

# Die Sprache der Affen



Klaus Zuberbühler

Cognitive Science Centre, University of Neuchâtel

# Ursprung der Menschen



440cm<sup>3</sup>



Ardipithecus  
4.4 mya  
350 cm<sup>3</sup>



Australopithecus  
3.9 to 2.9 mya  
440cm<sup>3</sup>



Homo habilis  
2.2 - 1.6 mya  
640cm<sup>3</sup>

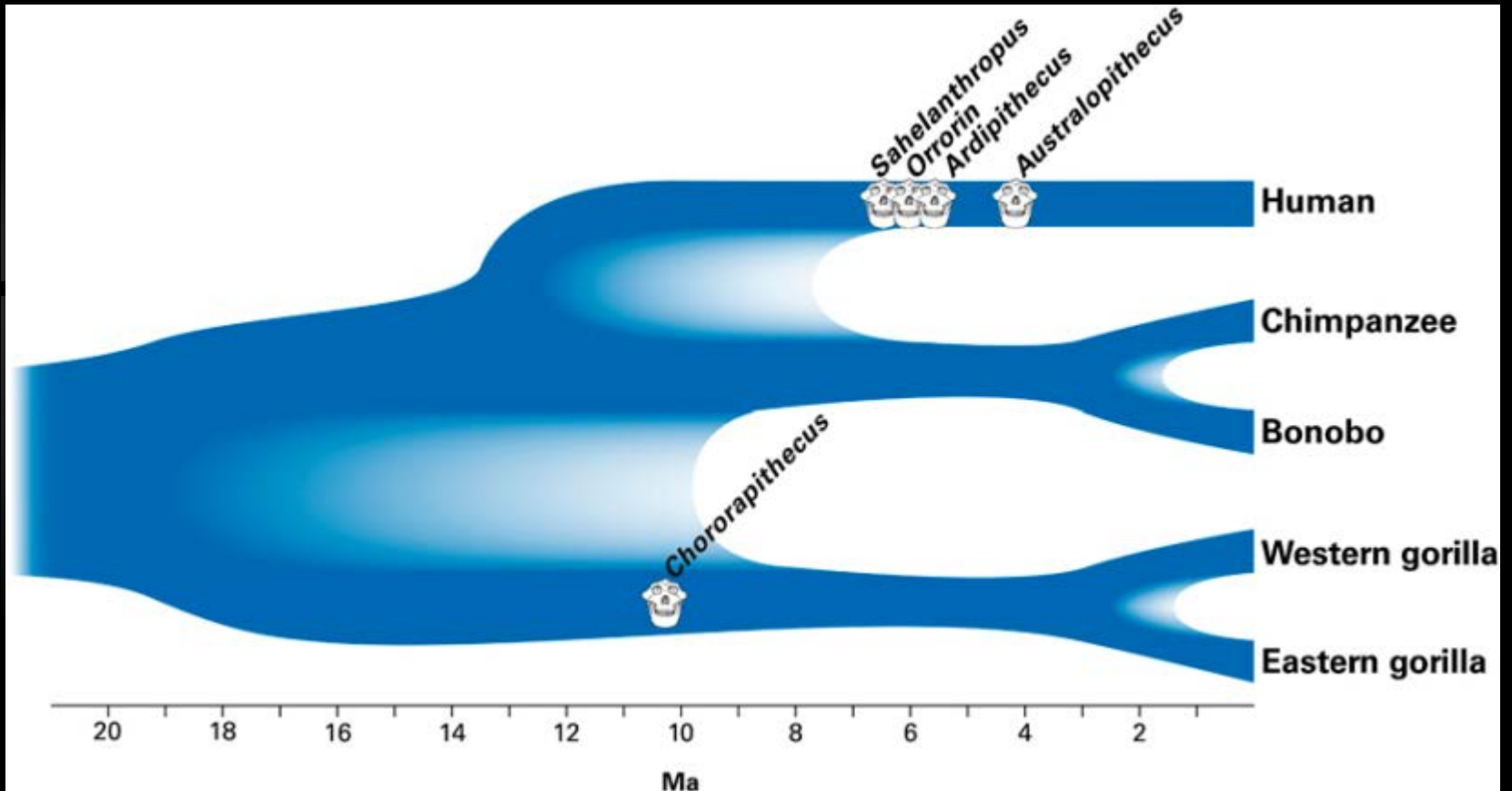


Homo erectus  
2.0 - 0.05 mya  
940cm<sup>3</sup>

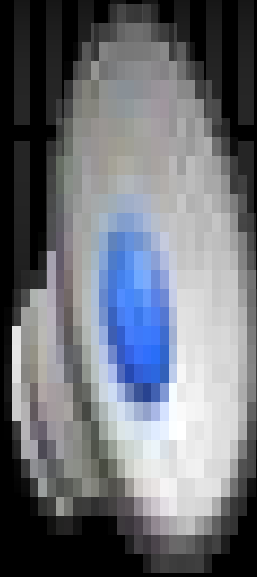


Homo sapiens  
0.2 mya  
1300cm<sup>3</sup>

# Ursprung der Menschen



# Ursprung der Sprache



# Ursprung der Sprache



Hayes & Hayes, Viki



“mama!”



“papa!”



“cup!”

# Ursprung der Sprache



# Ursprung der Sprache



# Kognition der Sprache



‘syntactic’

Kommunikation als Struktur

‘referential’

Kommunikation als Bedeutung

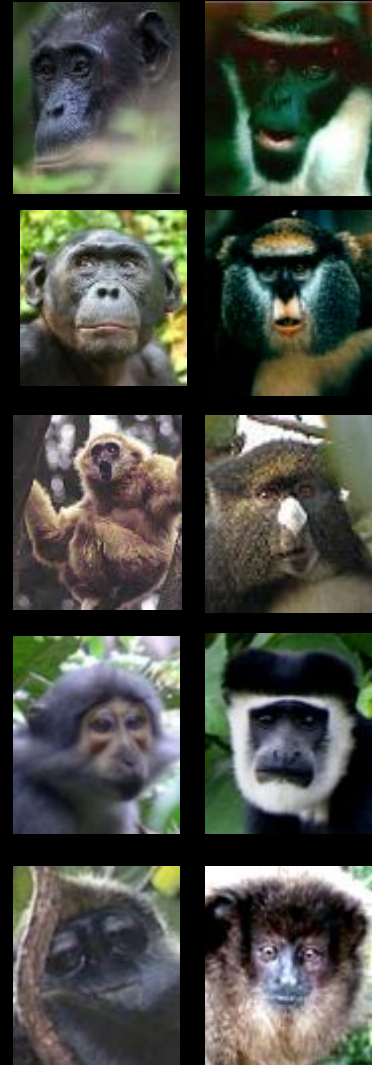
‘intentional’

Kommunikation als Absicht

‘declarative’

Kommunikation als Erklärung

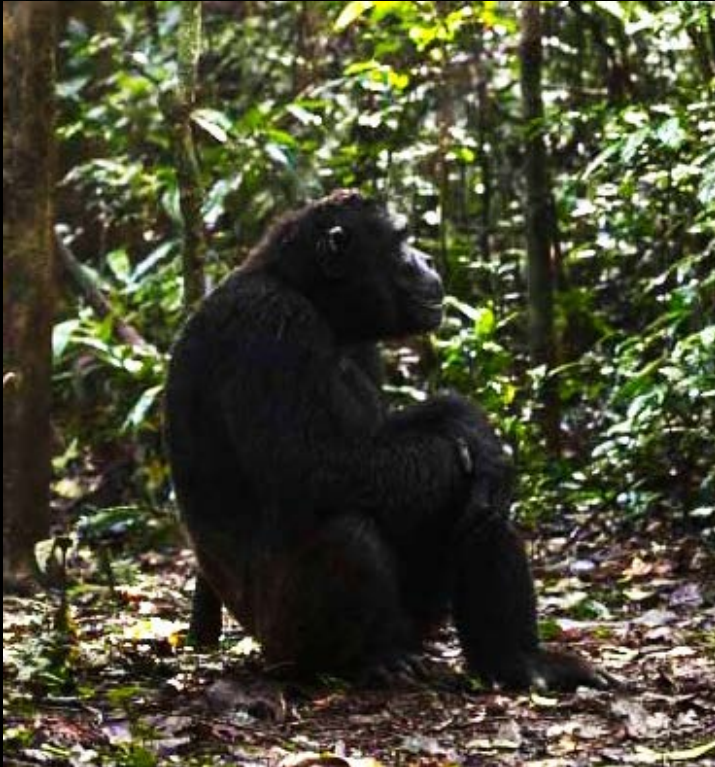
# Wilde Primaten



# Nächste Verwandte



Schimpansen



Bonobos

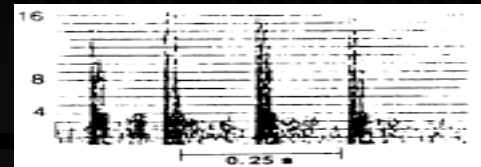


# Bedeutung

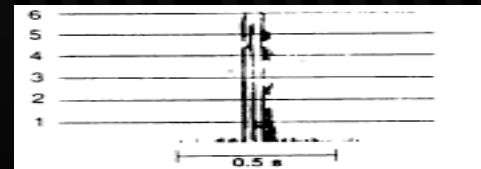


vervet monkey

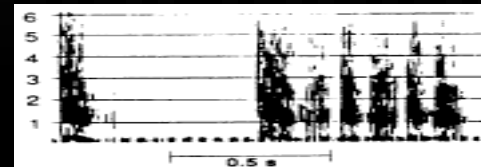
snake



eagle



leopard



# Bedeutung

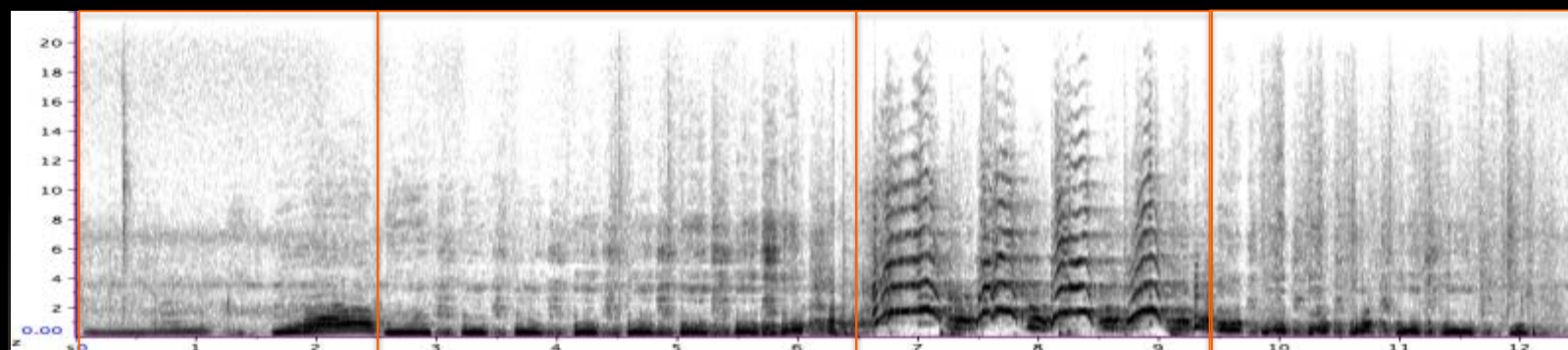


“Schlange!”



“Leopard!”

# Bedeutung

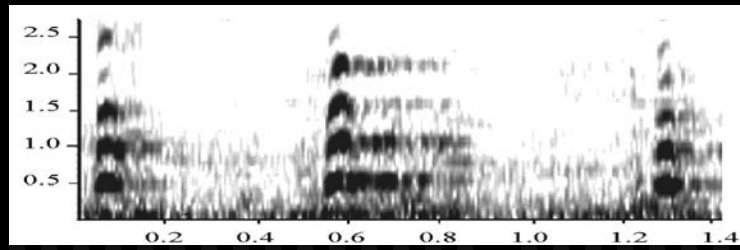


Identity	✓		✓	
Rank			✓	
Age	✓	✓		
Activity				✓

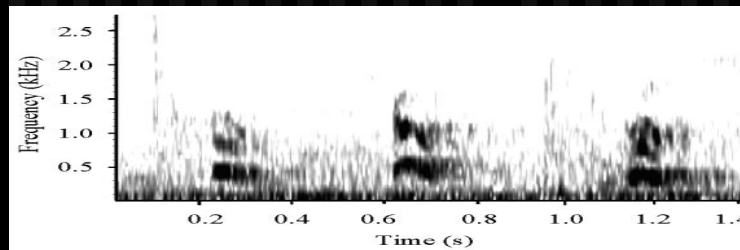
# Bedeutung



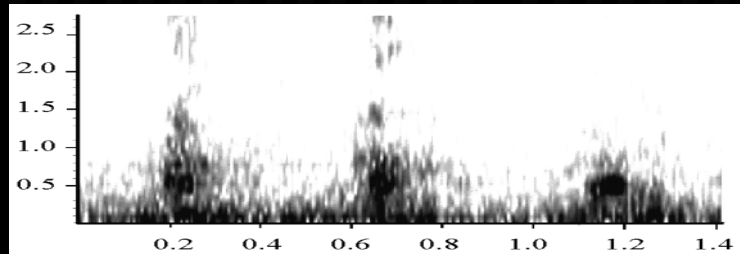
high



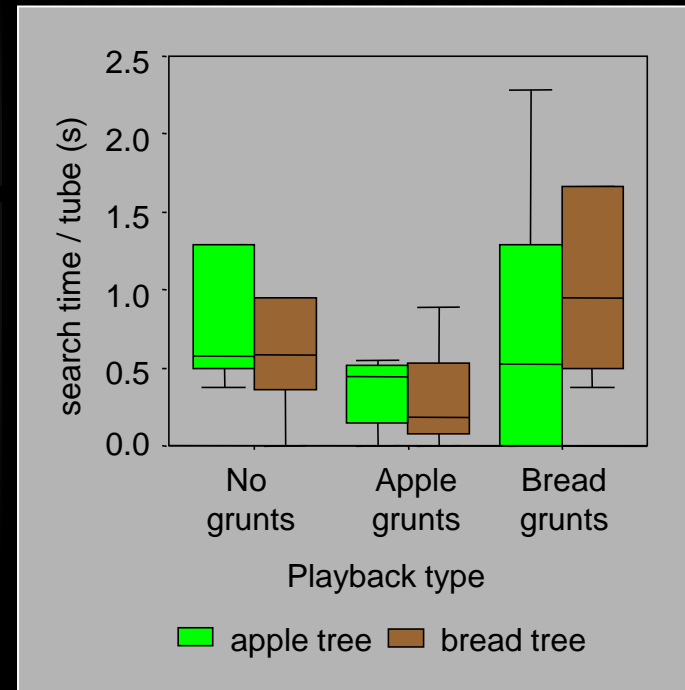
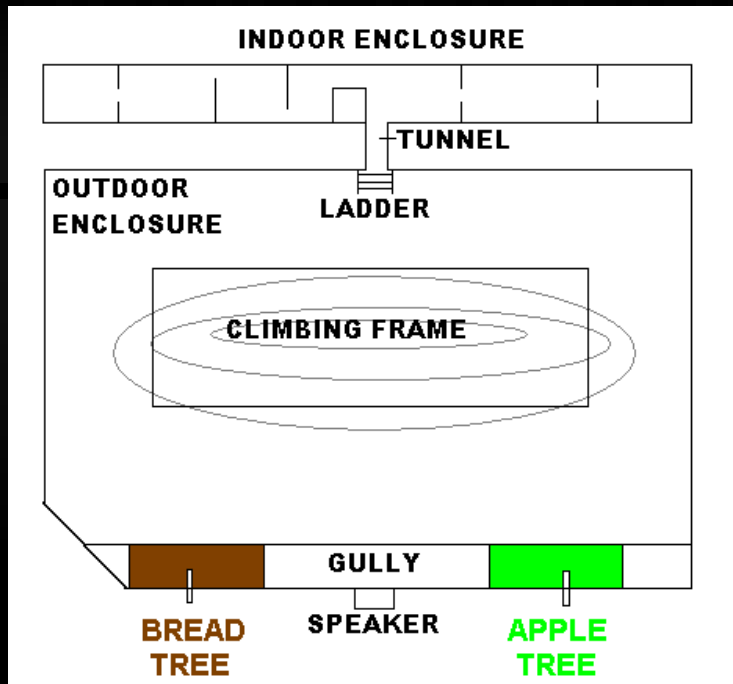
medium



low



# Bedeutung



# Absicht

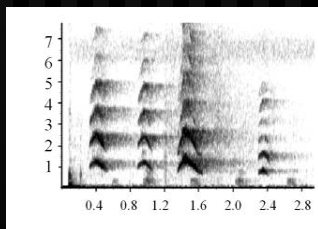


# Absicht



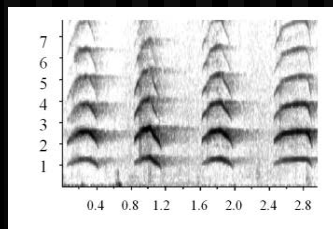
## mild aggression

'posture threat'



piloerect, hunch walk/sit

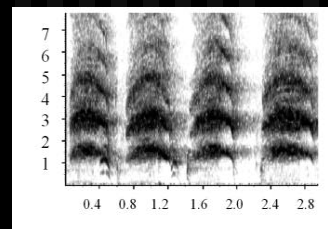
'non-directed'



display, but no chase

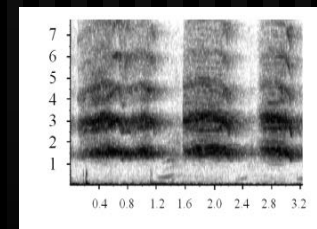
## severe aggression

'directed'



chase, but no contact

'body contact'



beat, stamp, slap, kick

# Absicht



aggressor



audience



victim



# Absicht



# Absicht



# Absicht



# Absicht verstehen



# Absicht verstehen



# Absicht verstehen



# Absicht verstehen



aggression



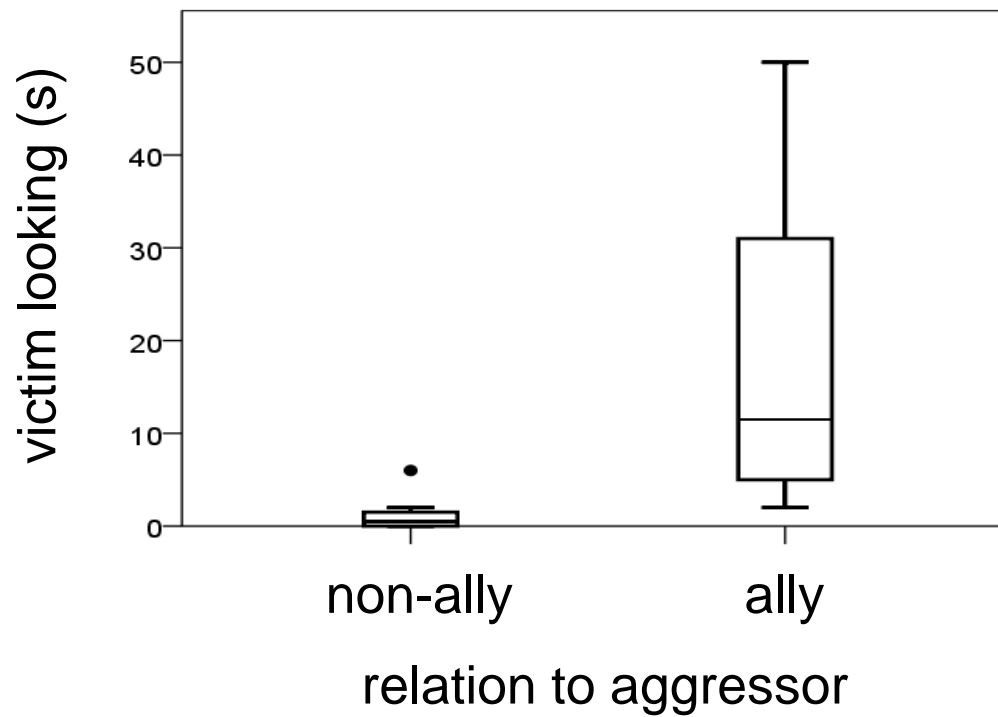
2h cool-off



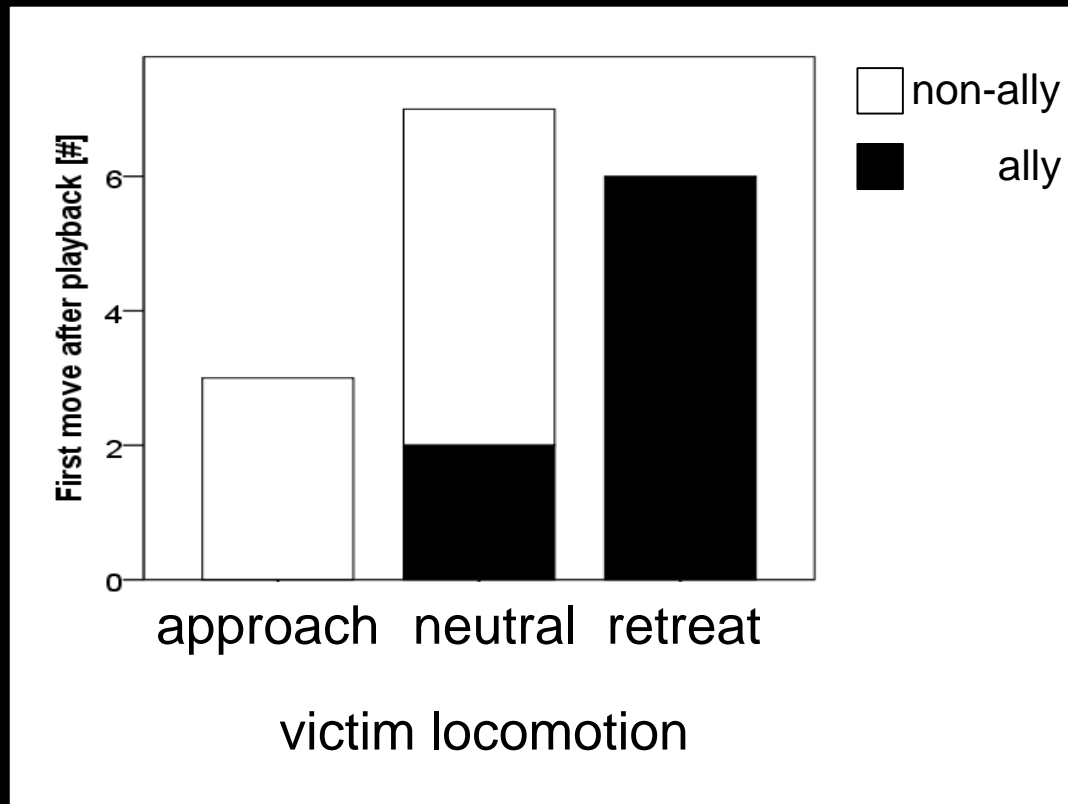
bark ally / non-ally



# Absicht verstehen



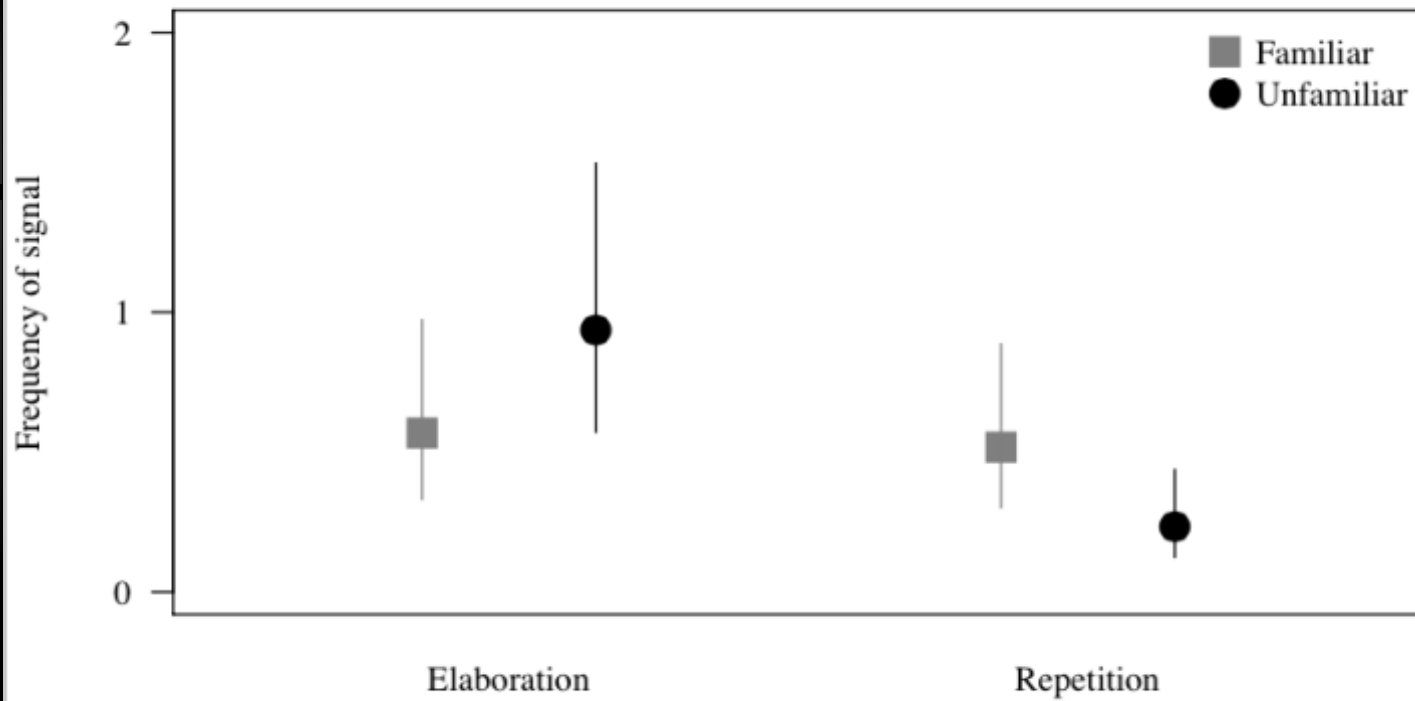
# Absicht verstehen



# Erklären



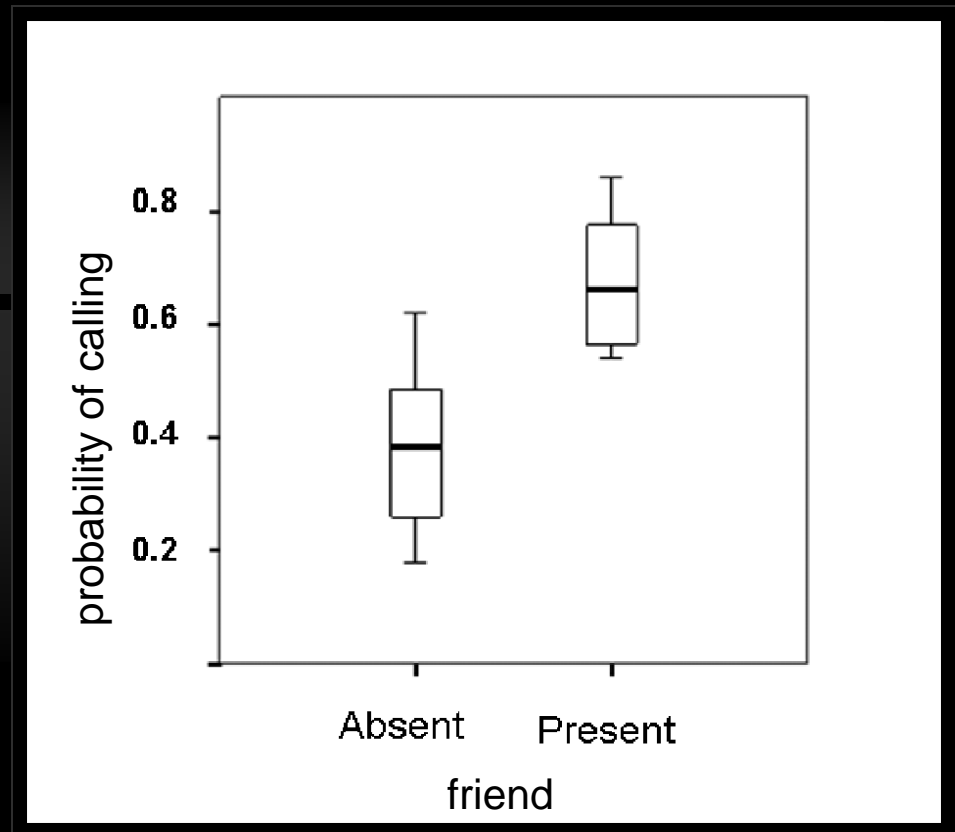
# Erklären



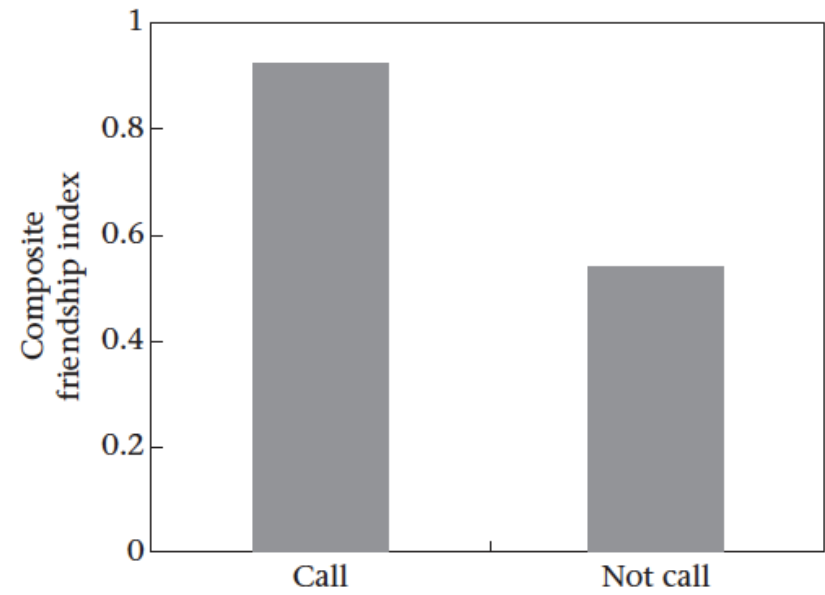
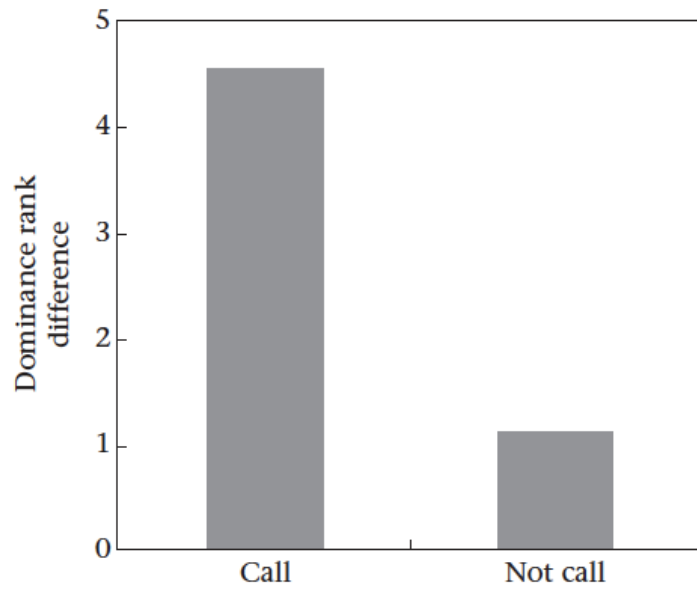
# Erklären



# Erklären



# Erklären



# Erklären



# Erklären



# Erklären



# Erklären



context

---

distance to snake  
arrival dominant  
arrival friend

calling

$p = 0.923$   
 $p = 0.089$   
 $p = 0.002$

---

context

---

caller safe (y/n)  
recipients safe (y/n)

stop calling

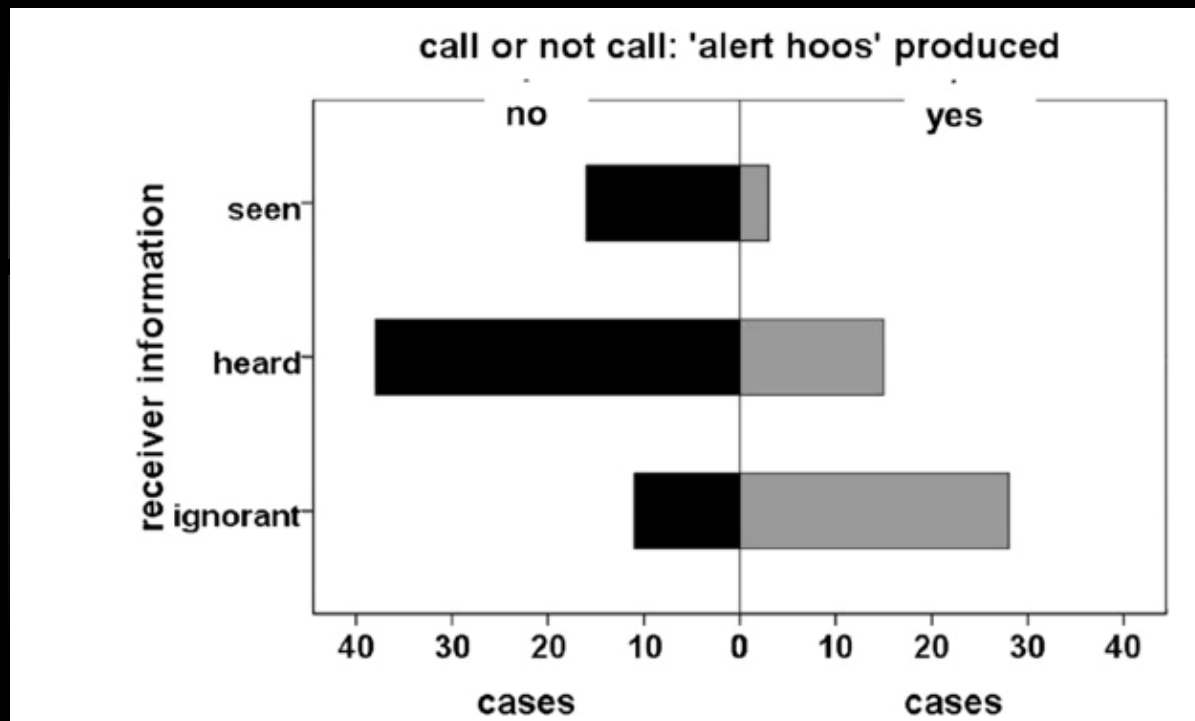
$p = 0.284$   
 $p = 0.011$

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# Erklären



# Erklären



# Sprachevolution

