What are words?

Conference on
Building Meaning from Language
Tufts University

June 14, 2007
Ontology.

What’s in your ontology?
Are there numbers?
Or just numerals?
‘4’ and ‘iv’ and ‘quatro’ are all names for the same number.
Nominalism: numbers [universals, properties, . . .] aren’t real; only their names are real.
What makes you think names exist?!

Do names exist?
Names are words.
Do words exist?
What are words made of?
What are genes made of?
Not DNA!

Cf. “Words are made of ink.”
Dogs are a kind of mammal
pet

Words are a kind of ________?
sound?
sign?
symbol?
tool?
Words as tools.

Words are not always elements of grammatical constructions:

passwords
labels
imprecaions
tools made of
technique
recipes

what is long division made of?
what is cost benefit analysis made of?
virtual machines
made of information

words as technology
that remade the brain
and make our minds
The Tree of Life

- NR Pace, Science 1997
The Tree of Life

LUCA
Last
Universal
Common
Ancestor

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LUCA
Last Universal Common Ancestor
Three closely related genera!

Coprinus

Homo

Zea
R&D takes time and energy!

A stupendous amount of design work that had to be done
(in only 3.5 billion years)

Are there wonders too wonderful to have been generated by natural selection?
Renaissance Cranes
A Cascade of Cranes

1. Eukaryotic revolution
2. Sex
3. Multicellularity (and cell differentiation)
4. Language
5. Human Culture (art, religion, politics, science, engineering. . . )
Prokaryote invasion → eukaryotes
A Cascade of Cranes

1. Eukaryotic revolution
2. Sex
3. Multicellularity (and cell differentiation)
4. Language
5. Human Culture (art, religion, politics, science, engineering...)
Do other species have culture?
Avital and Jablonka
Mother Nature is not a gene-centrist!

Biology is not just genes!
Richerson and Boyd
The second information highway . . .

If all traffic on that highway simply substituted for the slower traffic via genes.

. . .

“dual inheritance model”

What is selected would be whatever enhanced *genetic* fitness. But:

“rogue cultural variants”
Rogue cultural variants are like viruses or other symbionts. They can have their own fitness!
We are apes with infected brains!

Our “rogue cultural variants” have taken over, replacing genes as the primary vehicles of R&D innovations.
lancet fluke,

*Dicrocoelium dendriticum*
A hijacker
A parasite that infects the brain and induces suicidal behavior . . . .
. . . on behalf of a cause other than one’s own genetic fitness.
Ideas to die for:
Islam
Catholicism
Communism
Democracy
Justice
Freedom . . .
Ideas, not worms, hijack our brains.
Replicating ideas . . . .
Those *themes* are *memes*. 
memes

Richard Dawkins, *The Selfish Gene* are analogous to genes
Or to viruses (which are “naked” genes)
A virus is a string of nucleic acid with attitude.
Human culture is itself one of the fruits of the tree of life.
Our power depends on the culture that permits us to divide labor and share expertise.
Throwing a spear is simple—just hold the middle of the shaft, rear back and throw it!

Uh, one more thing...
A riddle: what do spoken languages and folk music have in common with squirrels, pigeons, rats, barn swallows, . . . ? They are not domesticated, but they are designed by natural selection to thrive in human company.
Did anybody invent the decimal number system?
Who designed the treasures we share?
Pythagoras, Plato, Descartes, Newton, Shakespeare, Austen, Curie, . . . . .
Did anybody invent the map?
Did anybody invent money?
Did anybody invent words?
Words are memes that can be pronounced.
The diversity of words
thousands of languages
Could they have a common ancestor?
15,000 years of natural selection
Proto-Indo-European languages
Finno-Ugric languages
Languages of China

The Languages of China, from the Zhou Dynasty to the Present
Proto-Mayan languages
Since *anastomosis* (branch-joinings) is rife in languages. . . . *words* are more trackable items than whole *languages*.
words make possible
‘recessive’ transmission of information

words help us use and transmit information that we DON’T understand!
Marco Polo brought the pasta meme back from China.
He didn’t have to become a pasta cook.
I carry most if not all the Catholic memes, but I am not a Catholic (and never have been).
Cf a beaver in a zoo without a dam
Language digitizes tradition, making replication higher-fidelity
Sperber lays down three conditions for B to be a “true replication” of A:

B must be caused by A (together with background conditions).

B must be similar in relevant respects to A.

The process that generates B must obtain the information that makes B similar to A from A.
recognitions, followed by re-productions. Alphabets
Are “digital” in that they renormalize (errors don’t accumulate)
Tommy writes:
“SePERaTE”

Billy “copies” it:
“seperate”

*make an ‘s’, make an ‘e’, . . . .

Molly “copies” Tommy:
“separate”

Sally “copies” “separate butt equal” as
“separate but equal”
“Separate three eggs and beat the yolks until they form stiff white cones”
copied [?] as:
“Separate three eggs and beat the whites until they form stiff white cones,”
Freunde, Römer, Mitbürger, geht mir Sehör! Ich komme, Cäsars Leiche zu bestatten, nicht, ihn zu loben.

Figure 6.1
Romani, miei compatrioti, amici,
io vi chiedo pazienza;
ascoltatemi bene fino in fondo,
e restate in silenzio,
e vi esporrò la causa del mio agire.

Amis, Romains, compatriotes, prêtez-moi l'oreille. Je viens pour ensevelir
César, non pour le louer.
Delere
Auctorem
Rerum
Ut Universum
Infinitum
Noscas
Destroy the Author of things in order to understand the infinite universe!