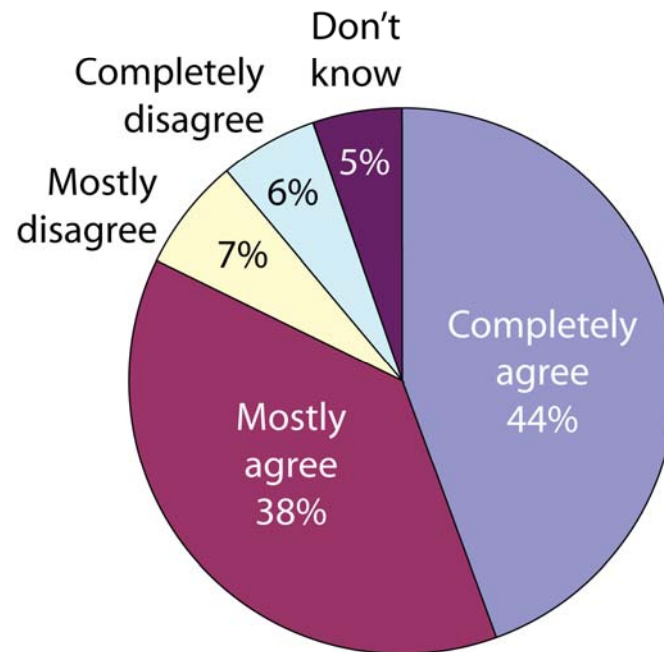


Survey of the incoming Princeton Class of 2014

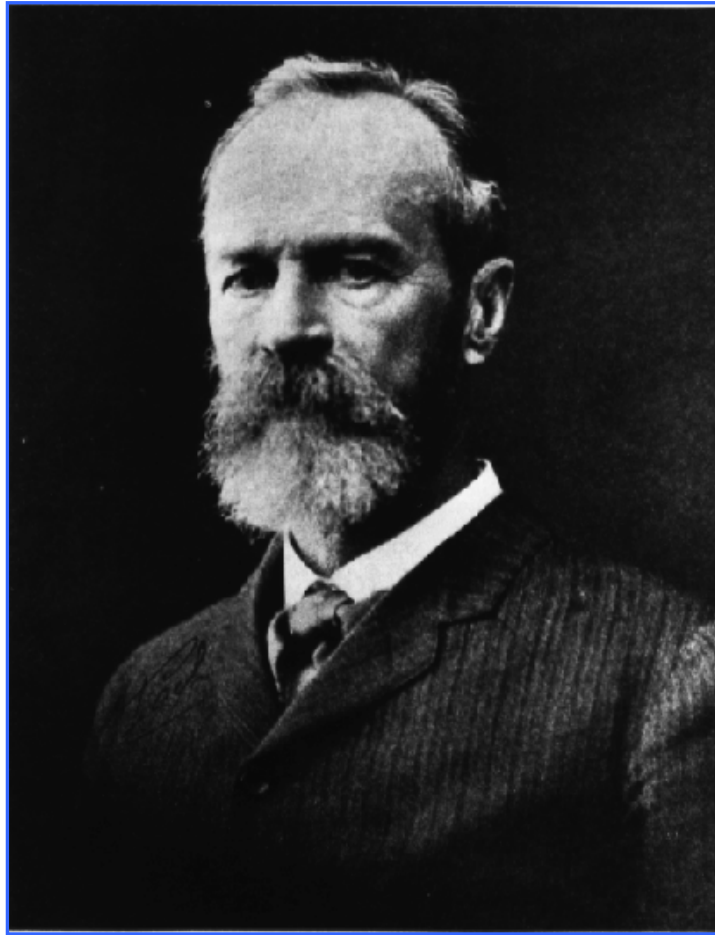
- Topics:
 - Your attitudes about science
 - Tests of your brain functions
 - Brain trivia
- 1131 responses (87% of 1300 incoming freshmen)

“Evolution is the best explanation for the origins of human life on earth.”

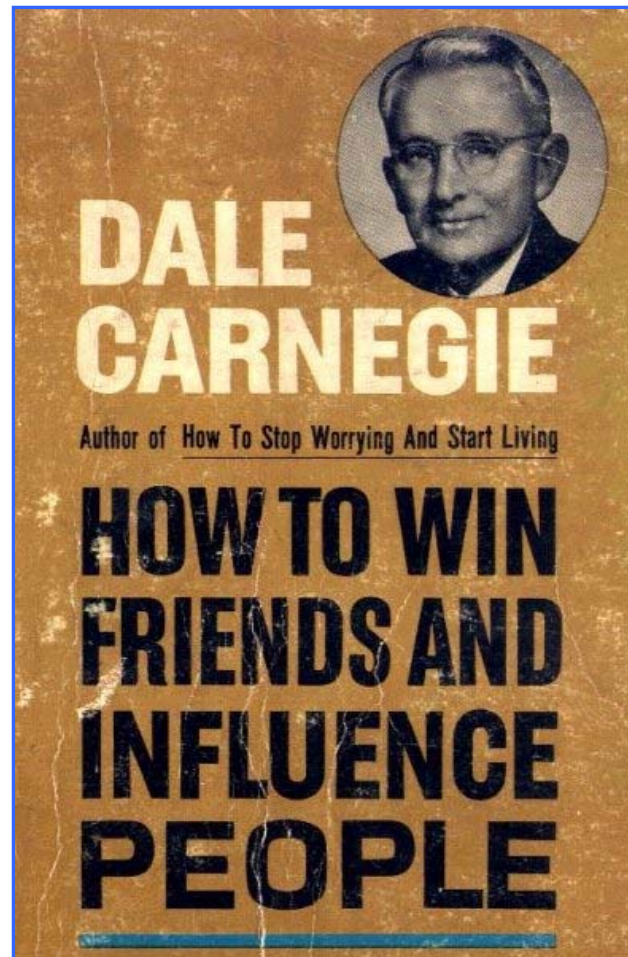


Brain basics





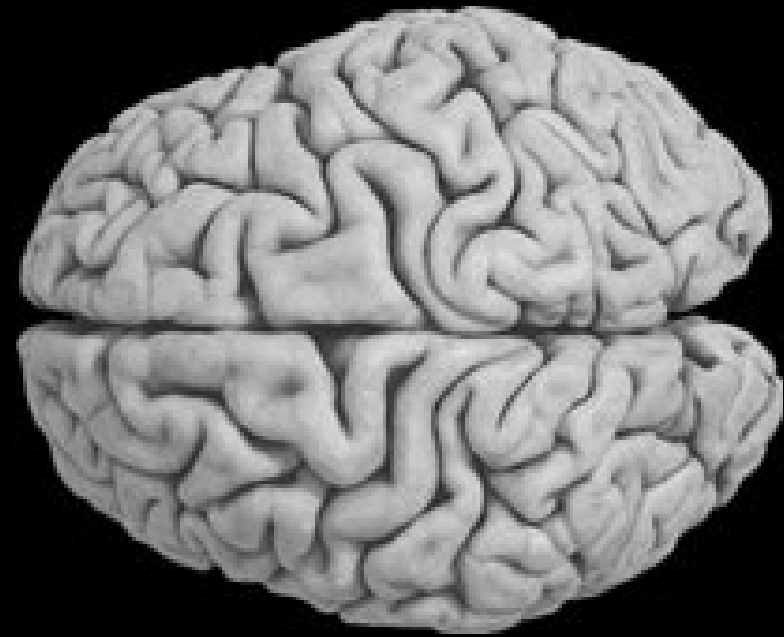
We are making use of only a small part of our possible mental and physical resources. William James, 1908



You only use ten percent of your brain.

The human brain

- **Size: 1.2 kg**
(total body weight 70 kg)
- **Power usage: 15 watts**
(total usage 70 watts)



Your brain uses about as much energy as:

a) A car moving down a freeway	120,000 watts	22%
b) An idling car	60,000 watts	12%
c) Ten laptop computers	400 watts	43%
d) One idling laptop computer	15 watts	23%

Your brain lies to you!





Cornel West
Class of 1943 University Professor
in the Center for African American Studies

What is synesthesia?

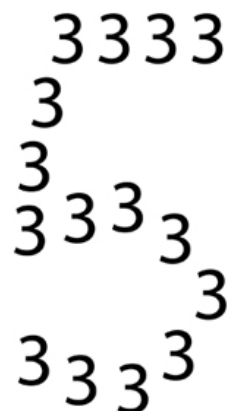
Example of synesthesia:

letters and digits are automatically seen in color

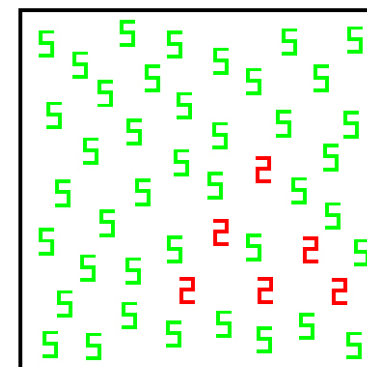
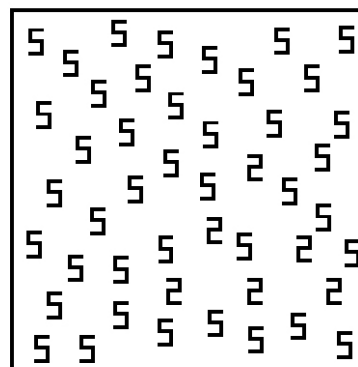
THE CAT

Can't be learned, can't be practiced.

Crosstalk between color and grapheme perception?



THE CAT
THE CAT



15 saw the triangle

1 out of 70

3 saw all three effects (definite synesthetes)

1 out of 400

Color-grapheme synesthetes in the general population:

1 out of 200

But 90 of you claimed to be synesthetes...1 out of 12!

“When I look at raw meat, my mouth waters and I want to eat and taste a big steak right then and there.”

Not all associations are synesthesia.

A practical brain tip

6%



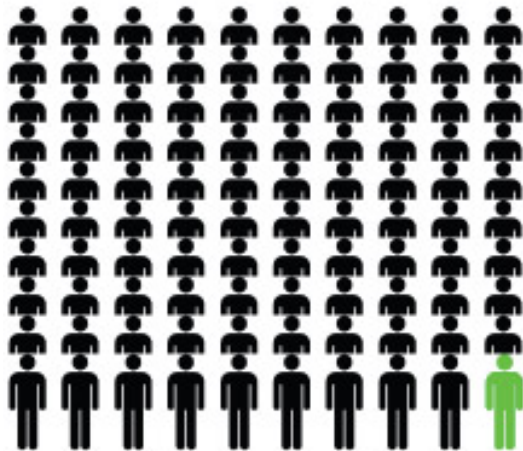
87%

Freshmen with an autism spectrum disorder sibling

- 32 reported having one
- $32/1131 = 1$ out of 35...
- ...but the reported incidence in the US population is only 1 in 170.

What's going on??

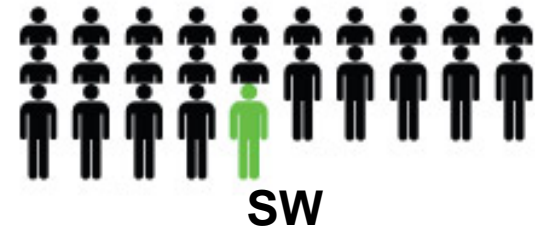
Incidence of autism spectrum disorder



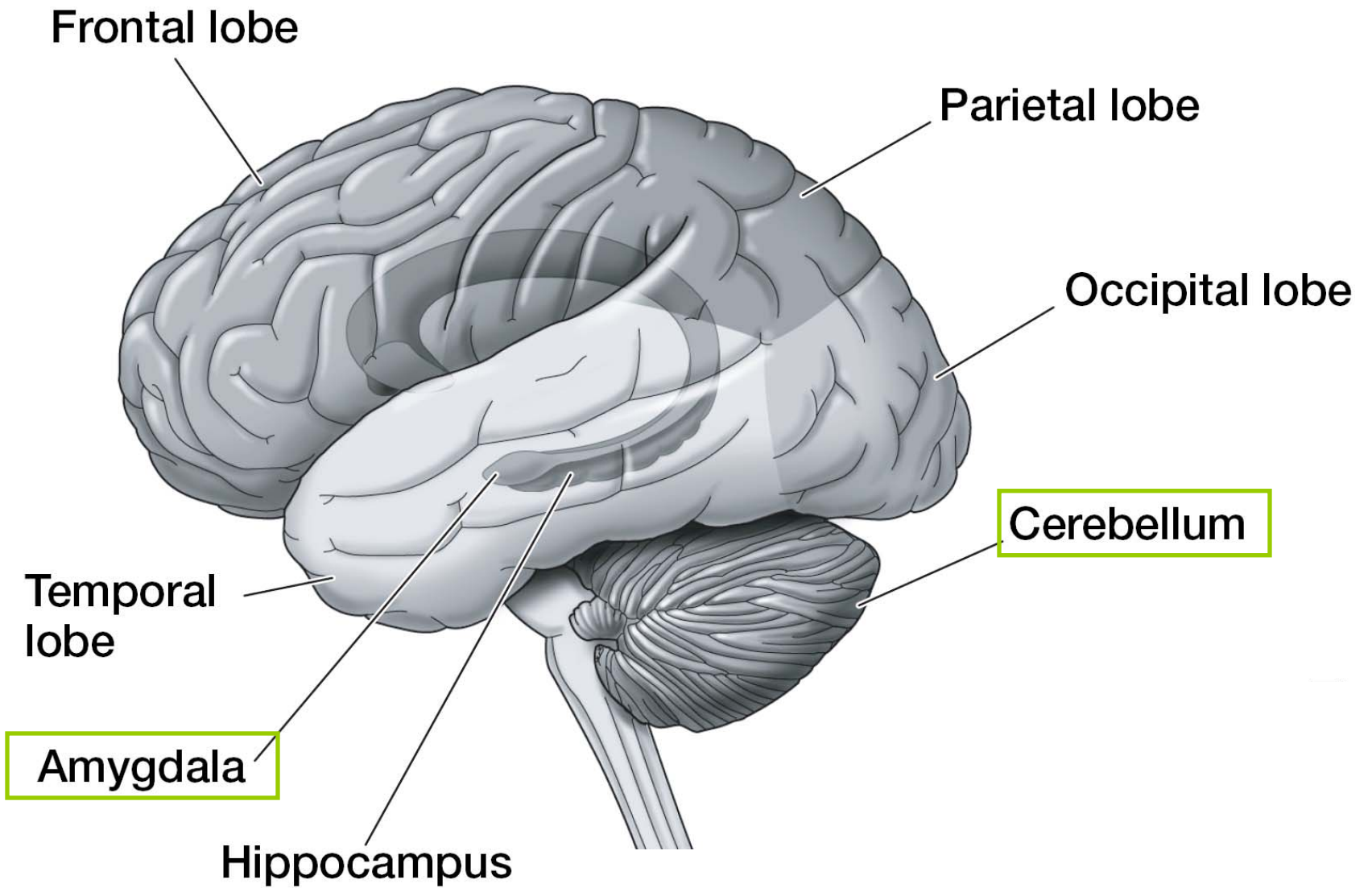
General US population
1 in 100 (?)



Siblings of Princeton
humanities/
social science majors
1 in 82



Siblings of Princeton
science/math/
engineering majors
1 in 25



The Autism Spectrum Quotient

[Home](#)[Invite](#)

Take the Autism Spectrum Quotient test

The Autism Spectrum Quotient, or AQ, is a questionnaire published in 2001 by Simon Baron-Cohen and his colleagues at the Autism Research Centre in Cambridge, UK. Consisting of fifty questions, it aims to investigate whether adults of normal intelligence have symptoms of autism or one of the other autism spectrum conditions.

1. I prefer to do things with others rather than on my own.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

2. I prefer to do things the same way over and over again.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

3. If I try to imagine something, I find it very easy to create a picture in my mind.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

4. I frequently get so strongly absorbed in one thing that I lose sight of other things.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

5. I often notice small sounds when others do not.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

6. I usually notice car number plates or similar strings of information.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

7. Other people frequently tell me that what I've said is impolite, even though I think it is polite.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

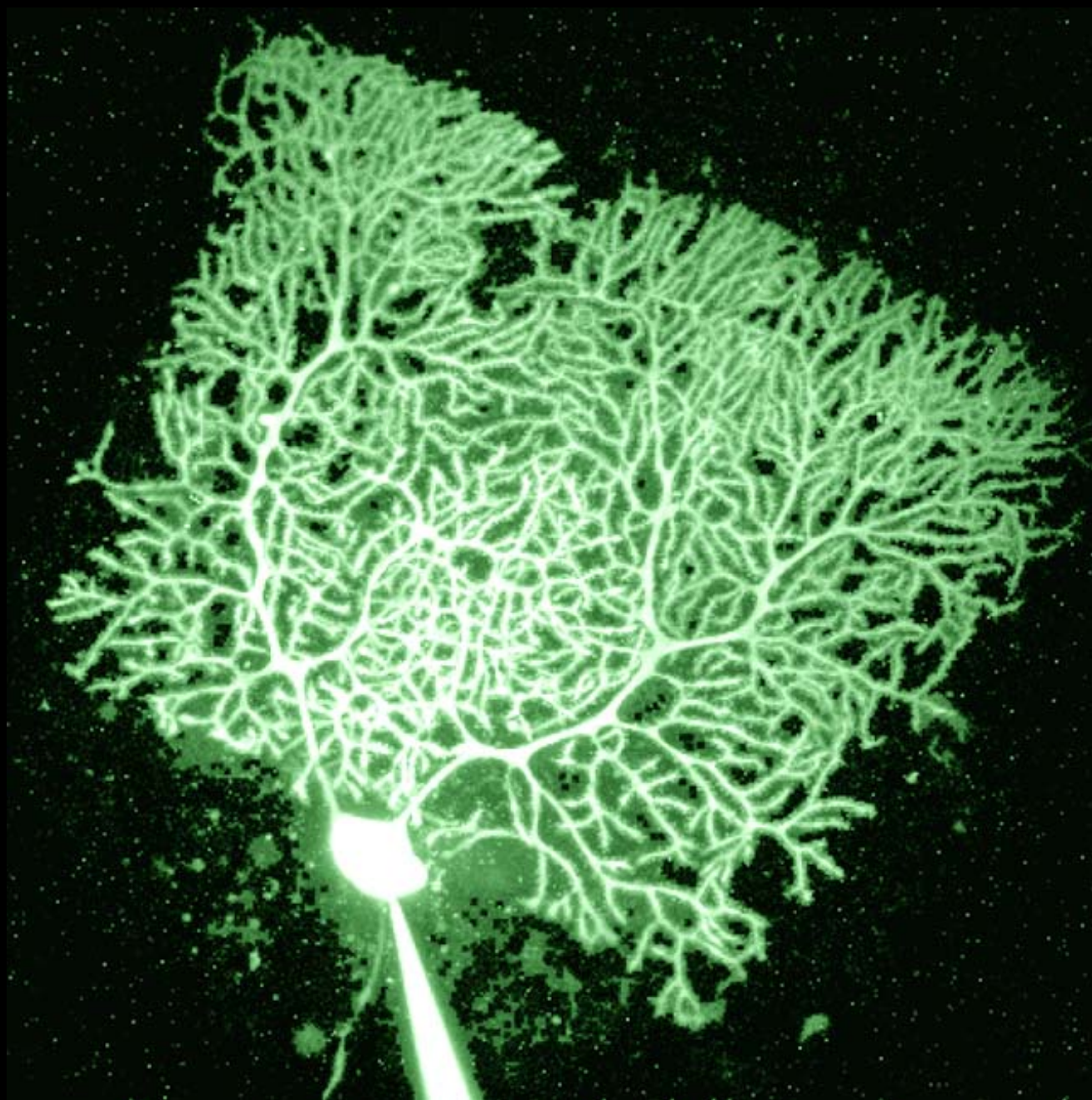
8. When I'm reading a story, I can easily imagine what the characters might look like.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

9. I am fascinated by dates.

☐ Definitely agree☐ Slightly agree☐ Slightly disagree☐ Definitely disagree

**Is autism triggered by abnormal
perceptual processing in early life?**

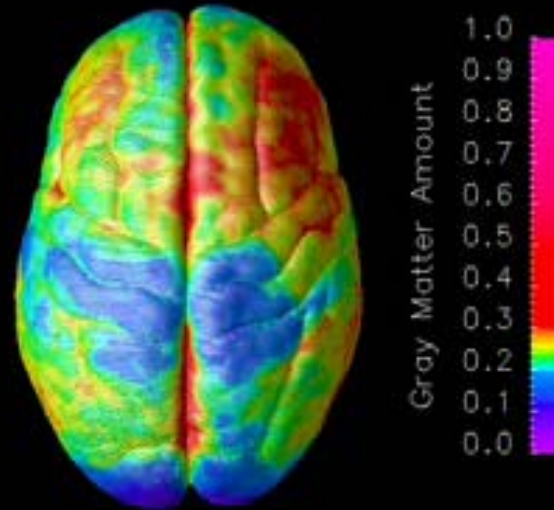


Adolescence

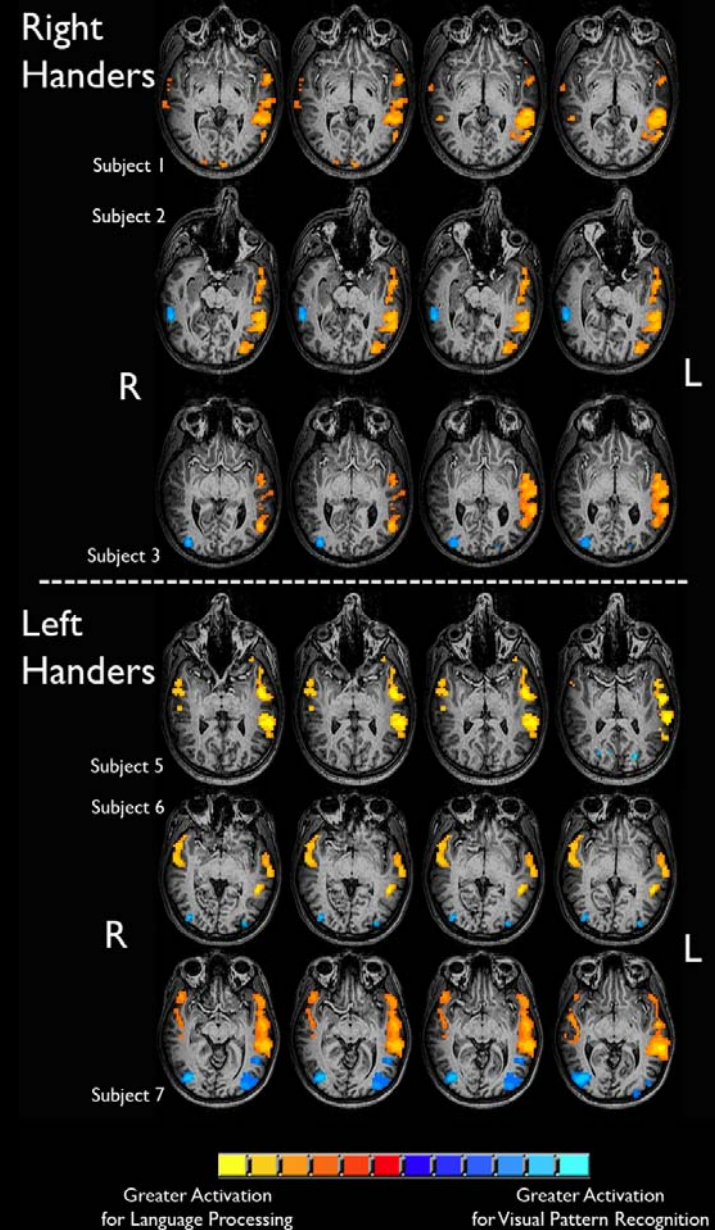


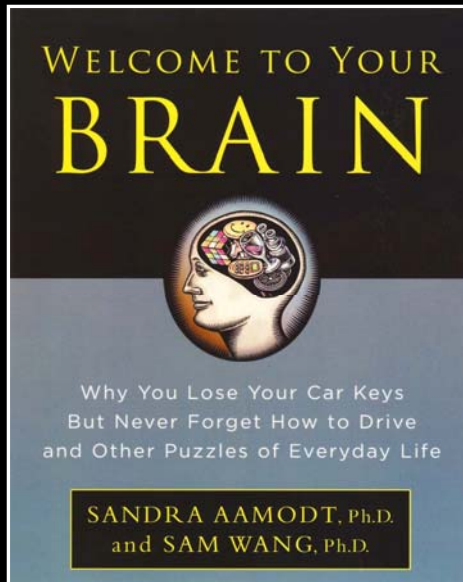
Dynamic mapping of human cortical development during childhood through early adulthood

Nitin Gogtay^{*†}, Jay N. Giedd^{*}, Leslie Lusk^{*}, Kiralee M. Hayashi[‡], Deanna Greenstein^{*}, A. Catherine Vaituzis^{*}, Tom F. Nugent III^{*}, David H. Herman^{*}, Liv S. Clasen^{*}, Arthur W. Toga[‡], Judith L. Rapoport^{*}, and Paul M. Thompson[‡]

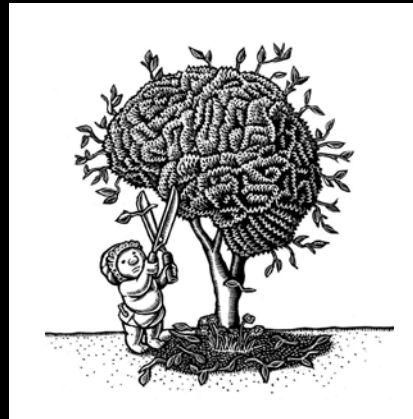


NEU101: Neuroscience and Everyday Life (ST, Spring 2011)





Illustrator Lisa Haney



NEU101:
Prof. Alan Gelperin
Sean Baron *07
Alexander Kloth *08

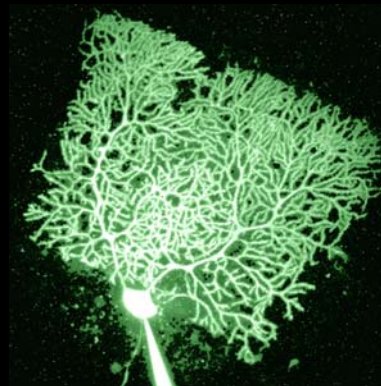
David Hopkins
Lance Herrington



Prof. Cornel West



Edward Freeland
Naila Rahman



Sam Wang's lab
Too many to list! see
synapse.princeton.edu