Possible and impossible hypotheses of language origins

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Dimensions in hypothesis space

• Early vs. late
• Adaptation vs. spandrel
• Gradual vs. sudden
• Speech first vs. gestures first
• Innate vs. learned

Not BLACK or WHITE --- continuum!
- **Early**: before H sapiens sapiens
- **Late**: < 100,000 years ago

- **Adaptation**:  
  Fine-tuned by natural selection for its current role
- **Spandrel or exaptation**:  
  Accidentally useful for its current role

- **Gradual**:  
  several stages of proto-language along the way
- **Sudden**:  
  single jump from ape-like communication to human syntax
Early vs. late

• Why early:
  – Speech adaptations in fossils:
    • Hearing fine-tuned
    • Breathing control enhanced
    • Hyoid bone in modern form
  – Early gradual appearance of symbolic behavior:
    • Engravings
    • Use of pigments
    • Burials
Adaptation vs. spandrel

Why both:

– Spandrel/exaptation:
  • You cannot adapt for something you’re not already doing
  • Many features that we use for language present in other apes

– Adaptation:
  • Obvious selective value
  • Some features clearly fine-tuned for language
  • Complex package appearing to be designed for its current function
Gradual vs. sudden

– Why gradual:
  • Large complex package, depends on many genes
  • Some fine-tuning
  • If innate genetically specified grammar, then even more so

– How gradual is gradual?
  • What is ruled out is single-step saltationism
  • Not necessarily geologically slow:
    – Depends on ratio adaptation/exaptation
    – Depends on ratio biological/cultural evolution
Conclusions

• Some form of speech, if not necessarily modern grammar, came early (>500,000 years ago)

• Combination of exaptations and adaptations

• Sudden single-step jump from no language to full language is biologically ridiculous, particularly with innate UG.
A few key references