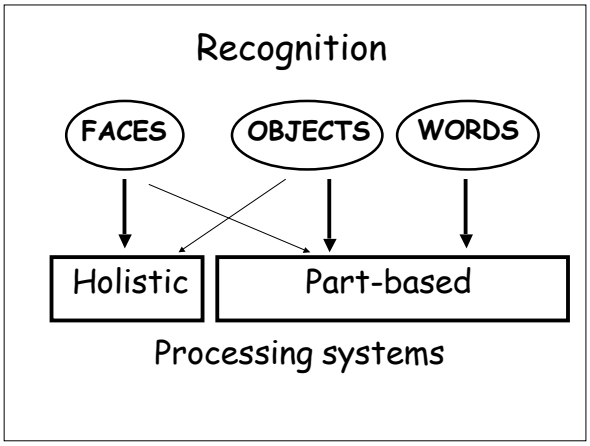
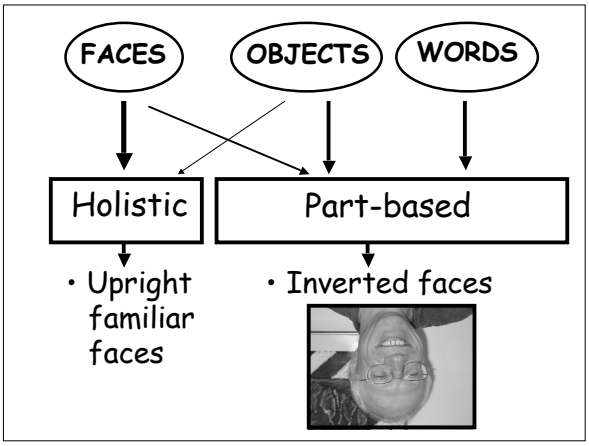
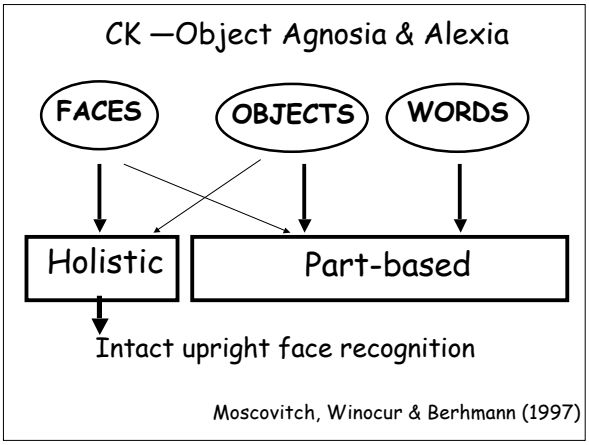




Face recognition tasks

Recognition	CK	CM	DC
Faces	√	√	X
Objects	X	√	√
Words	X	X	√



CK —Object Agnosia & Alexia

- 41-year old man
- 16 years education (MA degree)
- Manager
- Closed-head injury: hit by a car when jogging
- Bilateral thinning in the occipito-temporal regions

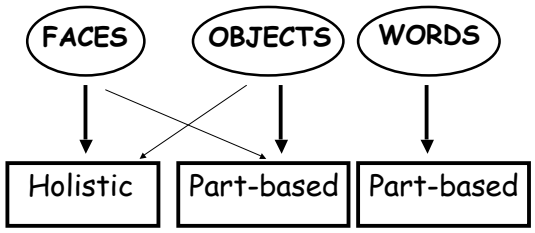
Behrmann, Winocur & Moscovitch (1992)
Behrmann, Moscovitch & Winocur (1994)
Moscovitch, Winocur & Behrmann (1997)

CK —Object Agnosia & Alexia

IMPAIRED	NORMAL
• Word recognition (reading)	• Average IQ
• Object recognition	• Acuity
• Residual blindness in upper left field	• Upright face recognition
	• Visual construction abilities
	• Memory
	• Semantic knowledge

Behrmann, Winocur & Moscovitch (1992)
Behrmann, Moscovitch & Winocur (1994)
Moscovitch, Winocur & Behrmann (1997)

CM —Pure Alexia



Intact face and object recognition

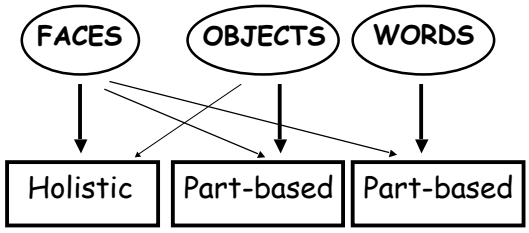
CM —Pure Alexia

- 35-year old man
- 15 years of education
- Computer programming
- Closed-head injury / drugs
- Temporal occipital abnormalities on EEG

CM —Pure Alexia

IMPAIRED	NORMAL
• Word recognition (reading): Letter-by-letter reader	• High average IQ • Acuity • Face recognition • Object recognition • Visuo-spatial abilities

DC —Prosopagnosia



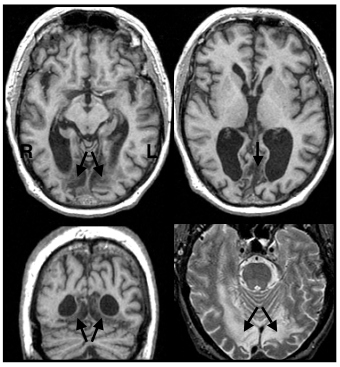
Intact object and word recognition

DC —Prosopagnosia

- 54-year old man
- 16 years education
- Detective for the homicide division of a police force (on disability)
- Colloid cyst → hydrocephalus
- Posterior cerebral artery infarction

DC —Prosopagnosia

- Bilateral lesions in the lingual gyri, Brodmann Areas 18 & 19



DC —Prosopagnosia

- Bilateral lesions in the lingual gyri: more atrophy to the right fusiform gyrus than the left

DC —Prosopagnosia

IMPAIRED	NORMAL
• Face recognition • Bilateral superior field deficits	• Superior IQ • Acuity • Face representation • Face imagery • Object recognition • Reading • Visual construction abilities • Space perception • Colour vision • Memory • Semantic knowledge

Who is:

• ~~Inverted~~

Jason Alexander

George

Who is:

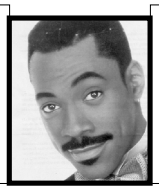
• Fractured

Oprah

Who is:

• Disguised

Eddie Murphy



Tasks: Face recognition

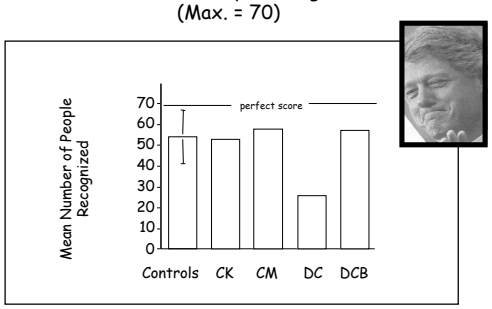
• Upright faces

Participants

	Controls	Brain-damaged			Control
Recognition	n=12	CK	CM	DC	DCB
Faces	√	√	√	X	√
Objects	√	X	√	√	√
Words	√	X	X	√	√

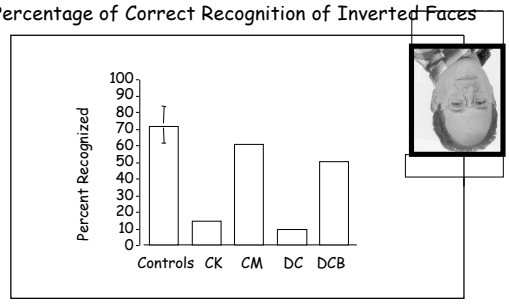
Results

Mean Number of Famous People Recognized from Photos (Max. = 70)



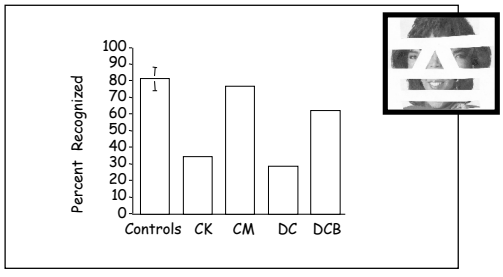
Results

Percentage of Correct Recognition of Inverted Faces



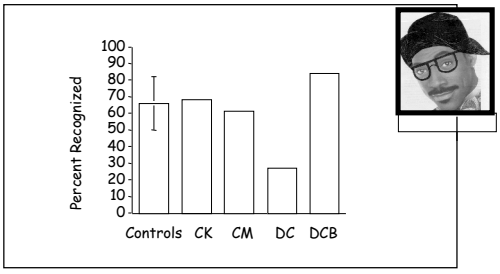
Results

Percentage of Correct Recognition of Fractured Faces



Results

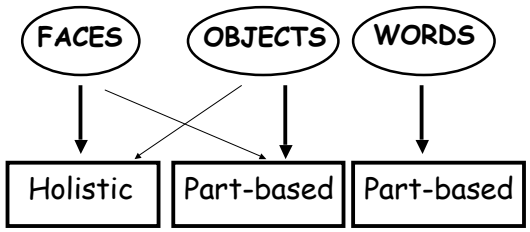
Percentage of Correct Recognition of Disguised Faces



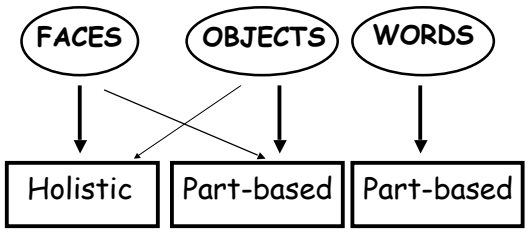
Summary of findings

Face recognition tasks	Damaged systems: Word	Object & Word	Face
Upright 	√	√	X
Disguised 	√	√	X
Fractured 	√	X	X
Inverted 	√	X	X

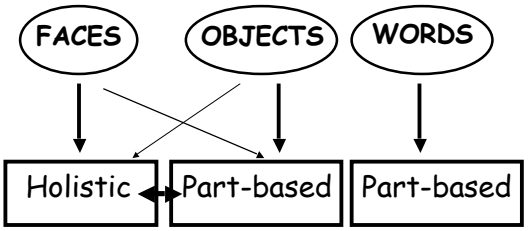
There are separate part-based systems



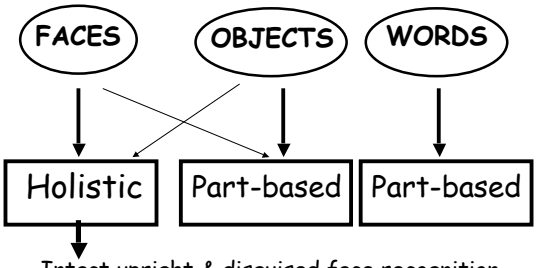
Only the part-based object system contributes to some aspects of face recognition



It does so by interacting with an intact upright face-system

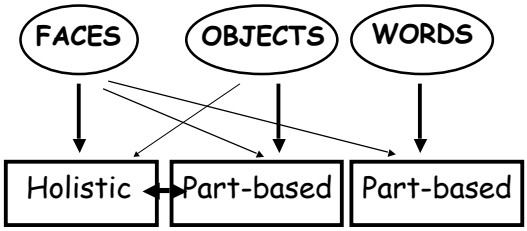


CK —Object Agnosia & Alexia



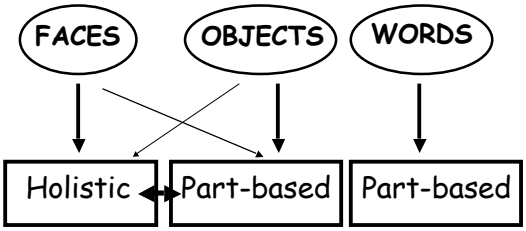
Intact upright & disguised face recognition

DC —Prosopagnosia



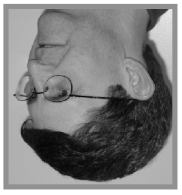
Impairment of all aspects of face recognition

Damage to the holistic face system leads to global face recognition deficits



Thank you

Dr. Larry Leach for referring DC



Dr. Bruce Bolster for referring CM

Face recognition in three people, each with a different disorder: prosopagnosia, object agnosia, and pure alexia.