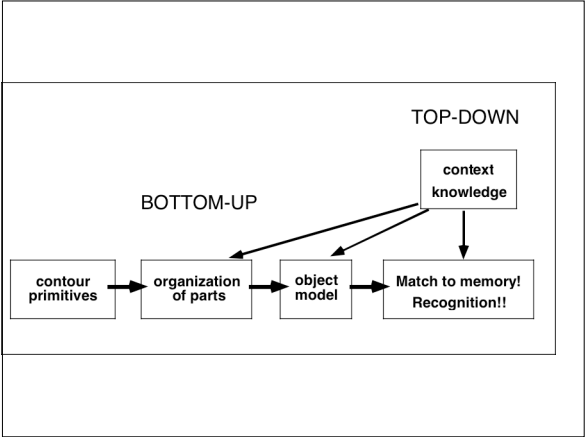


# Recognition Gnosia

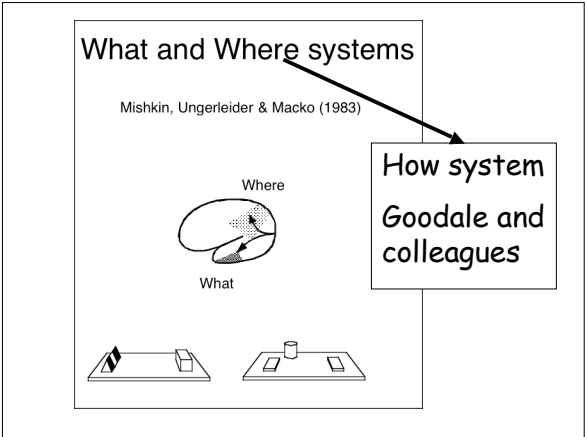


**Anatomy & physiology**

**what & where systems**  
Minsky, Ungerleider & Marco

**prosopagnosia**  
infero-temporal area: IT  
face selective neurons

**object agnosia: John**



*"the world is out of focus to my brain"*

John

1981: stroke

occipital lobes --> temporal lobes --> ventral pathway

**What is wrong with John?**

prosopagnosia

object agnosia

achromatopsia

no spatial orientation

problem with short-term memory with sight

**What is not wrong with John?**

acuity

eye movements

intelligence

first memories from sounds, smell

draw objects out of memories

copy object line by line

memory before the operation

**More about his vision:**

intact registration of features

trouble to put features together

no top down influence

more information = better

DF

Milner & Goodale

34 years old woman

Damage to the ventral pathway  
from carbon monoxide poisoning

**Visual form agnosia**

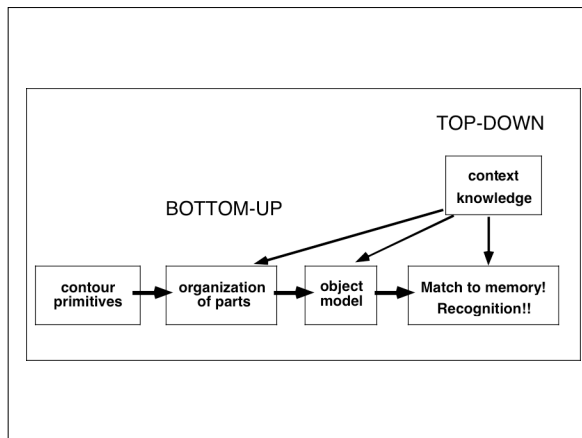
## DF

- Cannot copy, but can draw from memory
- Cannot visually match orientation
- Could "mail" an oriented paper

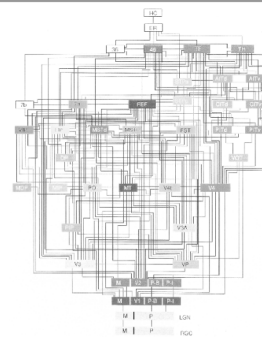
## Single dissociation:

- One mechanism for judging orientation
- One mechanism for coordination of vision & action

Double dissociation:  
another patient can't "mail"  
but is fine with  
judging line orientation.



## Visual hierarchy

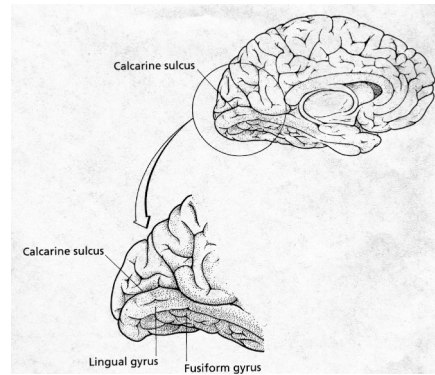




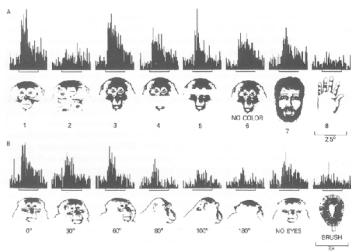
## Ventral Stream

### Properties of Intero-Temporal (IT) neurons

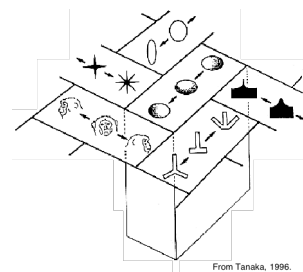
- receptive field size
- stimulus selectivity
- "attribute" invariance
- position invariance
- size invariance
- viewpoint invariance
- columnar organization



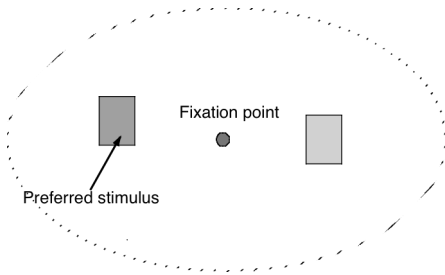
### “Face cells”



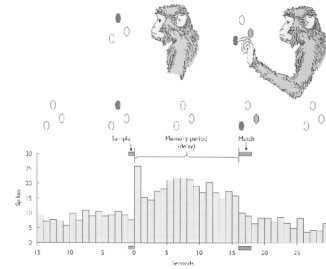
### Columnar organisation in IT



### Attention in the ventral stream Moran & Desimone (1985)



### Delayed-match-to-sample task



Is cell firing related  
to perception?

- Logothetis et al.
- Newsome et al.