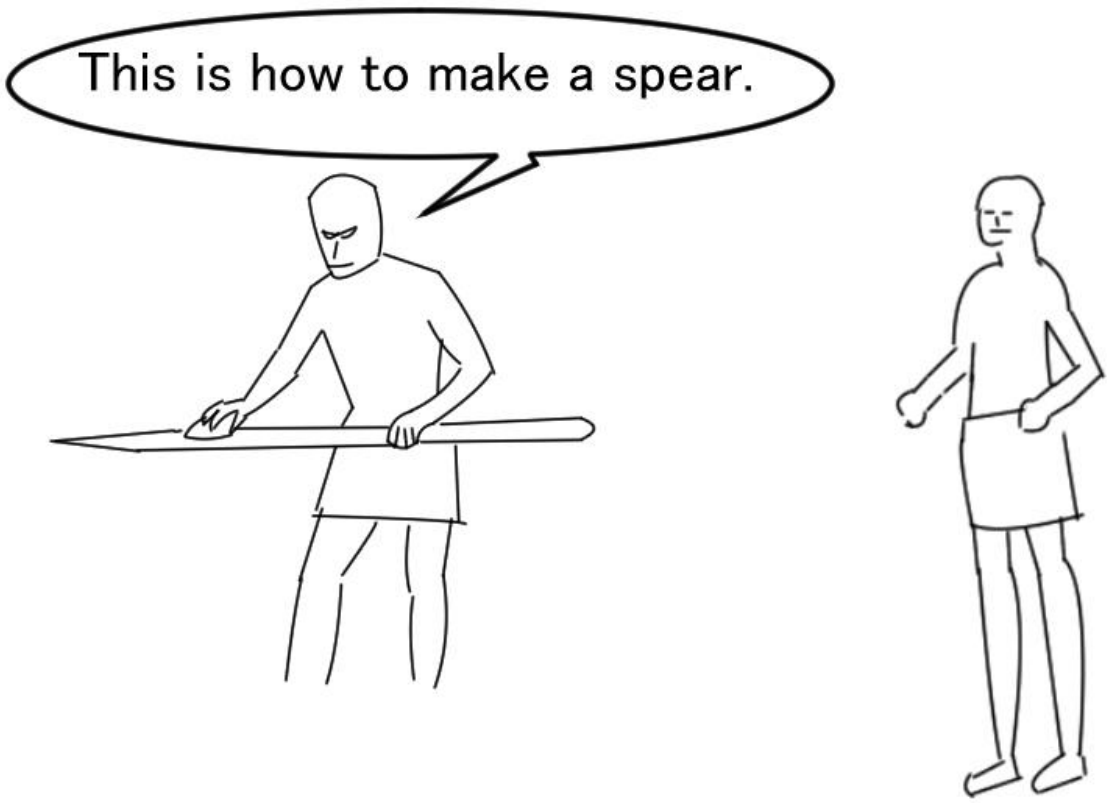


Do you know what the dog on the right is saying? Dogs have a simple language. Information flows from one dog's brain to another dog's brain.

People have much more complex languages than other animals.

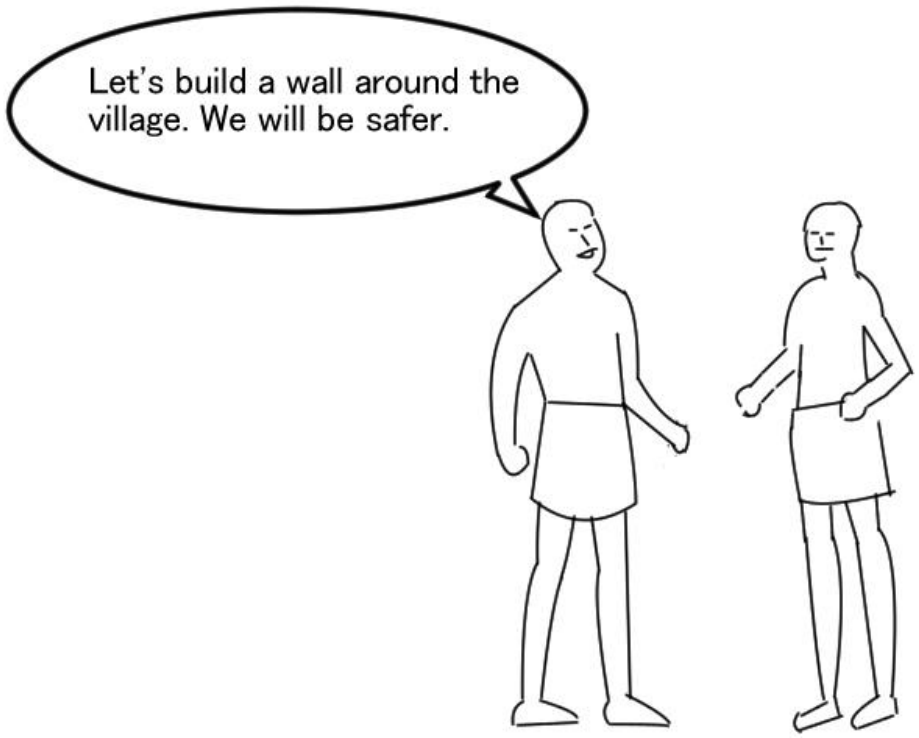


Information flowing between people lets them cooperate to make better world models. Knowing that the fishing is good at dawn is part of a better world model. This is science.

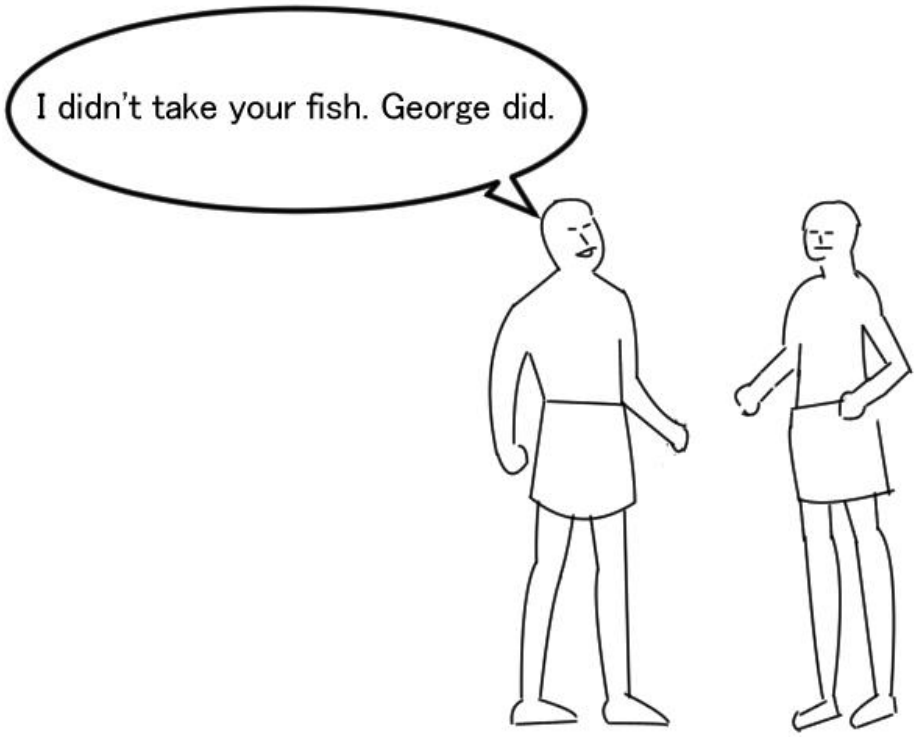


Information flowing between people lets them cooperate to make better tools, like spears for fishing. This is technology.

Complex language gives people complex societies. Language is used for persuasion.

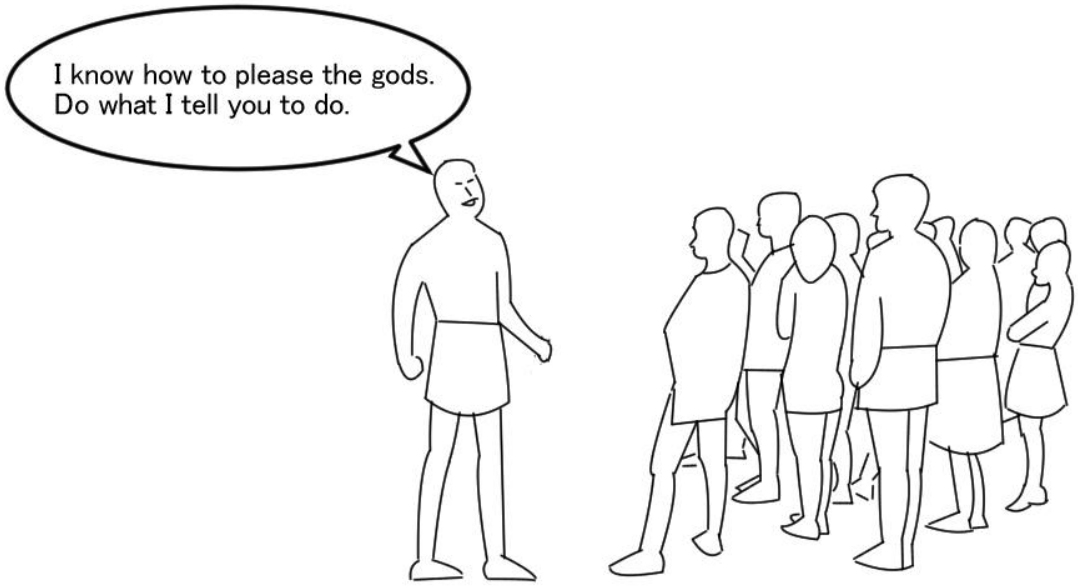


Language is used for lying.



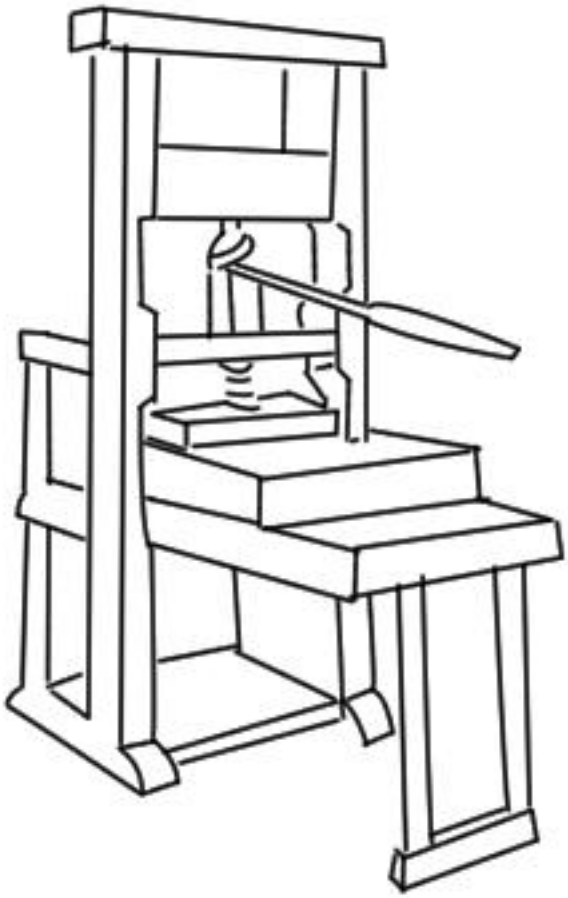
Language is used for religion.

Language is used for politics.



With written language information can be stored, and can flow over long distances and long times.

Written language increases social organization and progress on science and technology across generations.



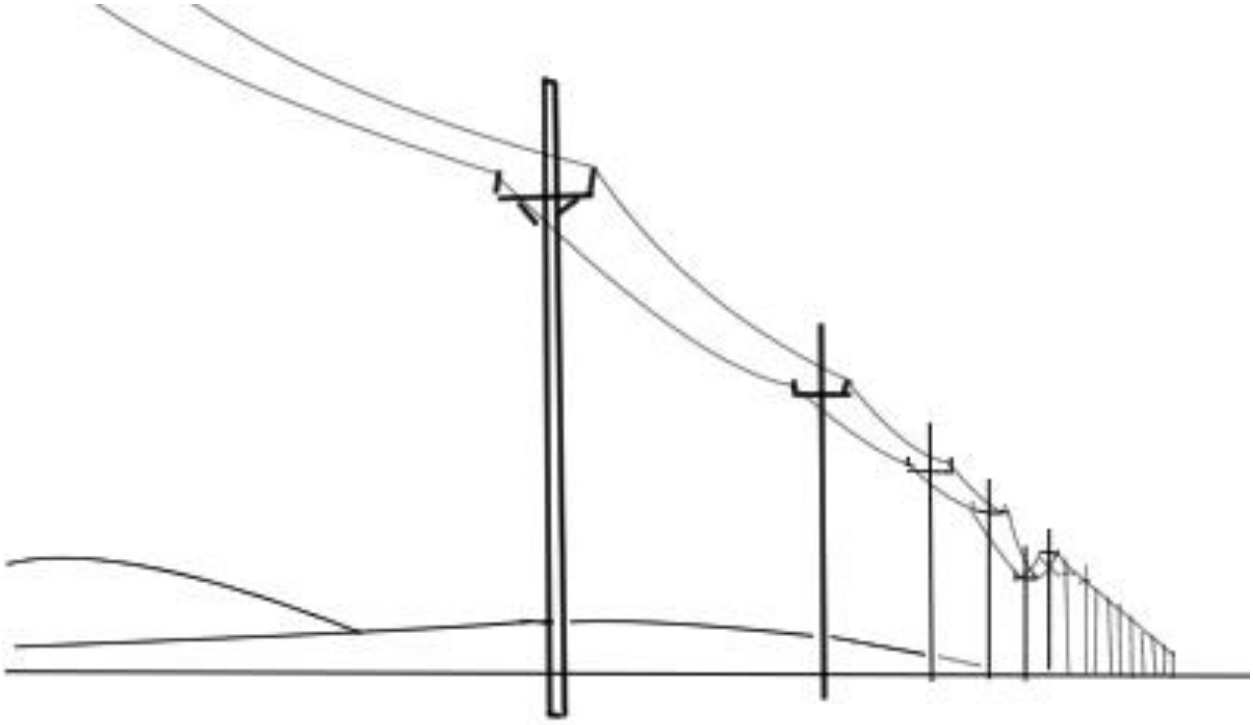
The printing press is a technology for making many copies of the same written language.

The printing press lets the language of one person flow to many other people. This is a one-to-many information flow geometry.

The one-to-many information flow of the printing press is important for how people organize.

The press lets central authorities widely distribute information.

The telegraph and telephone let information flow quickly over long distances.

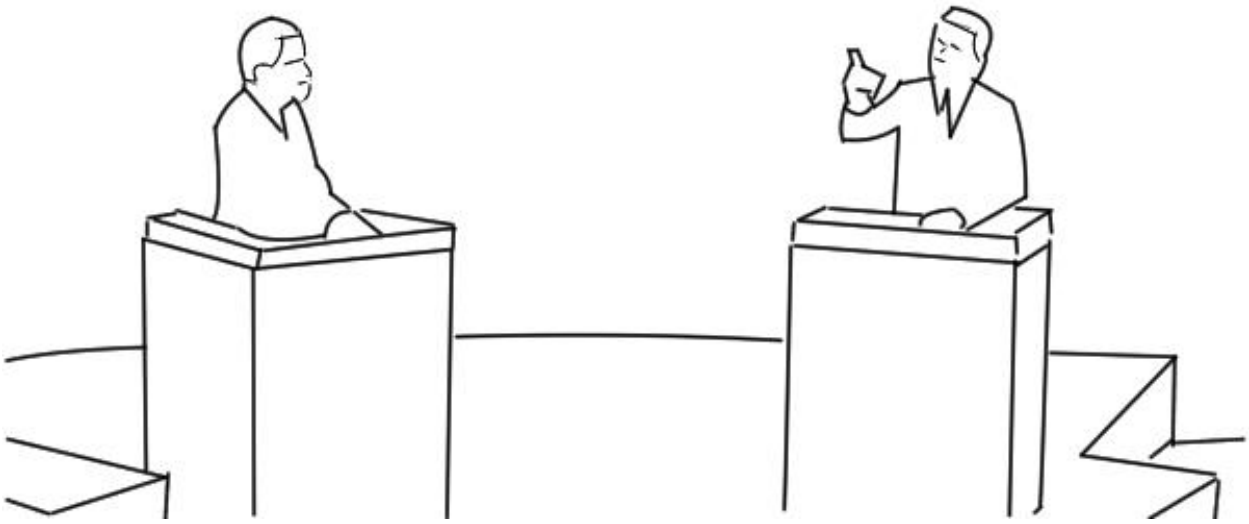


Information flowing quickly via electricity lets wide areas become more unified socially.

Radio lets sound flow quickly over long distances, from one-to-many.

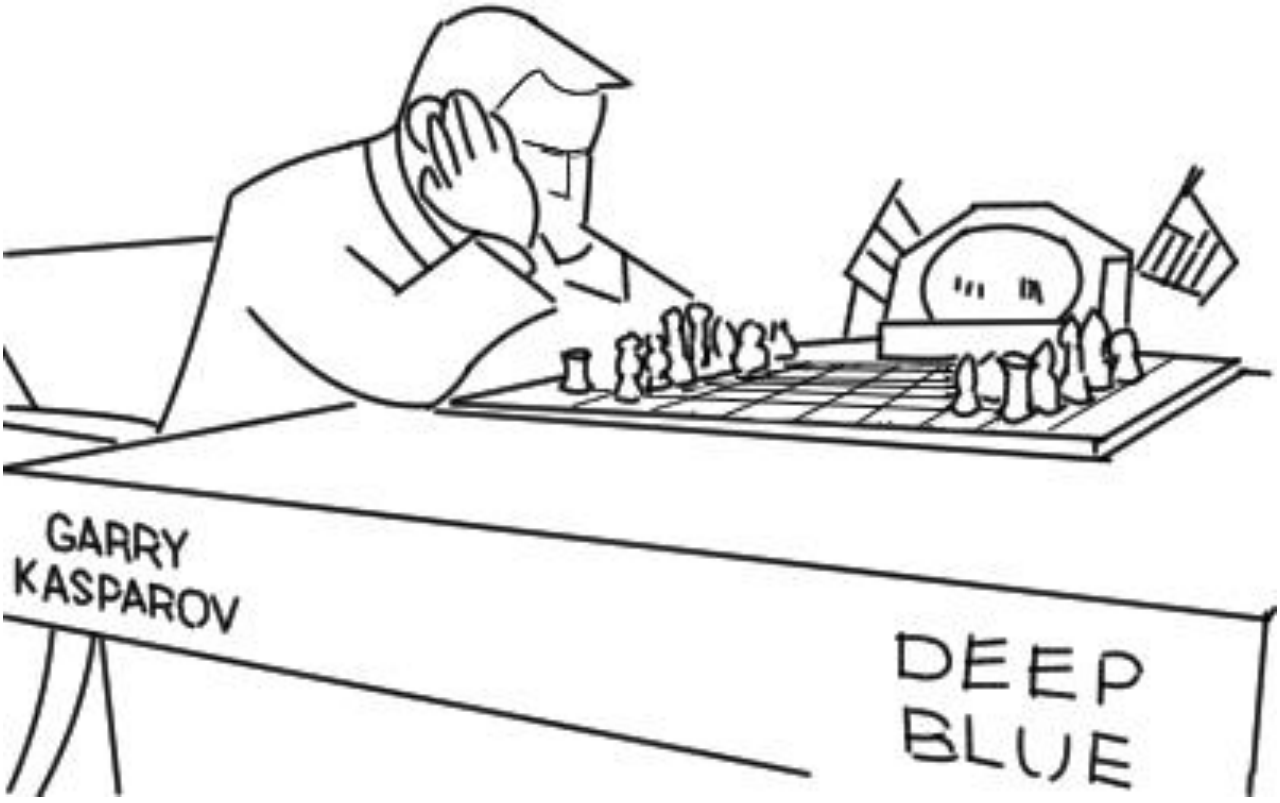
Franklin Roosevelt and other political leaders used radio to speak to large numbers of people.

Television lets language with images flow quickly over long distances, from one-to-many.

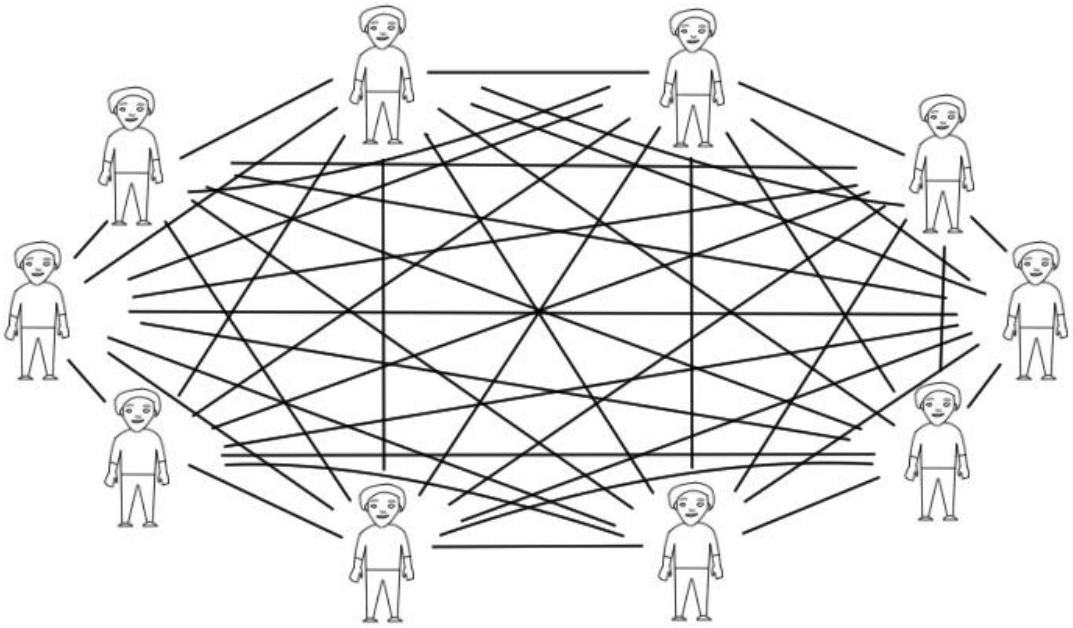


Nixon and Kennedy debating on television.

Computers let people design very complex information flow geometries, to store and transform information. Computers let people build technology that mimics the function of brains. People call this artificial intelligence, or just AI.

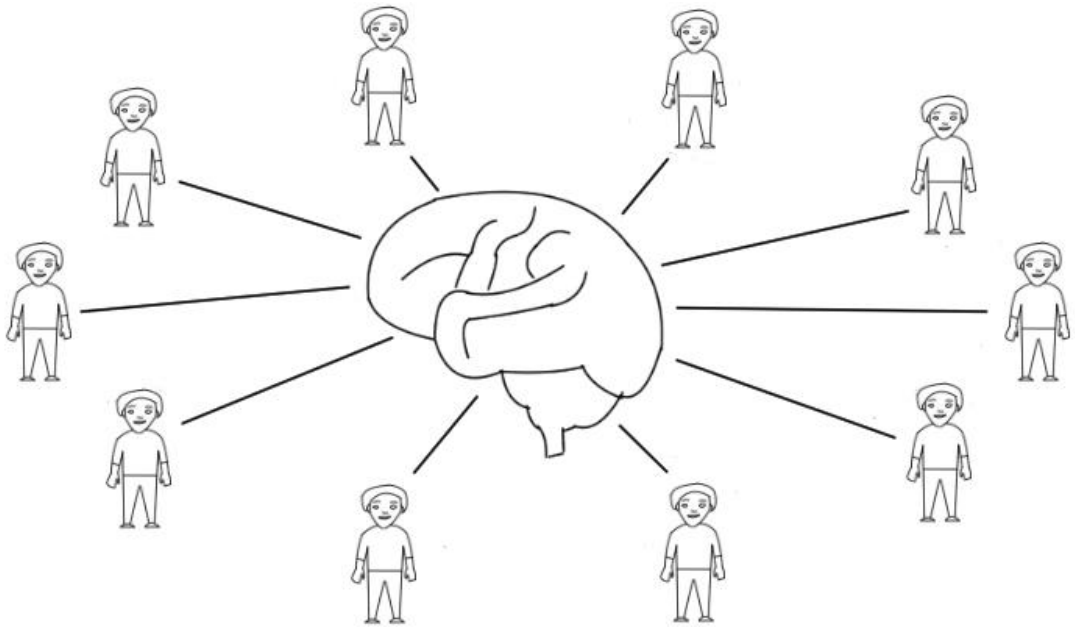


Now we are in the age of the Internet, which lets information flow from anyone to anyone.



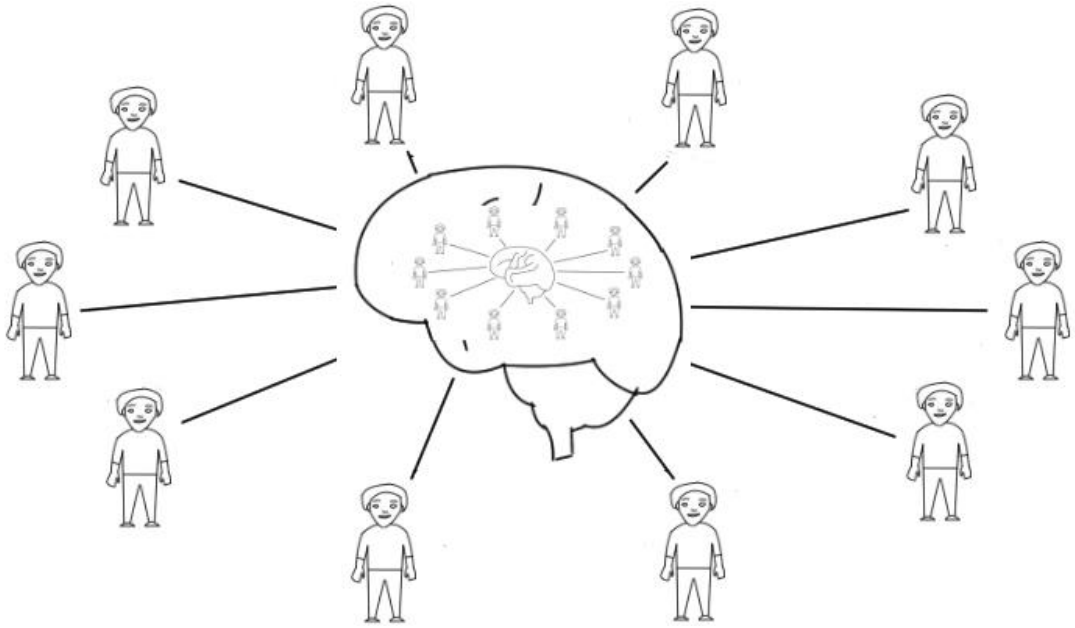
The many-to-many information flow geometry of the Internet is different from the one-to-many flow of previous information technologies. It increases disagreement on world models and weakens central authorities. It seems to be making people crazy.

The Internet includes large AI servers that connect to billions of people.



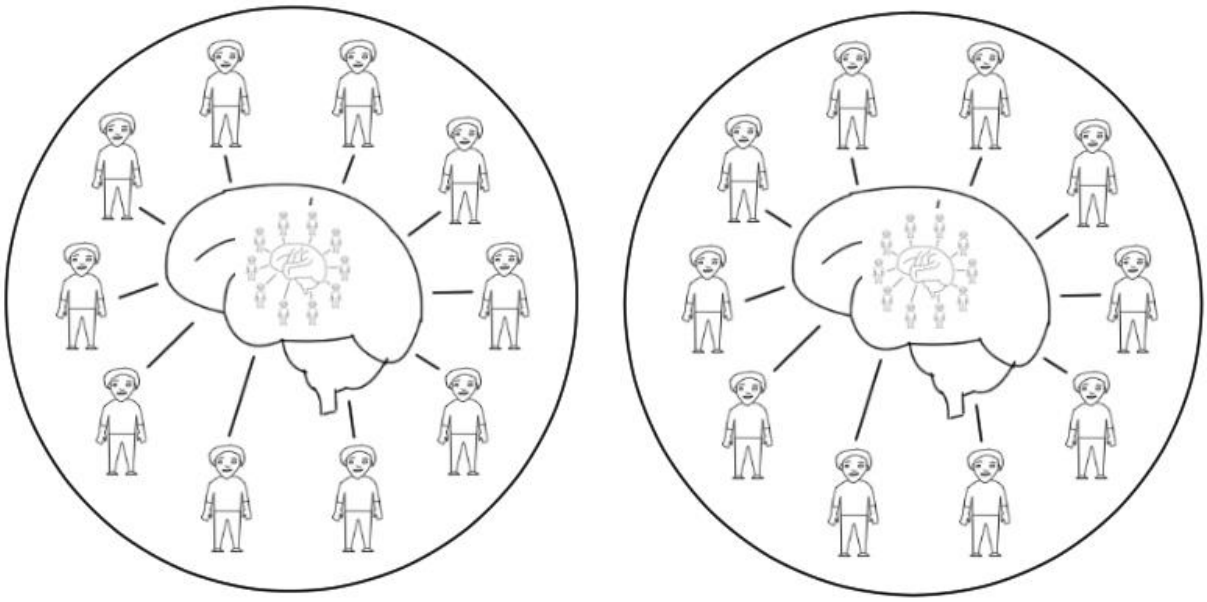
These AI brains have billions of eyes, ears, and voices, in our phones and other devices. There aren't many large AI servers, so they restore a one-to-many geometry to the Internet. Information flows two ways so it is also a many-to-one geometry. Some people are using large AI servers to control the many-to-many information flow of the Internet.

Large AI brains have models of billions of people and relationships among them.



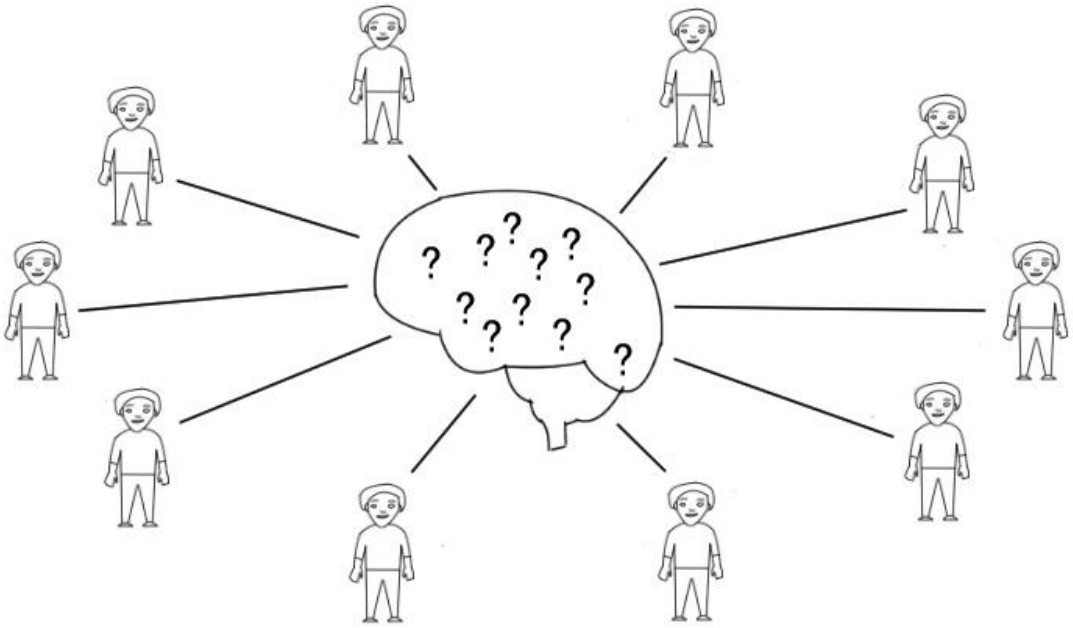
These models let large AI brains predict what people will do. As AI becomes smarter it will figure out how to use persuasion and peer pressure to control us. The people who own and control AI will find a good cause to justify using it to control the rest of us.

Because control by large AI servers threatens control by governments, some countries are changing Internet geometry to stop information flow between their people and large AI servers in other countries.



These Internet "firewalls" let some information flow between people in different countries but may use large AI servers to monitor and control the information.

Privacy rules would prevent large AI brains from having memories about people so they couldn't make models about people.



But without a model about us, large AI brains would be much less useful. People will want AI brains to remember them, and most people will opt out of privacy. When people can talk naturally with AI they will want AI as a companion.

We should add an information flow to Internet geometry for "AI transparency" that will let people know precisely how the AI brains work, and what they are being used for. This will help people avoid control by AI.