

# The science of laughter

Sophie Scott

Institute of Cognitive Neuroscience

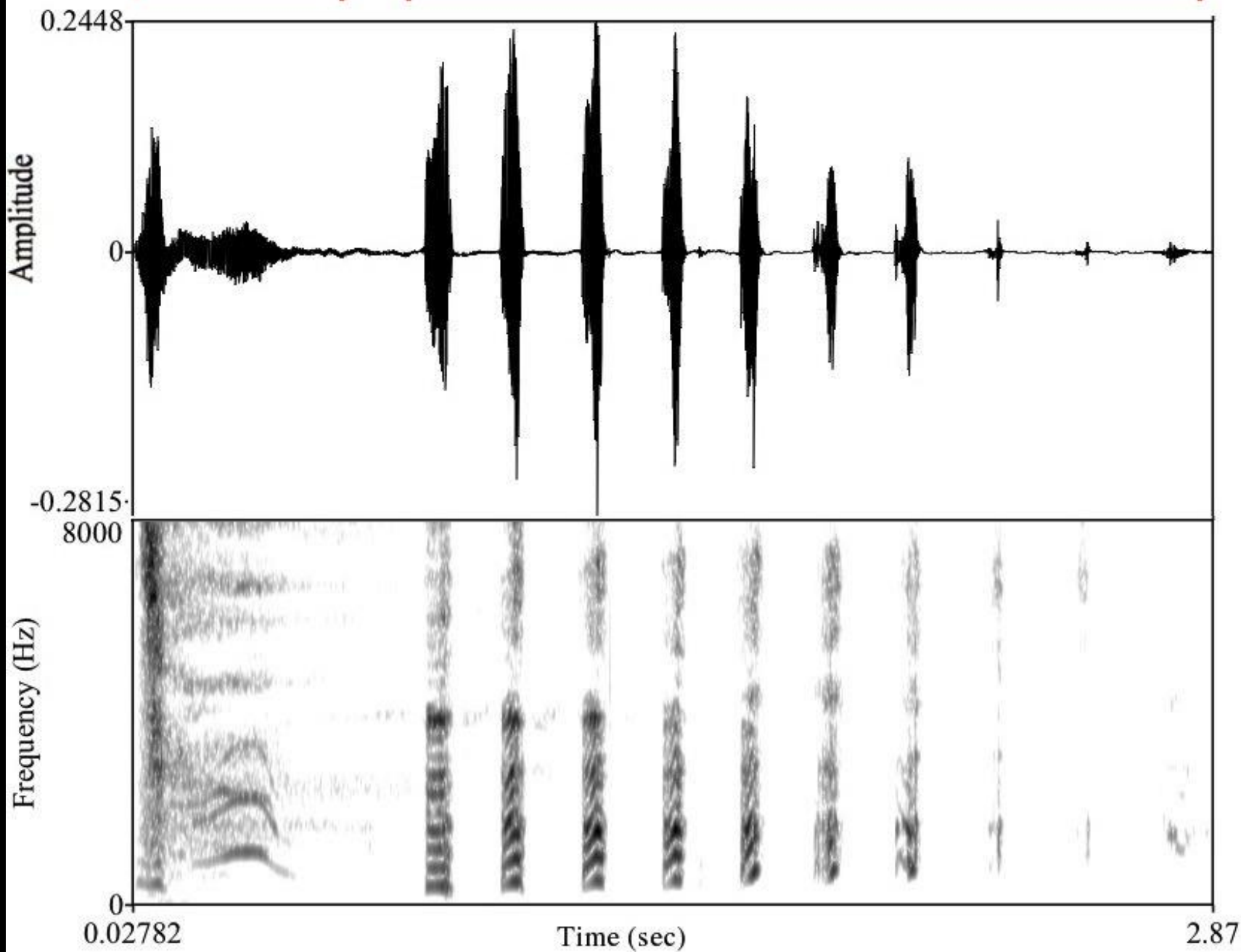
University College London

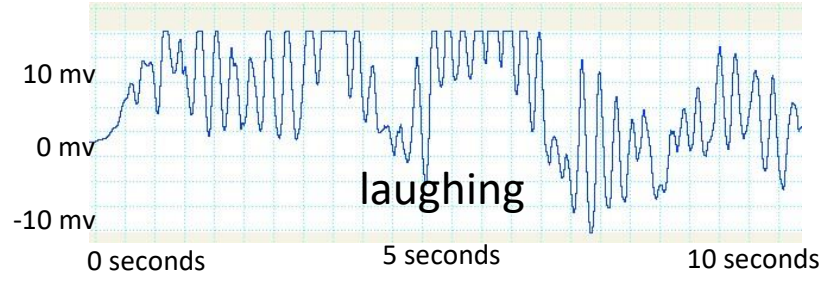
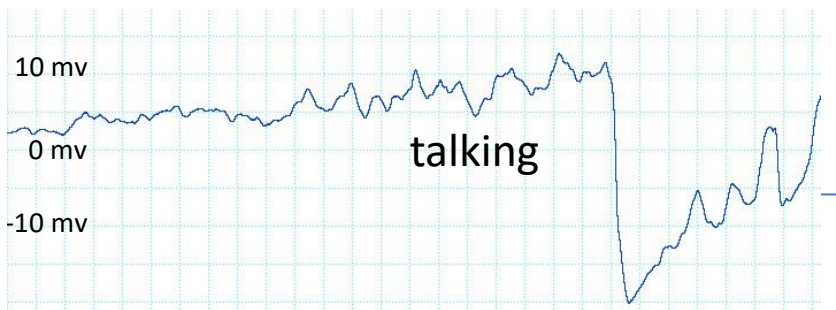
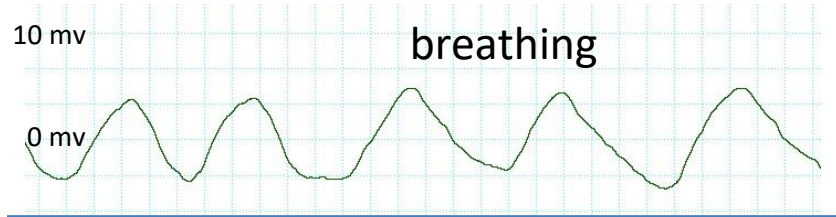
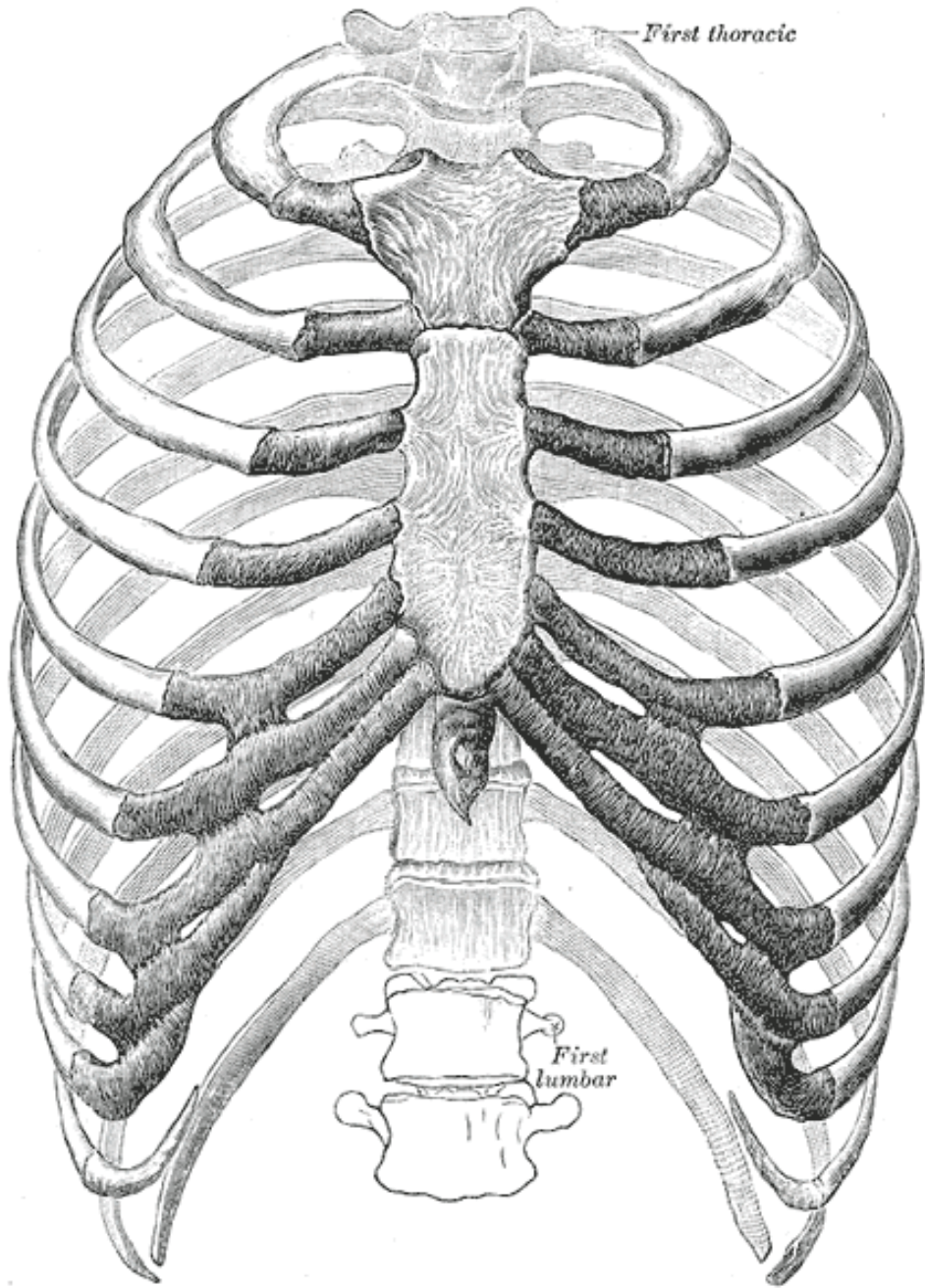
# What is laughter?

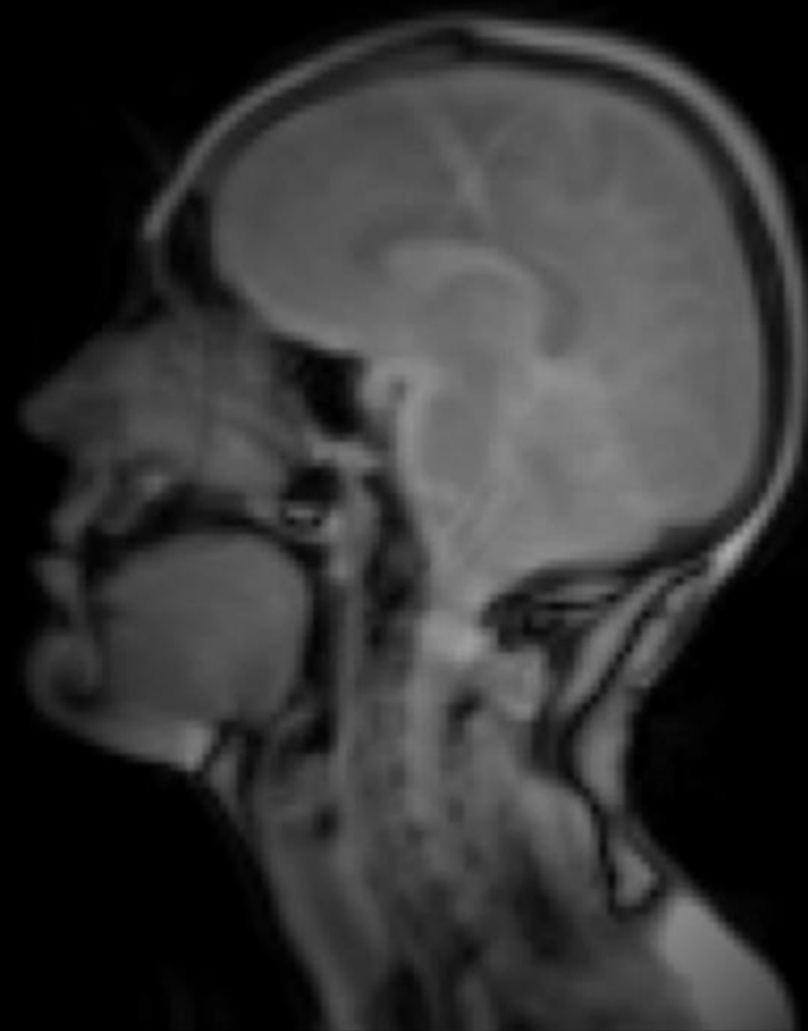
- More like a different way of breathing than a different way of speaking
- More like an animal call than it is like speech

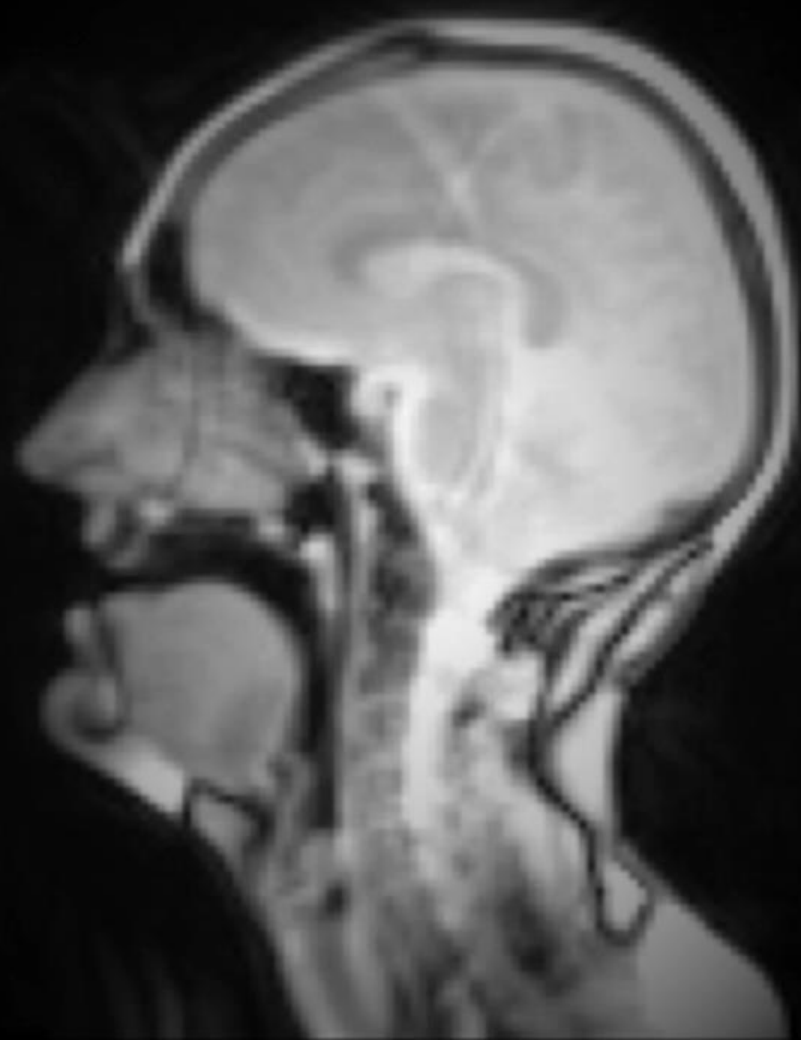
Forced Exhalation

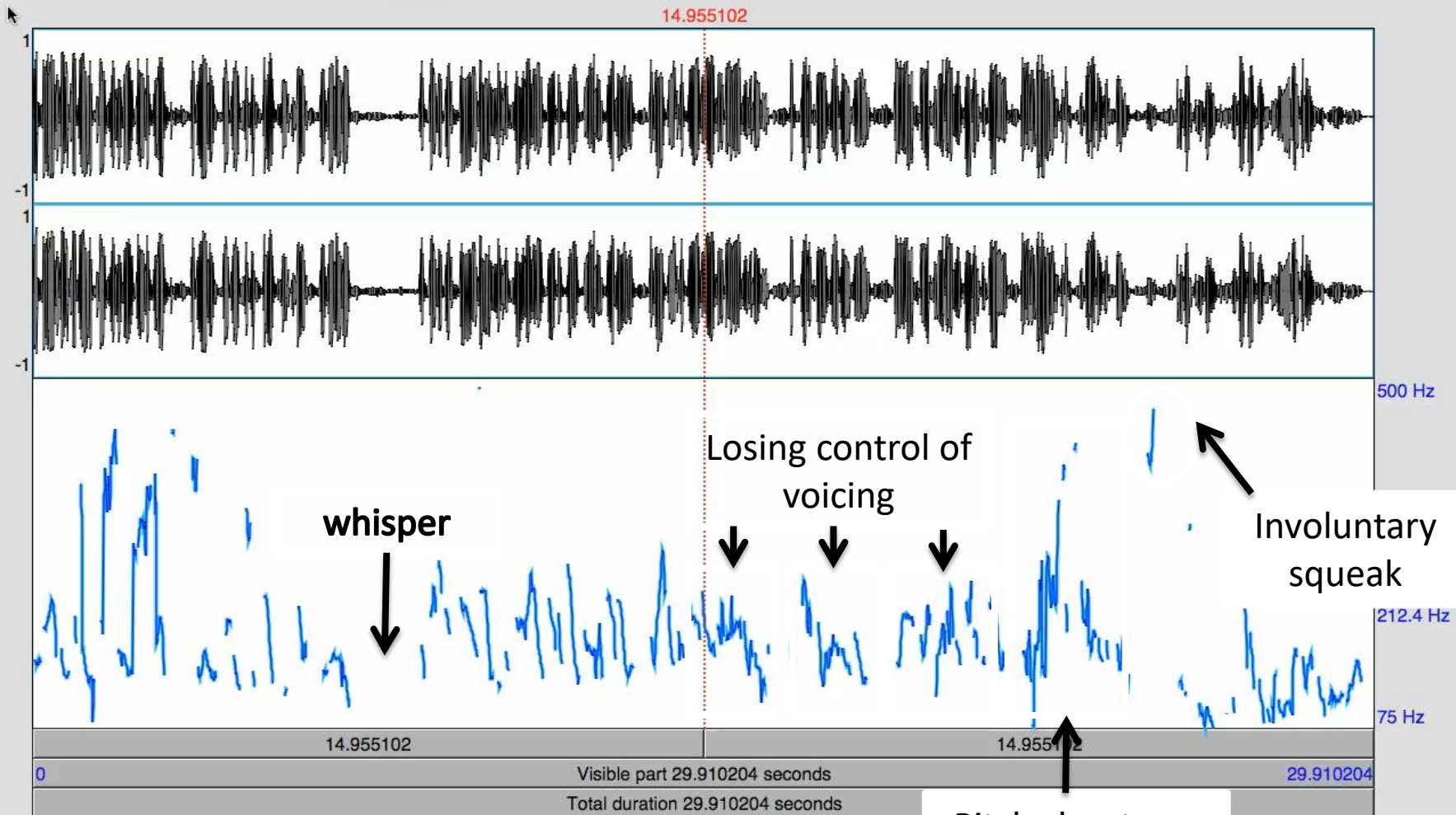
Sequence of bursts of decreasing intensity











whisper

Losing control of voicing

Involuntary squeak

Pitch shoots up







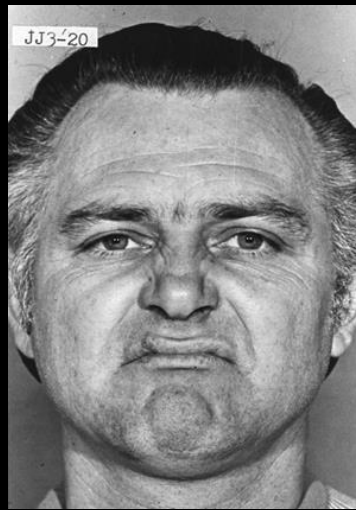
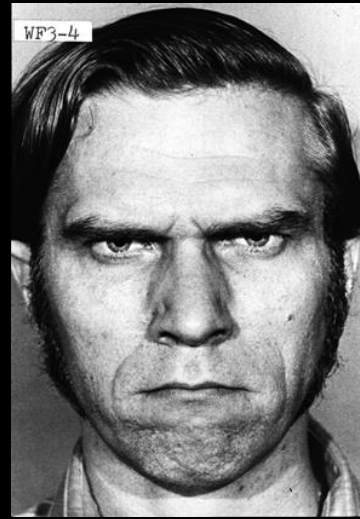




# basic expressions of emotion?

- Basic emotions are:
- Unambiguous – distinctly different from each other
- Universally recognised across all human cultures
- Evolutionarily ancient
- Based upon a specific neural system

# Ekman 60



Anger  
Surprise  
Disgust  
Happiness  
Fear  
Sadness

Is laughter a basic expression of  
emotion?

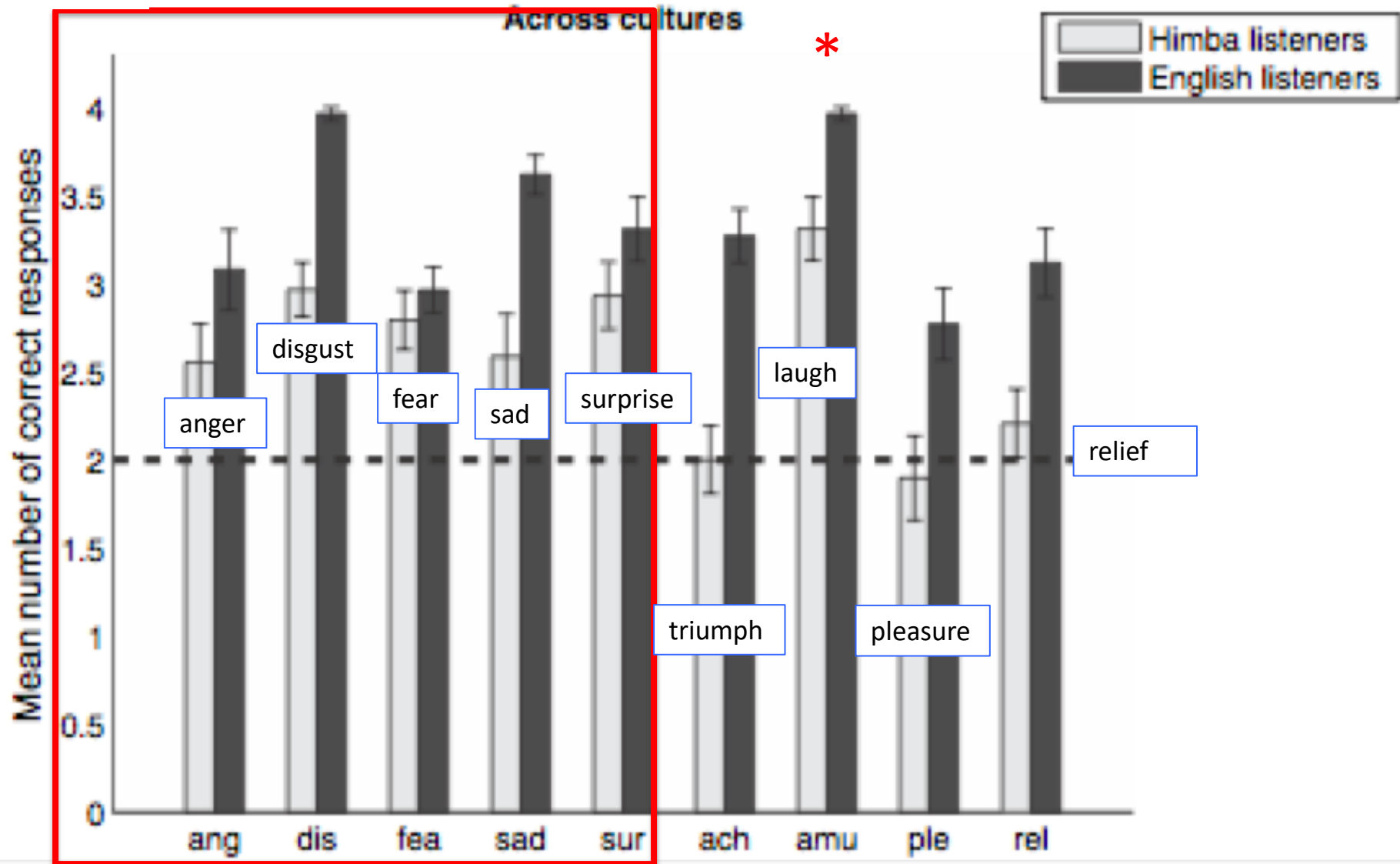


Sauter et al, 2010









# Origins of laughter

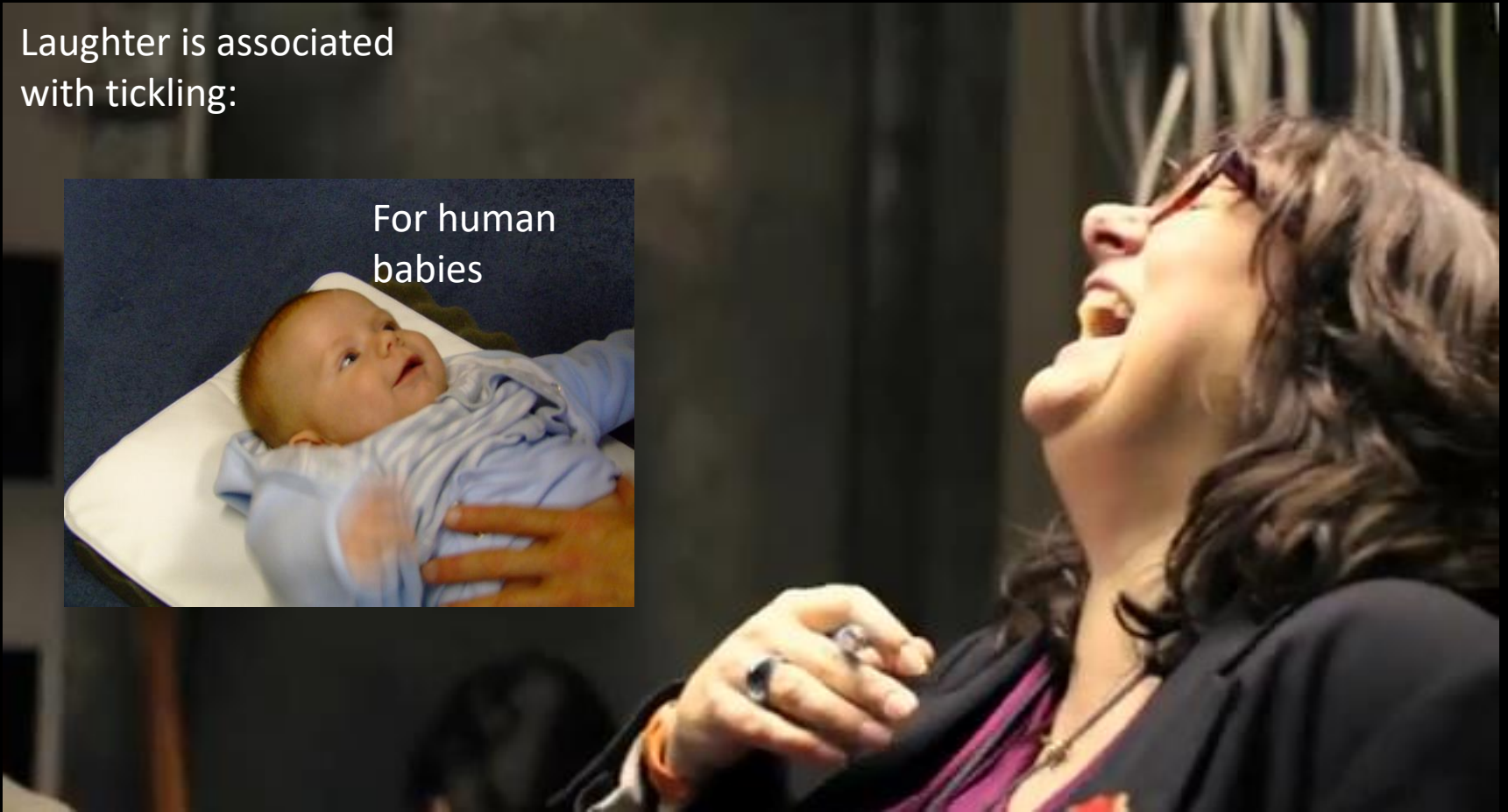
Where do we find laughter?



# Origins of laughter

Laughter is associated  
with tickling:

For human  
babies



# Origins of laughter

Laughter is associated  
with tickling:

For baby apes – gorillas, chimps, orangutans



# Origins of laughter

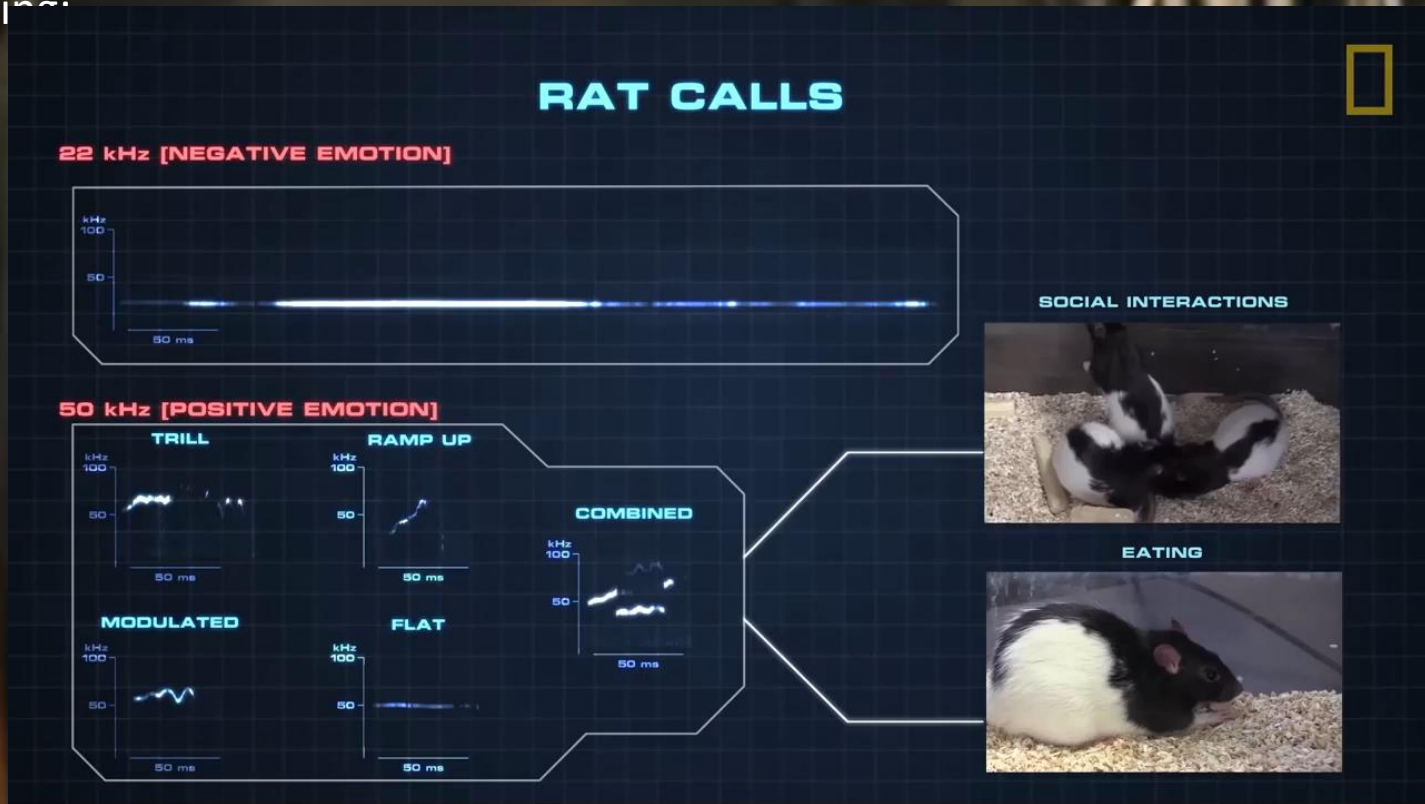
Laughter is associated  
with tickling:

For rats!



# Origins of laughter

Laughter is associated with tickling



# Uses of laughter





# Laughter and play

All mammals play when they are  
juveniles

And some mammals play all their  
lives!

# Laughter and play



# Laughter and play



Laughter is 'an invitation to play'

# Adult humans and laughter

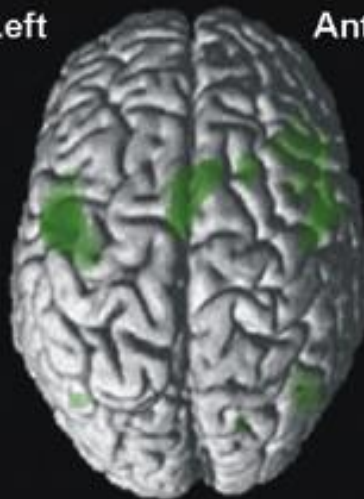
- Ask people what makes them laugh, they'll talk about jokes and humour
- We laugh most in conversation
- We laugh more than we think we do!
- Laugh more if know other people
- Behavioural contagion



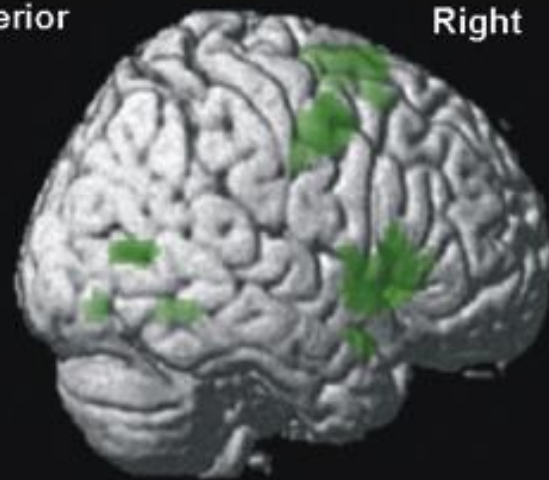
Left



Left



Anterior

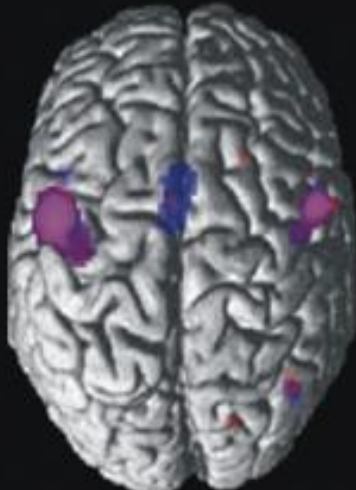


Right

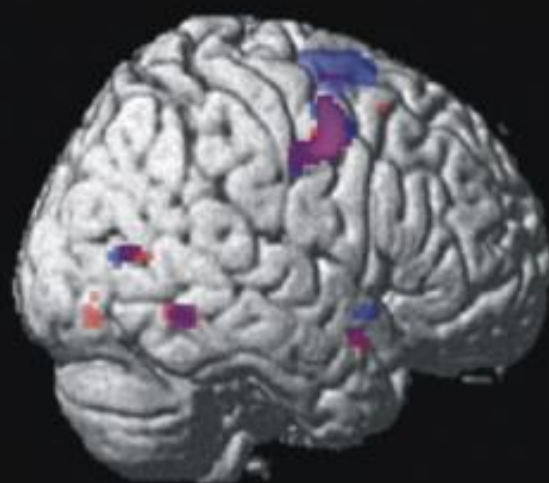
● Combined auditory-perceptual and motor effects



Positive correlation with emotional valence



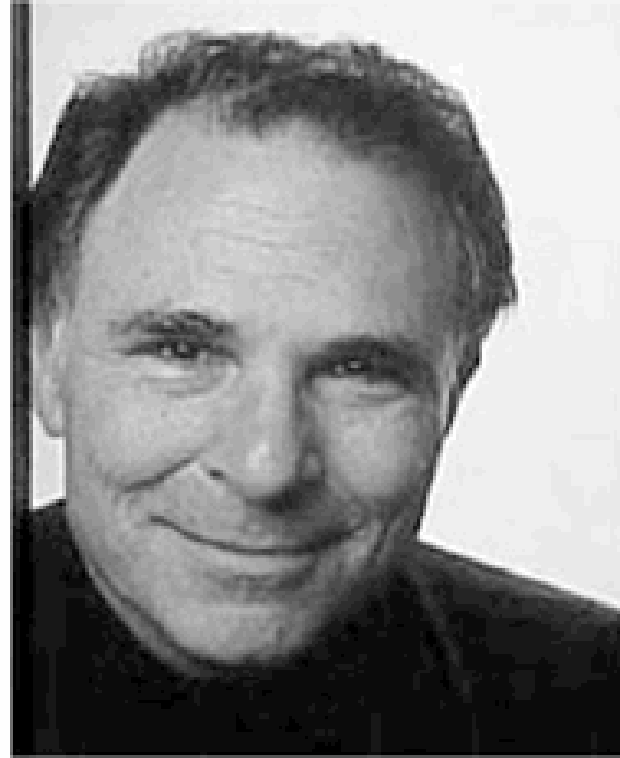
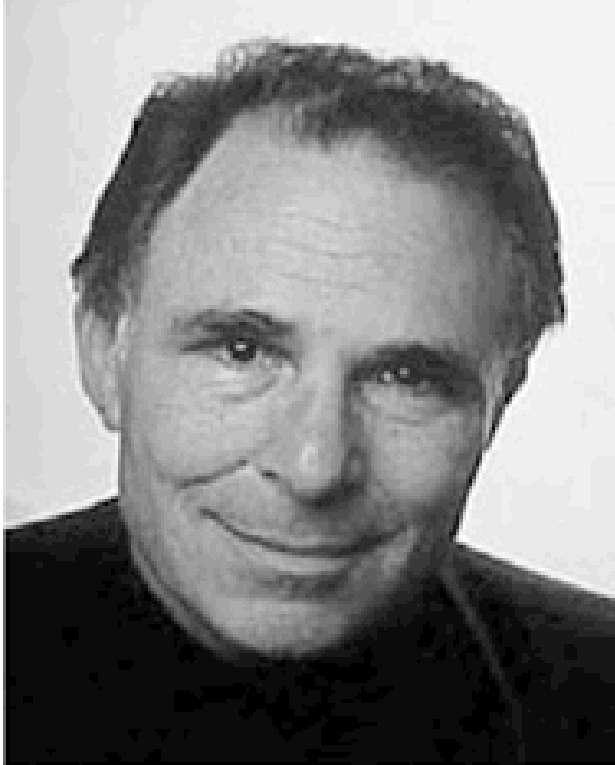
Positive correlation with emotional arousal



Warren et al, 2006

Warren et al, 2006

Which smile looks nicer?

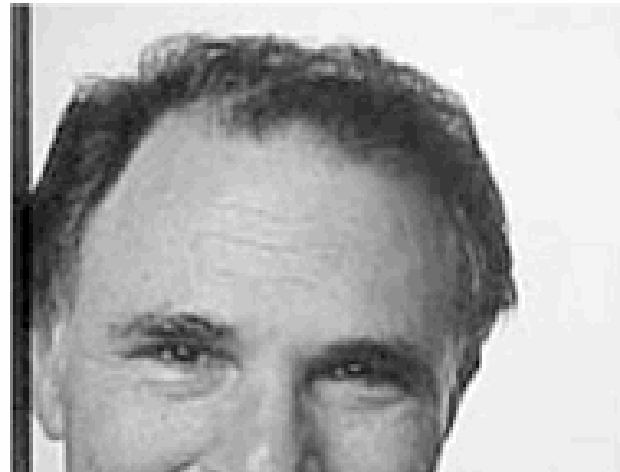
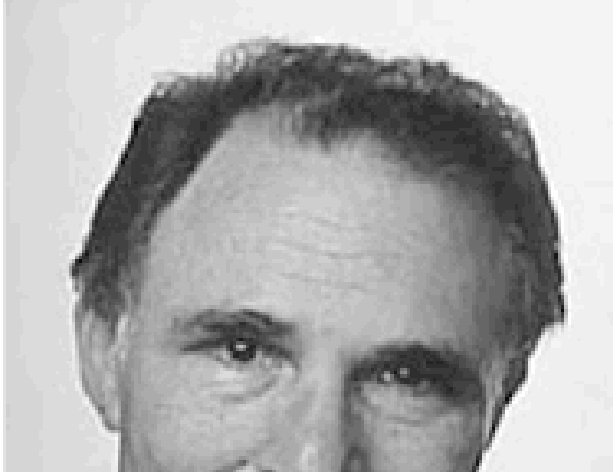




Which smile looks nicer?



Which smile looks nicer?



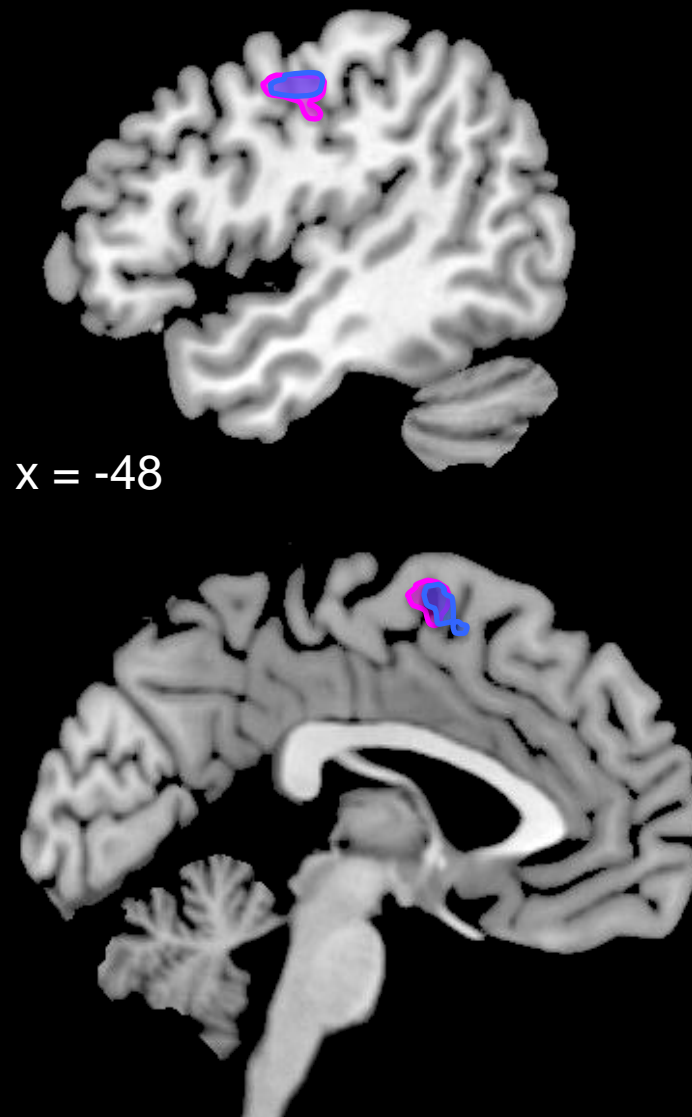
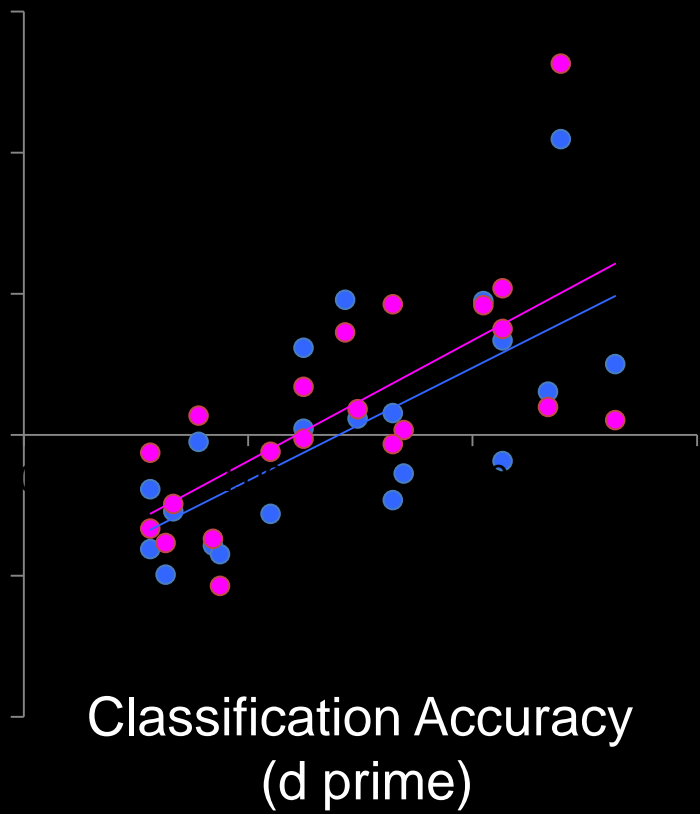




Cork: 100 mains ruptured because of bad weather.



Parameter Estimates



“laughter is the shortest distance  
between two people” Victor Borge









But we also use laughter as a way of closing the distances between us, for feeling better, together.



Zarinah Agnew



Carolyn Mcgettigan



Jane Warren



Kyle Jasmin



Frank Eisner



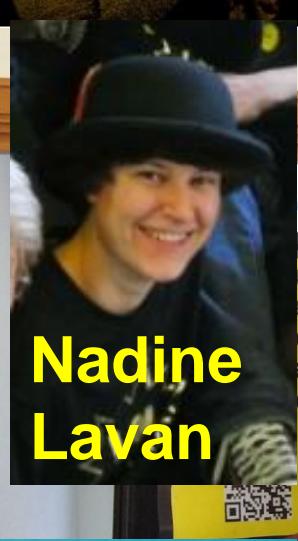
Disa Sauter



Sophie Meekings



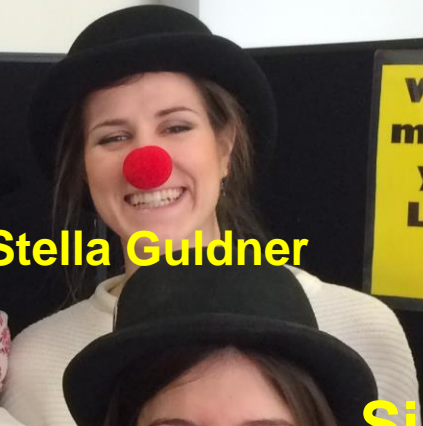
Nadine Lavan



Sam Evans



Stella Guldner



Nermin Khamosia



Sinead Chen



Cesar Lima



Andy Calder



Ana Assis



Saloni Krishnan



Essi Viding

