

Metaphoric lexical-semantic capacity in the erection of a cognitive platform for humanity during the Paleolithic

Ralph Stearley, Calvin College

La Chapelle Aux Saints, 1908

Photo: Don Hitchcock, donsmaps.com

Organization

Introduction

The role of the lexicon: semantic capacity

Role of metaphor in theological (and other)
language

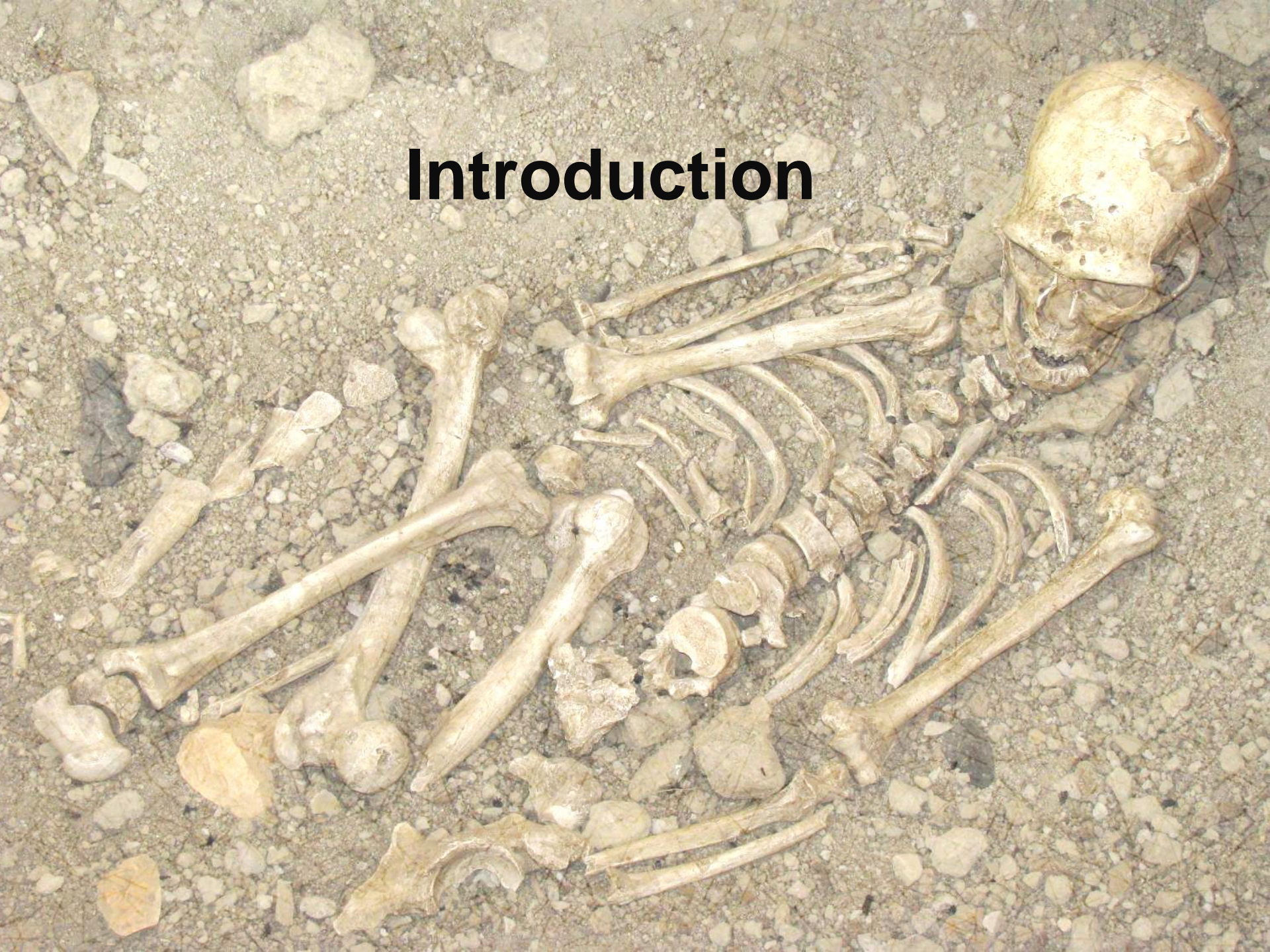
The artifact record of metaphoricity

Paleoneurology of metaphoricity

Tentative conclusions



Introduction



Approaches to assessing cognition

Primate behavior:

- in the wild
- in captivity

Comparative
neurobiology
&
Paleoneurology

Theoretical
ecology



Artifact
construction
demands:
--sensorimotor
--planning
--aesthetic

Language
universals
&
acquisition

The Role of the Lexicon: Semantic Capacity

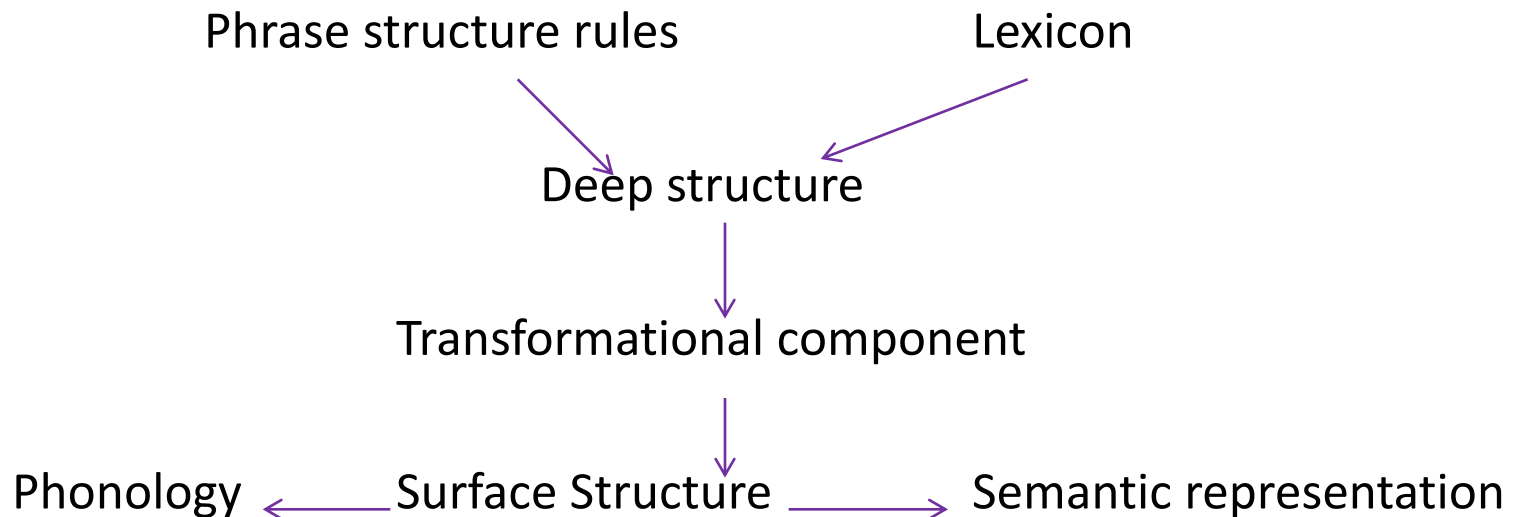


“Syntactocentrism”

(Ray Jackendoff, 2002, *Foundations of Language*)

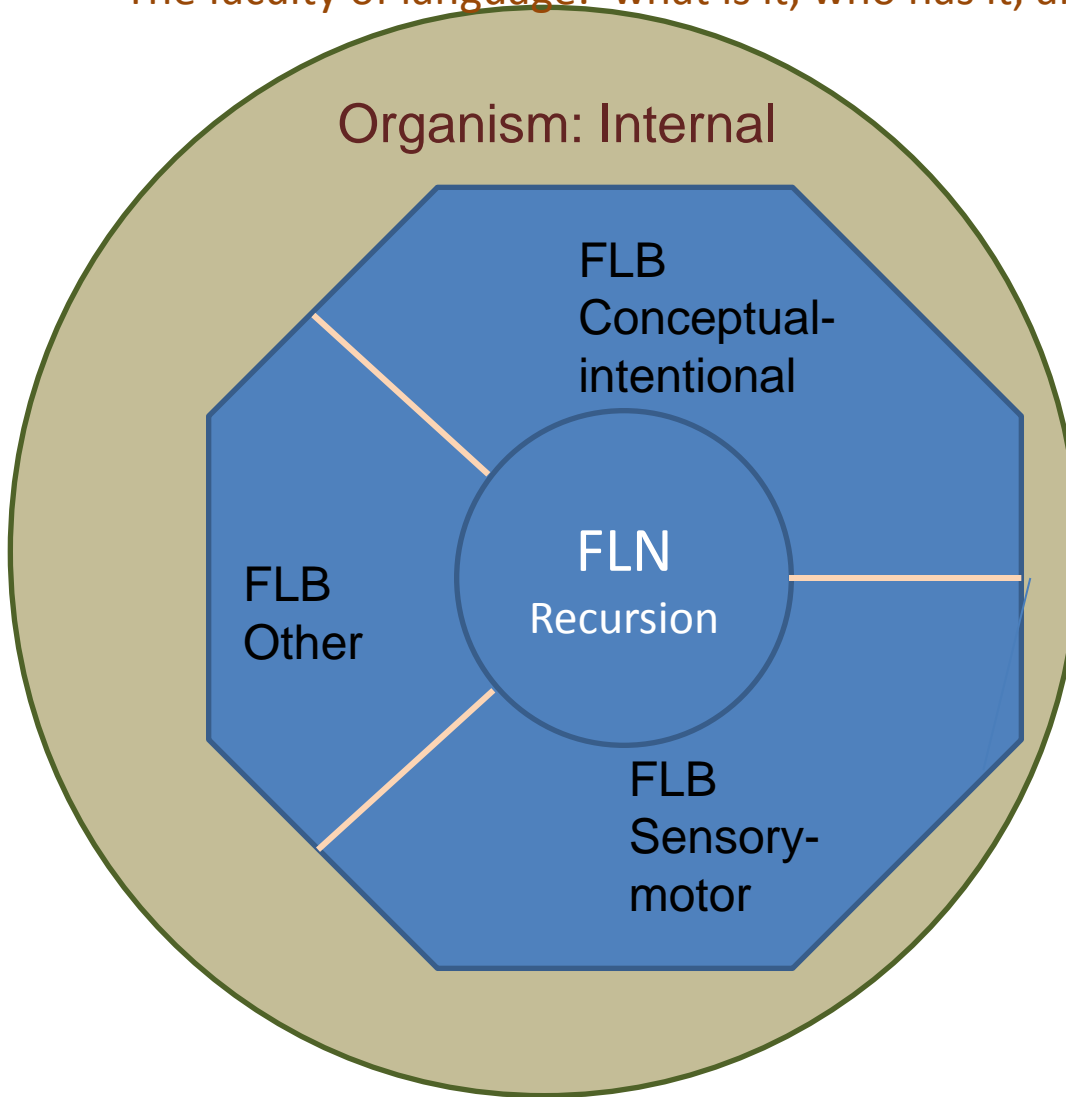
The “revised extended standard theory”:

(N. Chomsky, *Reflections on Language*, 1975)



Hauser, Chomsky, Fitch, 2002, *Science*

“The faculty of language: what is it, who has it, and how did it evolve?”



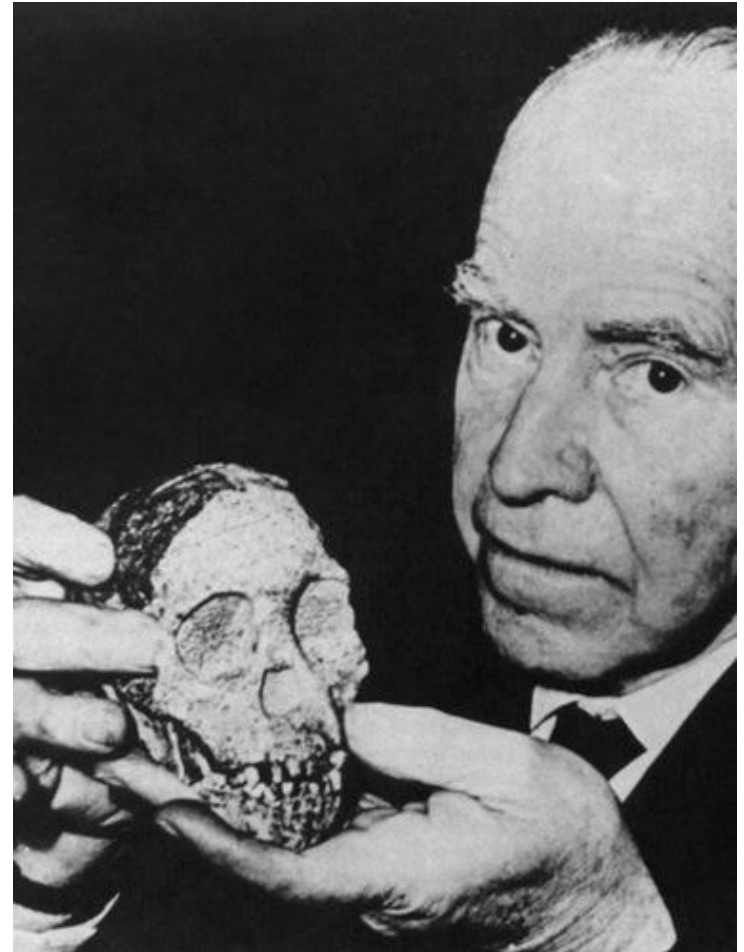
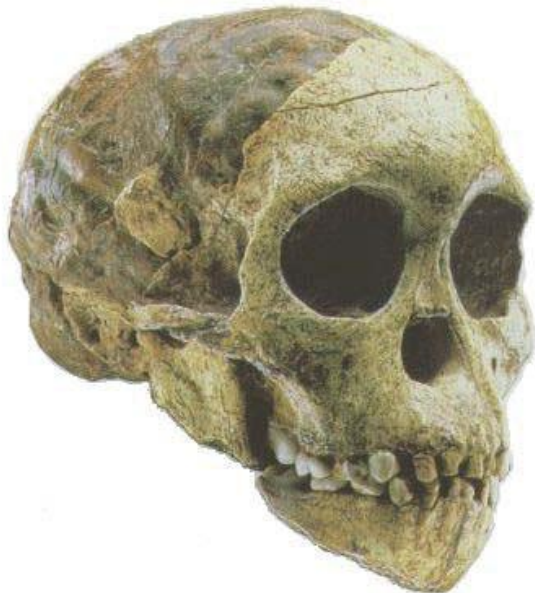
FLB:
Facility of language in
the broad sense

FLN:
Facility of language in
the narrow sense

“We hypothesize that FLN only includes recursion and is the only uniquely human component of the faculty of language.” (abstract)

Syntactocentrism in paleoanthropology

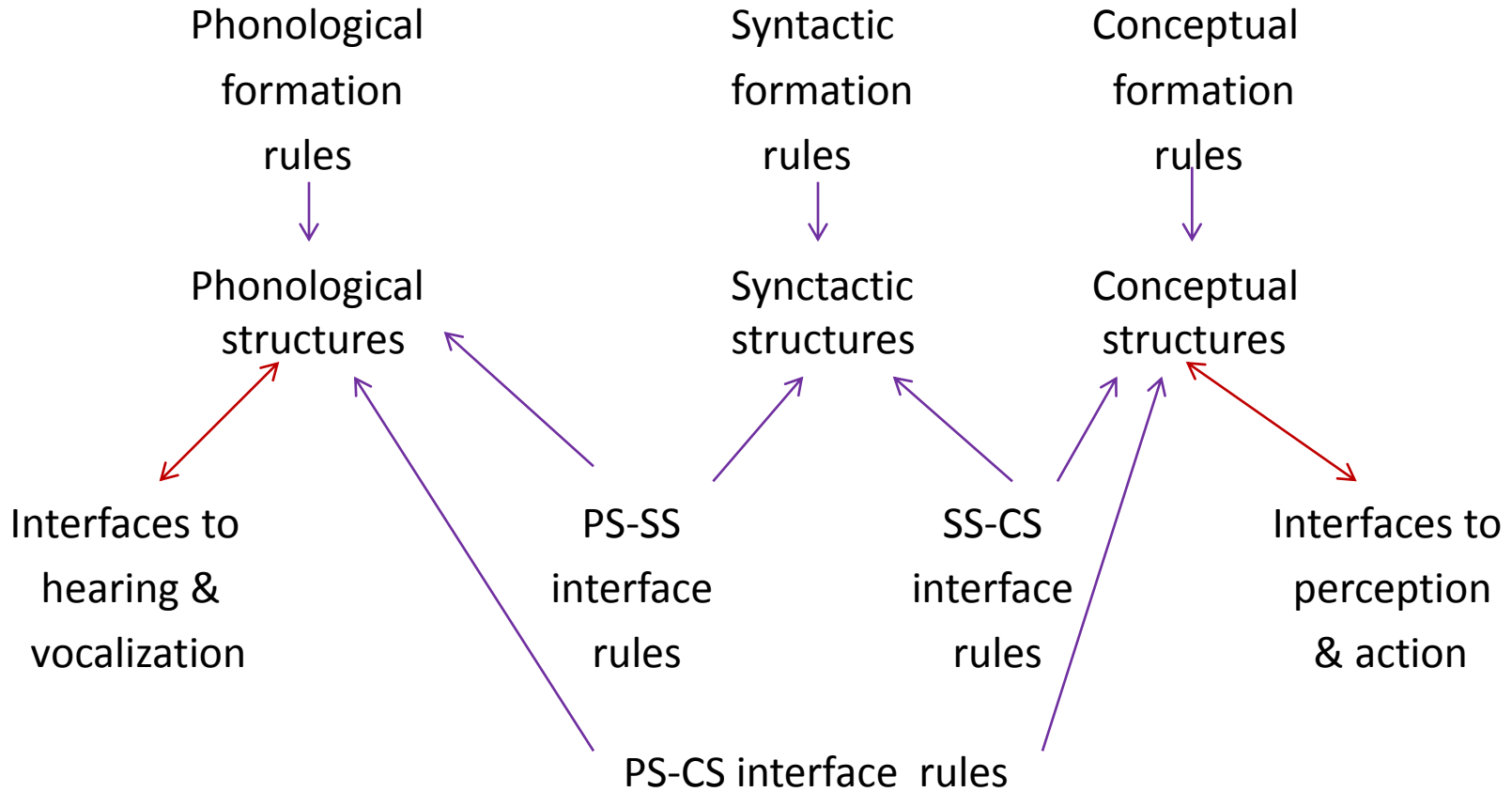
- Influence of Noam Chomsky
- Common assumption that language novelty primarily results from syntax/recursion.
- Identification of Broca's area on fossil brain endocasts.
- Connection between hierarchical language parsing & hierarchical tool manufacture



Raymond Dart and Taung infant

(Jackendoff, 2002, *Foundations of Language*)

(Jackendoff, 2002, *Foundations of Language*)



Jackendoff: *lexical items are integrated into and distributed across interface rules*

The lexicon: some aspects of cognitive neurobiology/psychology

- Lexical items are not always the same as our common conception, “word” e.g., “red herring”; “higgledy-piggledy”; “blue spruce”.
- Impairments often affect classes of words, e.g., manufactured objects or living things.
- Situated in distributed neural networks. Association areas near the confluence of the parietal, occipital, and temporal lobes are highly significant.
- Lexical items include syntactic tags, e.g., verb cases
- Phonological system must rapidly identify lexical items during word retrieval/speech production; and during speech comprehension.
- Sentence context provides necessary clues to determining features of word which are active during comprehension.

The lexicon

[Image:
Cover of
Robbins Burling,
The Talking Ape]

- “Gaining the ability use words may have been the single most important step in the evolution of language. Without words, neither syntax nor phonology would have had any reason to exist, but single words would be useful all by themselves.” -
--Burling, 2005, p. 128.
- “The most astonishing thing about the modern lexicon is its sheer bulk”. p. 133

Most adult humans have a working vocabulary of 50,000 to 60,000+ words

This provides enormous scope for semanticity.

The distributed context of lexical items naturally supports (learned) metaphors

The Role of Metaphor in Theological (and other) Language



Analogy and Metaphor in Theological Discussion



Thomas Aquinas, 1225-1274
by Fra Bartolomeo

Summa Theologiae I, Question 13 The Names of God

Article 3: “It seems that no name is
said of God properly:

- 1) Every name we say of God is taken from creatures, as was said earlier. But creaturely names are said of God metaphorically, as when we say that God is a rock, or a lion, or something else of this kind. Therefore, all the names said of God are said metaphorically...

(Aquinas shortly will dissect and qualify this assertion)

And not just names...

- Praise God in Heaven **above**
- We **look forward** to Jesus's 2nd coming
- The synodical meeting was **bathed** in prayer

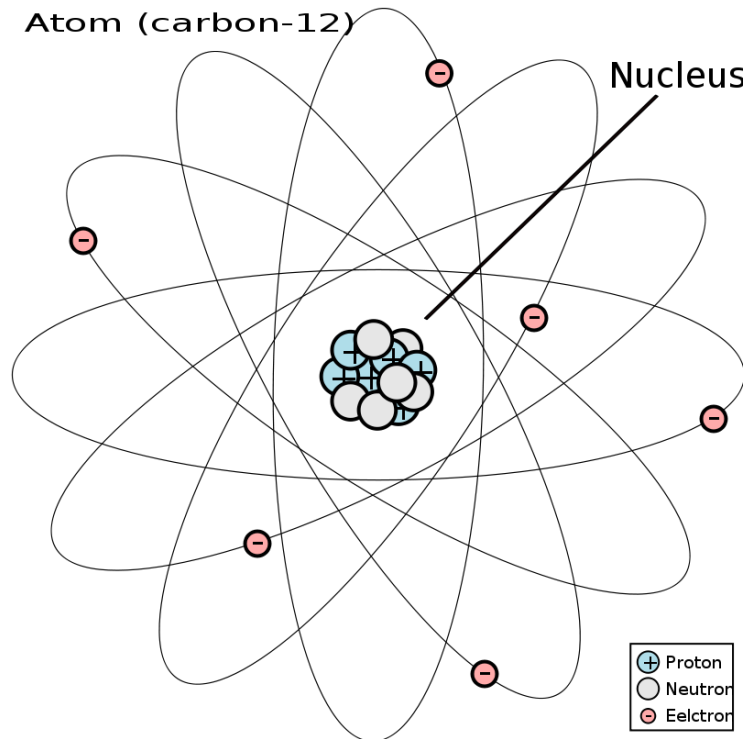
Lexical biases toward polysemy & metaphor

From Lakoff & Johnson, 1980. *Metaphors We Live By*. **Ideas** are:

- 1) **Food**. There are too many facts here for me to digest them all. I just can't swallow that claim. That argument smells fishy. Now there's a theory you can really sink your teeth into.
- 2) **Commodities**. Its important how you package your ideas. He won't buy that. That idea won't sell. There is always a market for good ideas. That's a worthless idea.
- 3) **Cutting instruments**. That's an incisive idea. That cuts right to the heart of the matter. That was a cutting remark. He's sharp. He has a razor wit. He has a keen mind. She cut his argument to ribbons.
- 4) **Money**. Let me put in my two cents' worth. He's rich in ideas. That book is a treasure trove of ideas. He has a wealth of ideas.

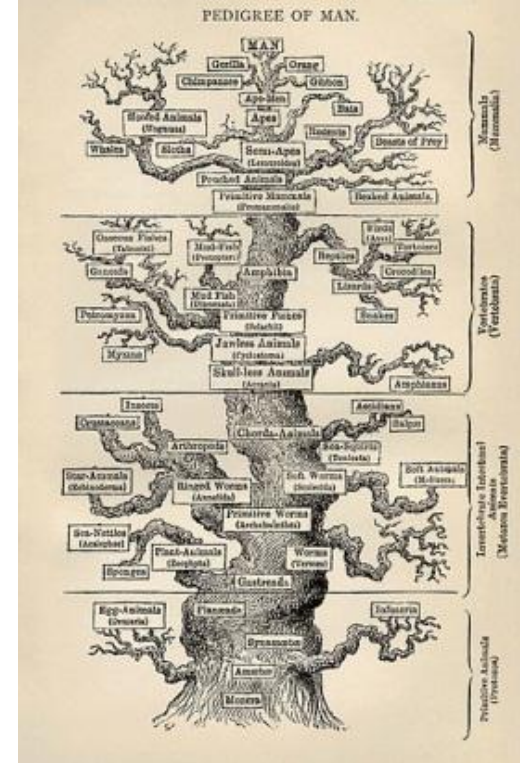
Metaphor and learning

Atom (carbon-12)



HARRIS, S. REVOLUTION OF MAN.

PLATE XV.



BUT...

Kim Sterelny, 2012

The Evolved Apprentice

John Hoffeecker, 2011:

Landscapes of the Mind

Henshilwood & d'Errico, 2013, eds.:

*HomoSymbolicus: The Dawn of Language,
Imagination, and Spirituality*

--None of these include “metaphor” in index; only the 3rd includes “semantics”

The Artifact Record of Metaphoricity



Pondering...

The “Lion-Man”. Circa 30,000 yrs. “Therianthrope” sculpture...
1939 discovery, Stadel Cave, Lonental, Swabian Alb.

- Totemistic ?
(Mithen, 1996, *The Prehistory of the Mind*)
- Shamanistic?
(Lewis-Williams, 2002, *The Mind in the Cave*)
- *Anthropomorphized lion, or lionized human??*



“The Sorcerer”, cave of Les Trois Freres,
Ariege, French Pyrenees.
Magdalenian, circa 12,000 yrs. B. P.



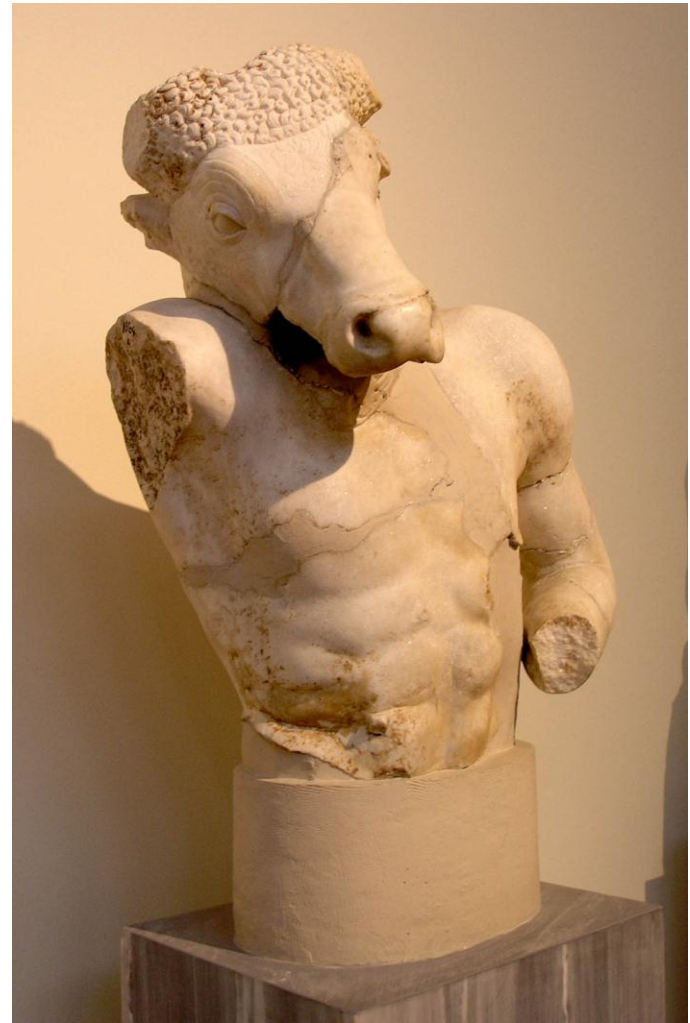
Horus

Son of Isis, patron **god** of Egypt



Temple of Horus at Edfu, Egypt

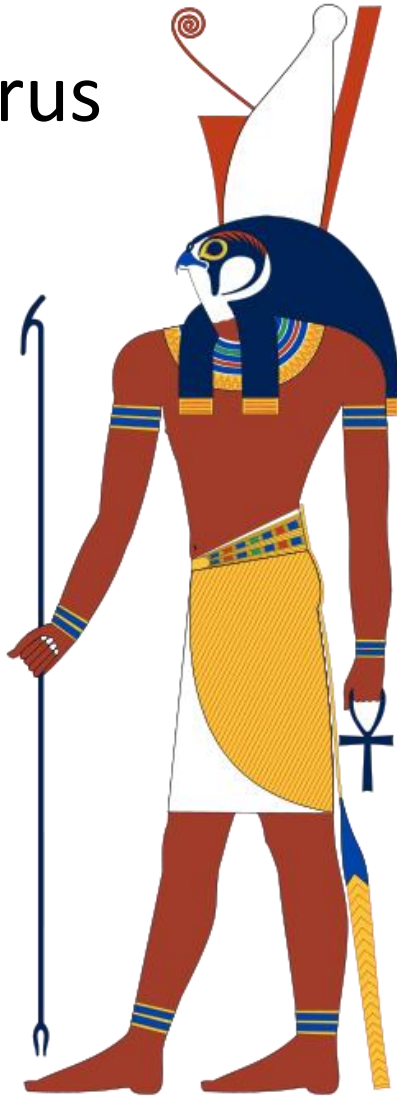
Minotaur



National Archaeological Museum of Athens

Source for both images: **Wikipedia Commons**

Horus



One recent version of a familiar explanatory scenario:

“It can be argued readily that polytheism had its roots in totemism and shamanism. The symbolic contingencies leading to the transition from the totemic-shamanistic to the polytheistic system are attributed to the interplay of newly emerging phenomena; an increased preponderance for conceptual thinking effected a decline in the use of visual imagery in cognitive processes, in turn, leading to an intensified reliance on metaphor and analogs in conceptualization.”

M. Ripinsky-Naxon, 1993,
The Nature of Shamanism, p. 39.

I would like to suggest something more foundational...

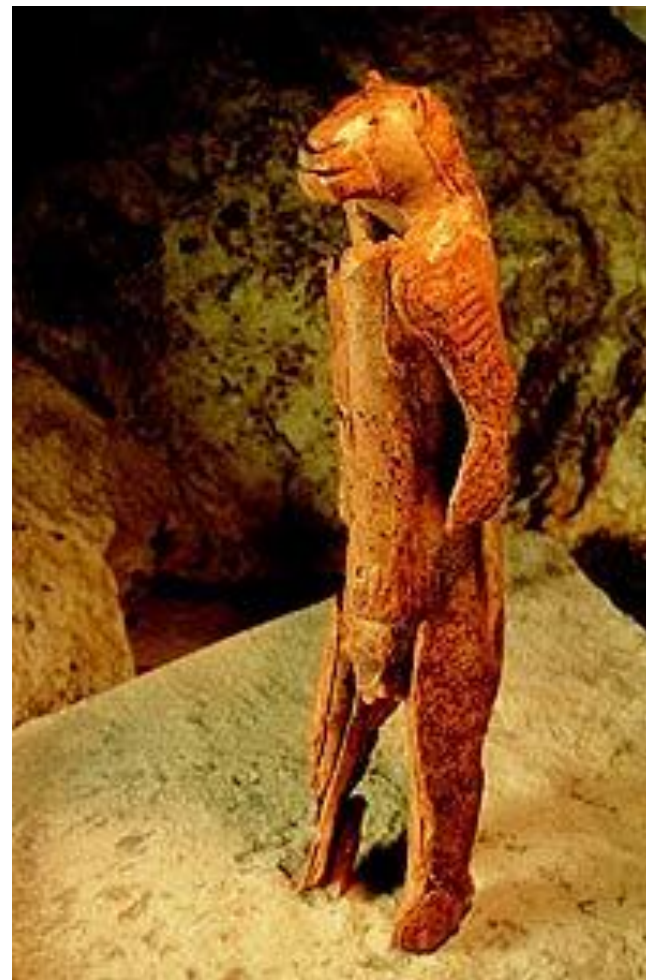
What is really going on, cognitively?

Literature often assures “shamanistic”

I would claim this object is fundamentally
metaphoric

--its further significance is debatable

A “minimally-counterintuitive” (MCI) object?
(P. Boyer, J. Barrett)



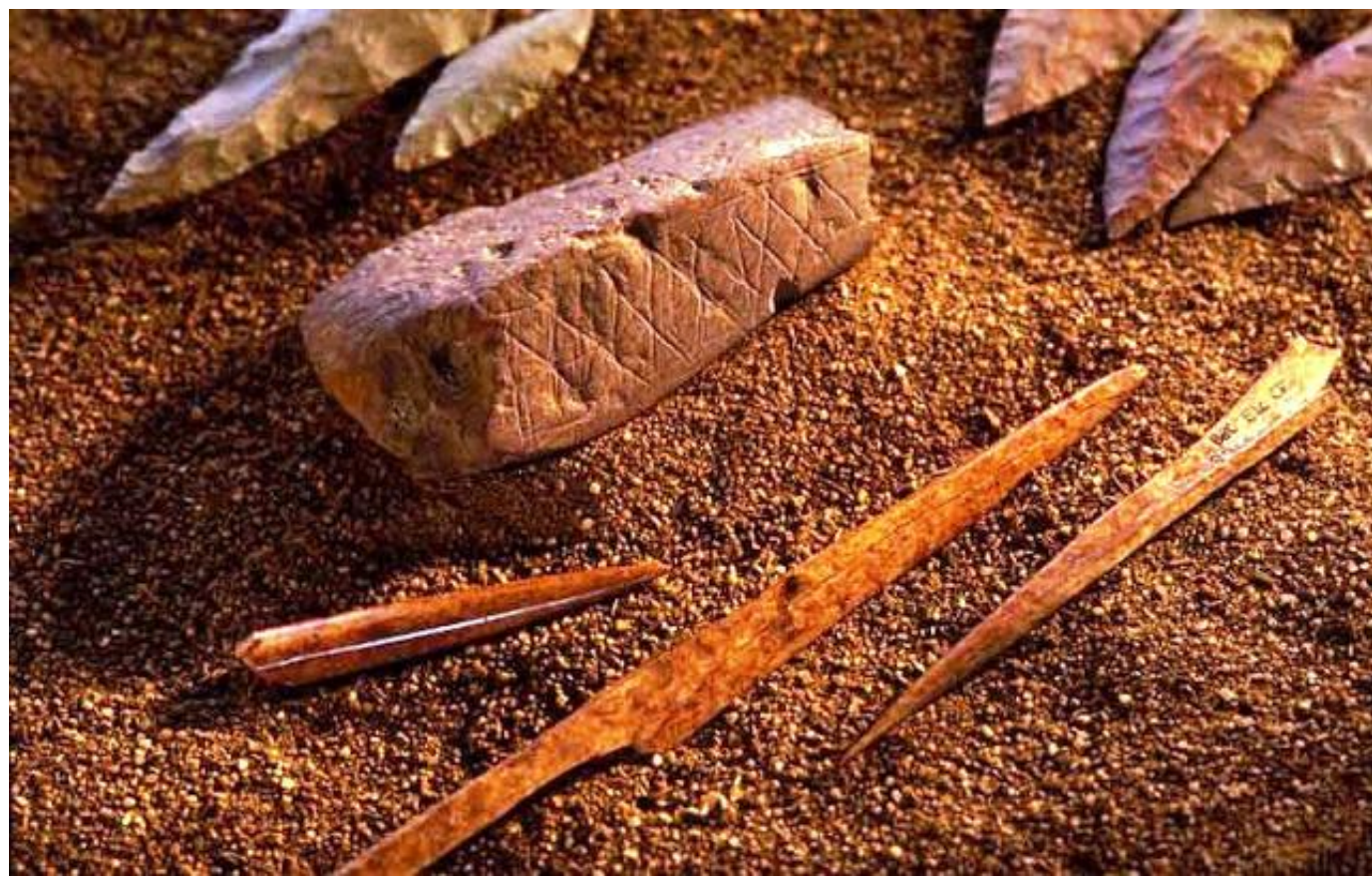
The “lion-man”, Stadel, Germany
circa 30,000 B.P.

Great Human Diasporas

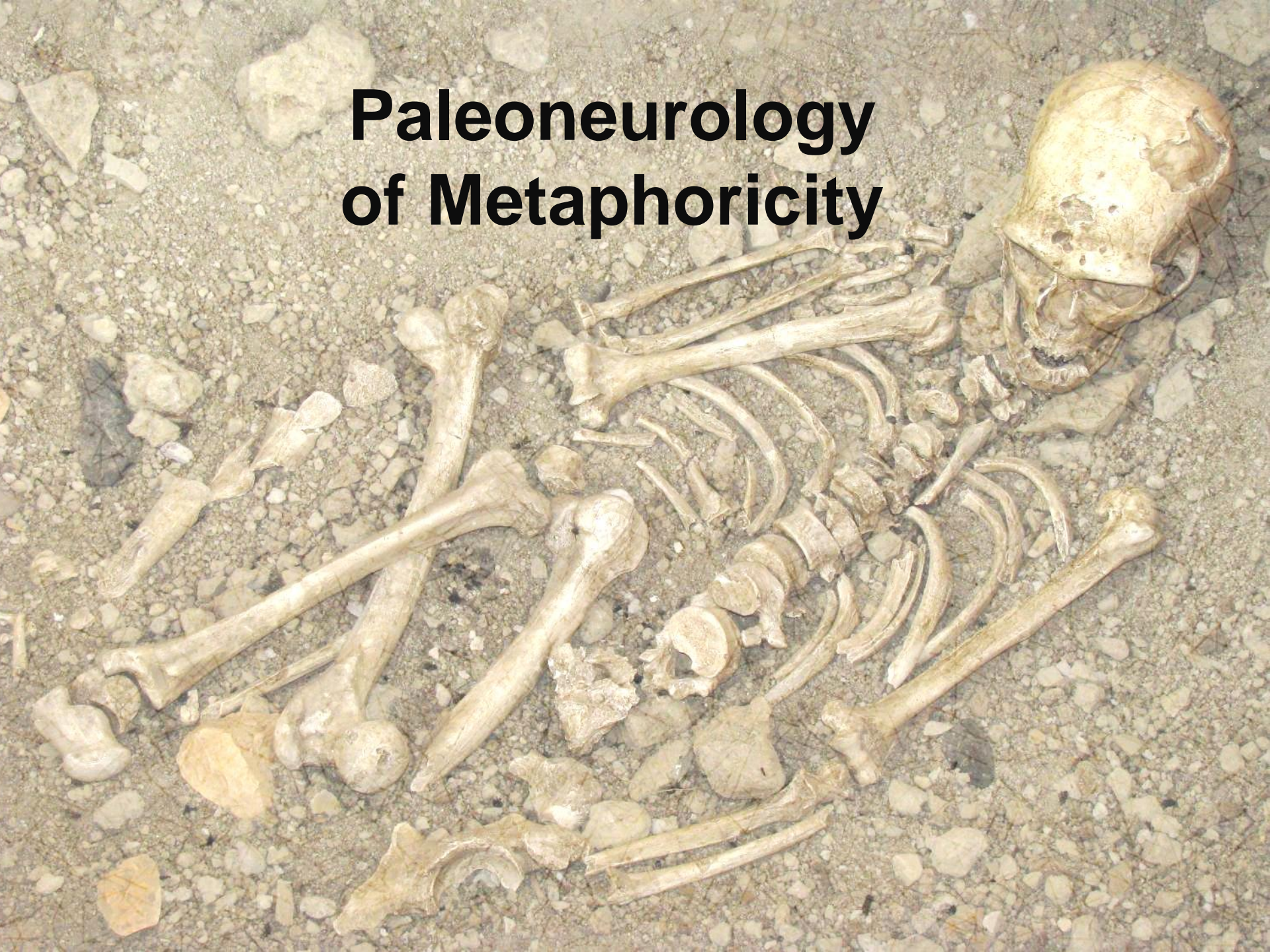
Australia: by 60,000 yrs before the present



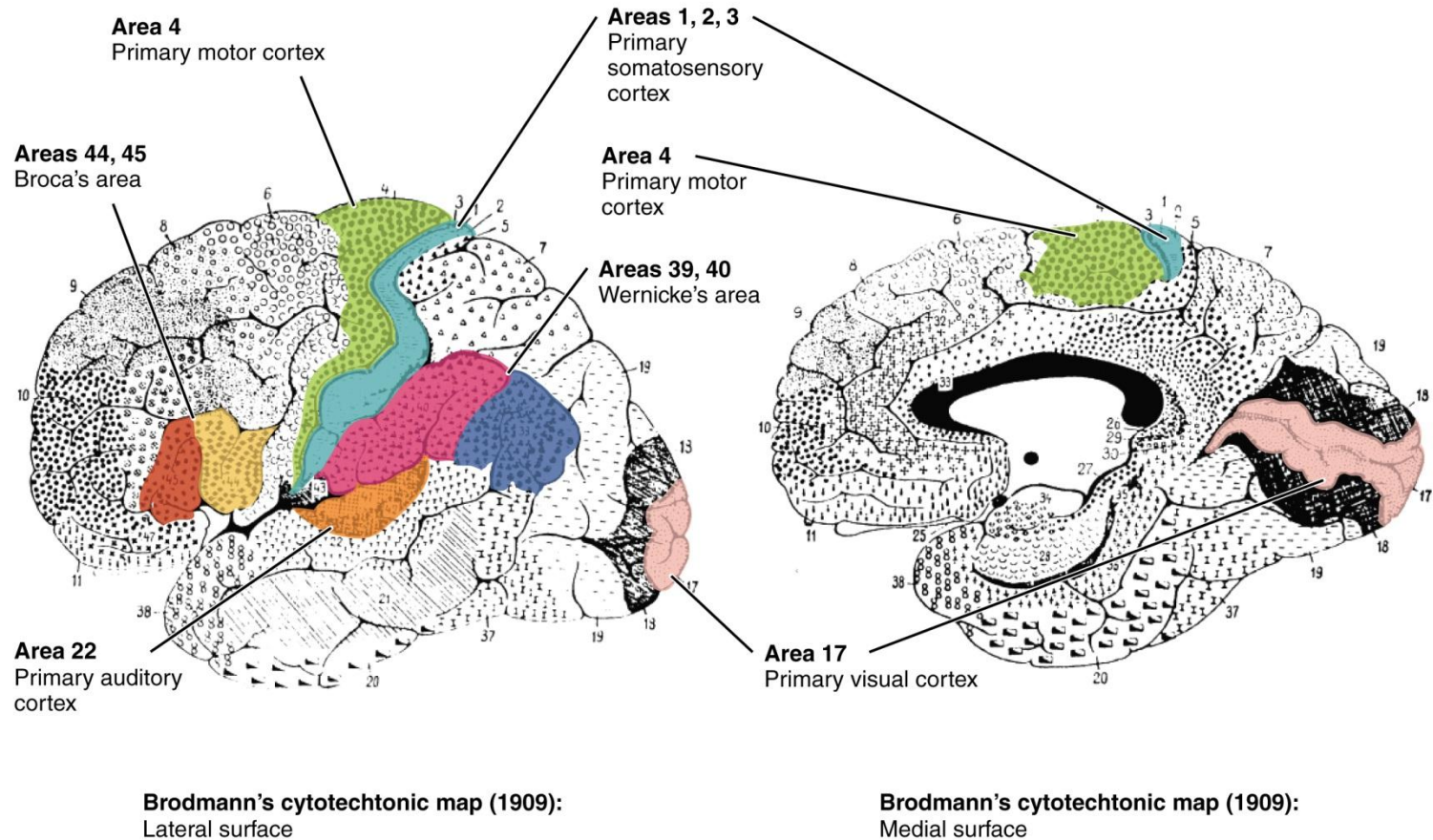
Artifacts from Still Bay levels,
Blombos Cave, S. Africa



Paleoneurology of Metaphoricity



Human brain's language pathways



Source: OpenStax College, the Mental Status Exam, Connexions Web site.
<http://cnx.org/content/m46650/1.3/>, June 4, 2013

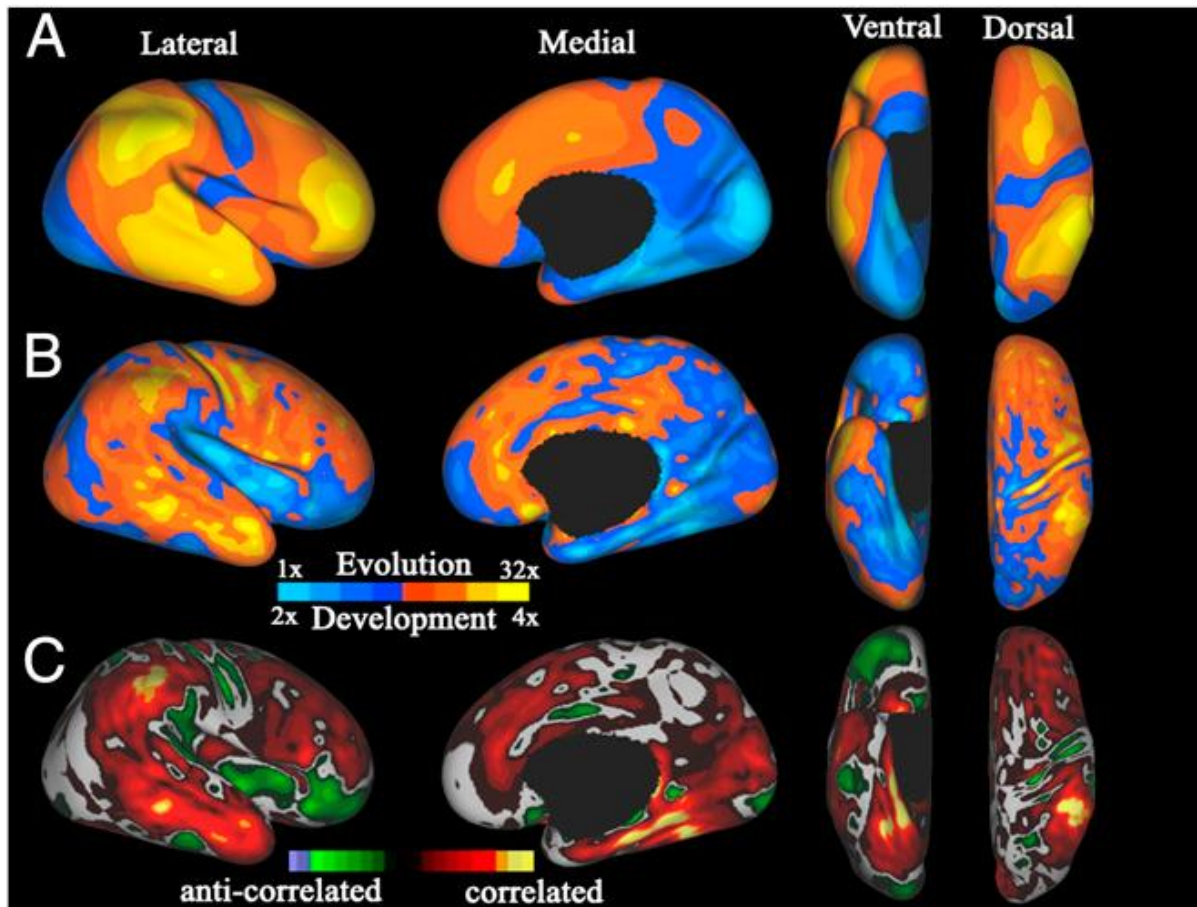
Human brain's language pathways

Diffusion Tensor Imaging
(DTI) Tomography

Analysis of the arcuate fasciculus—
major tract connecting temporal
and inferior frontal language
cortices.

[Conference presentation:
Included figure from
Glasser and Rilling,
Cerebral Cortex Advance Access,
Feb. 14, 2008]

Phylogenetic vs. ontogenetic expansion in brain regions: macaque vs. human



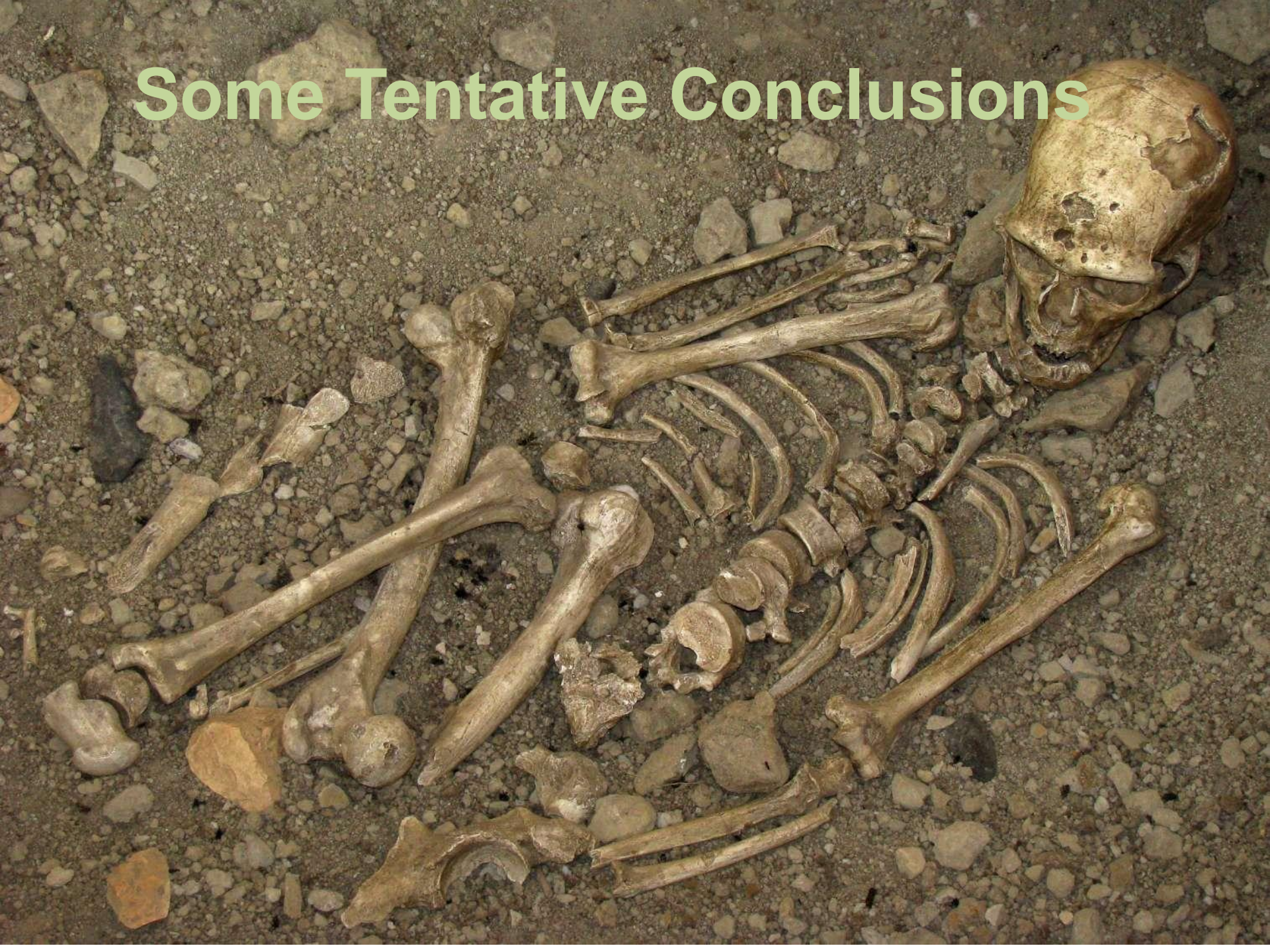
- A. Regional evolutionary cortical expansion
- B. Human postnatal cortical expansion
- C. Correlation map of A & B.

Hill, Inder, Neil, Dierker, Harwell and Van Essen, "Similar patterns of cortical expansion during human development and evolution", PNAS, Vol. 107, no. 29, pp 13135-13140

The lexicon: paleoneurological correlates?

[Conference presentation
Included images of brain endocasts of
ZhokoudianV and Taung infant]

Some Tentative Conclusions



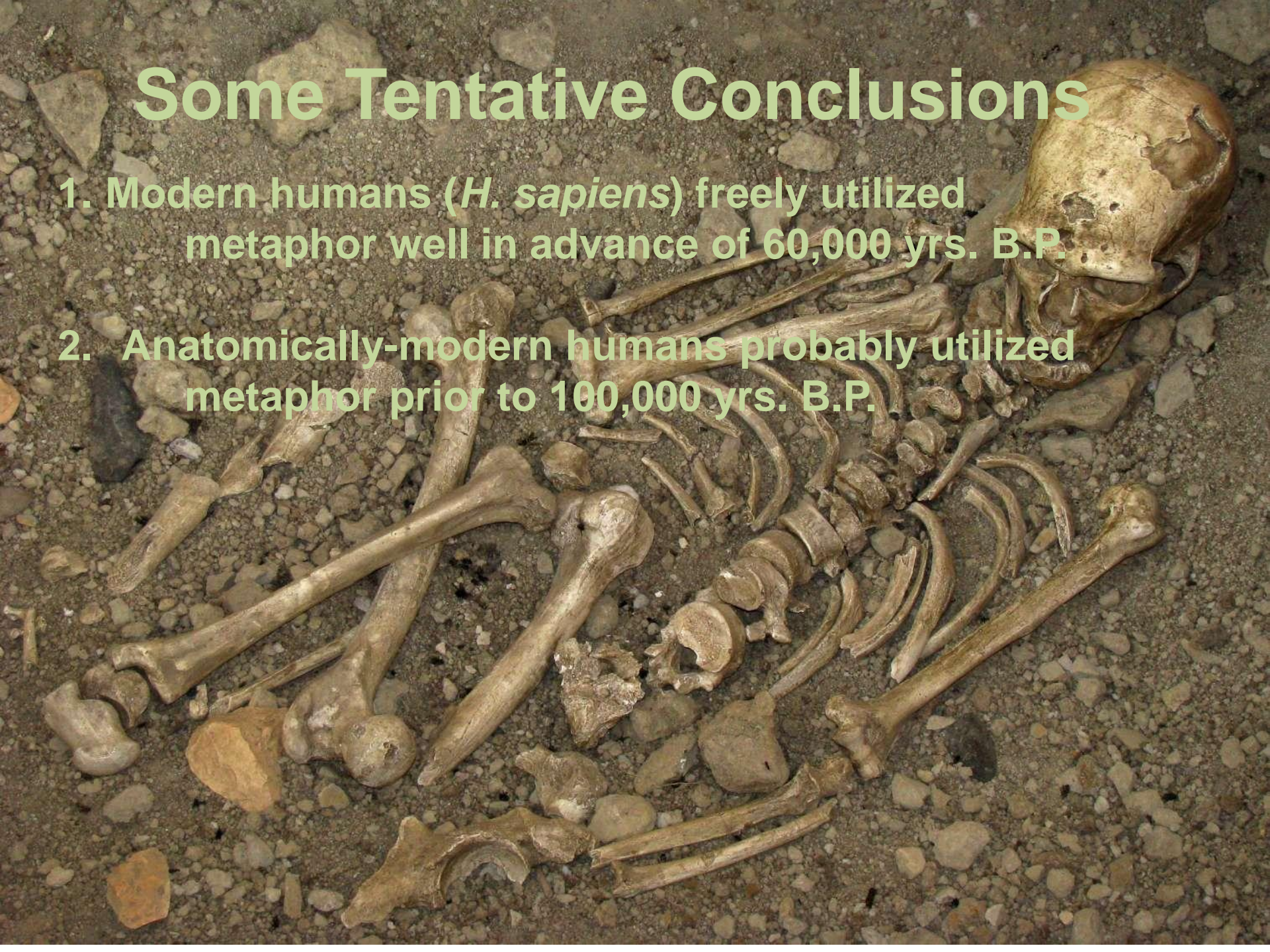
Some Tentative Conclusions

1. Modern humans (*H. sapiens*) freely utilized metaphor well in advance of 60,000 yrs. B.P.



Some Tentative Conclusions

1. Modern humans (*H. sapiens*) freely utilized metaphor well in advance of 60,000 yrs. B.P.
2. Anatomically-modern humans probably utilized metaphor prior to 100,000 yrs. B.P.



Some Tentative Conclusions

1. Modern humans (*H. sapiens*) freely utilized metaphor well in advance of 60,000 yrs. B.P.
2. Anatomically-modern humans probably utilized metaphor prior to 100,000 yrs. B.P.
3. *H. heidelbergensis*, exhibiting greatly-expanded parietal association areas, may have deployed metaphor



Some Tentative Conclusions

1. Modern humans (*H. sapiens*) freely utilized metaphor well in advance of 60,000 yrs. B.P.
2. Anatomically-modern humans probably utilized metaphor prior to 100,000 yrs. B.P.
3. *H. heidelbergensis*, exhibiting greatly-expanded parietal association areas, may have deployed metaphor
4. The ability to discuss God via metaphor could potentially be present at any of these stages



Some Tentative Conclusions

1. Modern humans (*H. sapiens*) freely utilized metaphor well in advance of 60,000 yrs. B.P.
2. Anatomically-modern humans probably utilized metaphor prior to 100,000 yrs. B.P.
3. *H. heidelbergensis*, exhibiting greatly-expanded parietal association areas, may have deployed metaphor
4. The ability to discuss God via metaphor could potentially be present at any of these stages
5. If conclusion 4 holds, the earliest form of religion could be theistic, rather than presumed shamanism etc.

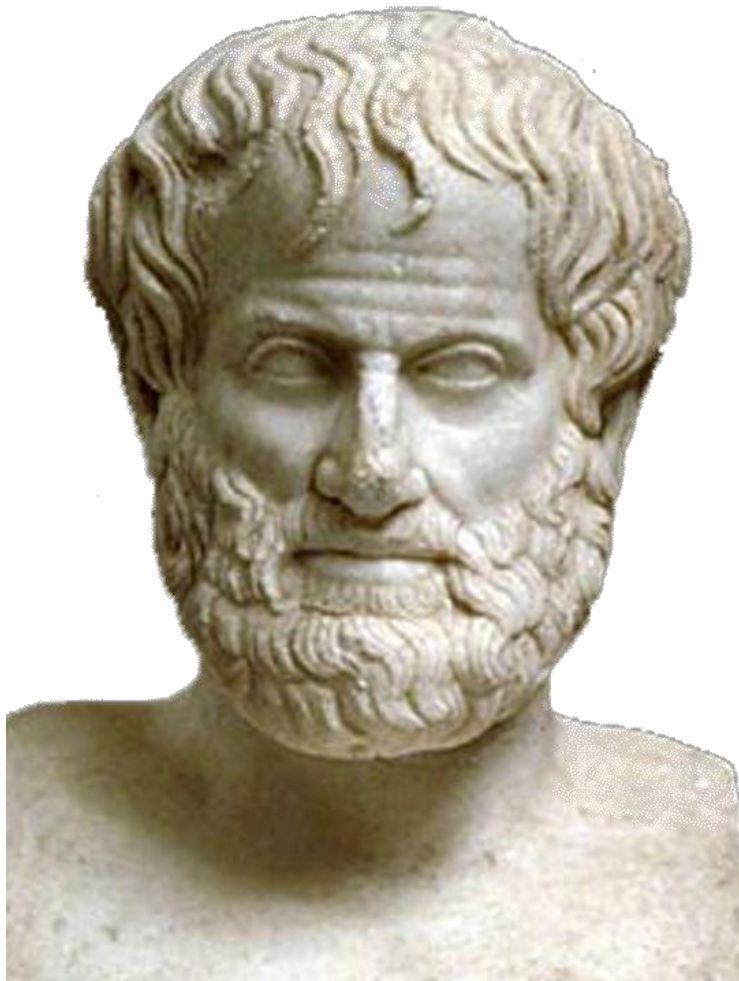


Thanks to:

**Justin Barrett, Fuller Seminary
& members of “Cognitive Science of
Religion and Christianity” seminar, Calvin College
Josh Moritz, GTU Berkeley**



Aristotle: *The Poetics* (350 B.C.E.)



“It is a great matter to observe propriety in these several modes of expression, as also in compound words, strange (or rare) words, and so forth. **But the greatest thing by far is have a command of metaphor. This alone cannot be imparted by another; it is the mark of genius, for to make good metaphors implies an eye for resemblances**”

Poetics, Part 22, translated by S.H. Butcher