Reading 9 HW

PASSAGE 1

What's so Funny?

John McCrone reviews recent research on humour

The joke comes over the headphones: 'Which side of a dog has the most hair? The left.' No, not funny. Try again. 'Which side of a dog has the most hair? The outside.' Hah! The punchline is silly yet fitting, tempting a smile, even a laugh. Laughter has always struck people as deeply mysterious, perhaps pointless. The writer Arthur Koestler dubbed it the luxury reflex: 'unique in that it serves no apparent biological purpose'.

Theories about humour have an ancient pedigree. Plato expressed the idea that humour is simply a delighted feeling of superiority over others. Kant and Freud felt that joke-telling relies on building up a psychic tension which is safely punctured by the ludicrousness of the punchline. But most modern humour theorists have settled on some version of Aristotle's belief that jokes are based on a reaction to or resolution of incongruity, when the punchline is either a nonsense or, though appearing silly, has a clever second meaning.

Graeme Ritchie, a computational linguist in Edinburgh, studies the linguistic structure of jokes in order to understand not only humour but language understanding and reasoning in machines. He says that while there is no single format for jokes, many revolve around a sudden and surprising conceptual shift. A comedian will present a situation followed by an unexpected interpretation that is also apt.

So even if a punchline sounds silly, the listener can see there is a clever semantic fit and that sudden mental 'Aha!' is the buzz that makes us laugh. Viewed from this angle, humour is just a form of creative insight, a sudden leap to a new perspective.

However, there is another type of laughter, the laughter of social appeasement and it is important to understand this too. Play is a crucial part of development in most young mammals. Rats produce ultrasonic squeaks to prevent their scuffles turning nasty. Chimpanzees have a 'play-face' – a gaping expression accompanied by a panting 'ah, ah' noise. In humans, these signals have mutated into smiles and laughs. Researchers believe social situations, rather than cognitive events such as jokes, trigger these instinctual markers of play or appeasement. People laugh on fairground rides or when tickled to flag a play situation, whether they feel amused or not.

Both social and cognitive types of laughter tap into the same expressive machinery in our brains, the emotion and motor circuits that produce smiles and excited vocalisations. However, if cognitive laughter is the product of more general thought processes, it should result from more expansive brain activity.

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Psychologist Vinod Goel investigated humour using the new technique of 'single event' functional magnetic resonance imaging (fMRI). An MRI scanner uses magnetic fields and radio waves to track the changes in oxygenated blood that accompany mental activity. Until recently, MRI scanners needed several minutes of activity and so could not be used to track rapid thought processes such as comprehending a joke. New developments now allow half-second 'snapshots' of all sorts of reasoning and problem-solving activities.

Although Goel felt being inside a brain scanner was hardly the ideal place for appreciating a joke, he found evidence that understanding a joke involves a widespread mental shift. His scans showed that at the beginning of a joke the listener's prefrontal cortex lit up, particularly the right prefrontal believed to be critical for problem solving. But there was also activity in the temporal lobes at the side of the head (consistent with attempts to rouse stored knowledge) and in many other brain areas. Then when the punchline arrived, a new area sprang to life – the orbital prefrontal cortex. This patch of brain tucked behind the orbits of the eyes is associated with evaluating information.

Making a rapid emotional assessment of the events of the moment is an extremely demanding job for the brain, animal or human. Energy and arousal levels may need, to be retuned in the blink of an eye. These abrupt changes will produce either positive or negative feelings. The orbital cortex, the region that becomes active in Goel's experiment, seems the best candidate for the site that feeds such feelings into higher-level thought processes, with its close connections to the brain's sub-cortical arousal apparatus and centres of metabolic control.

All warm-blooded animals make constant tiny adjustments in arousal in response to external events, but humans, who have developed a much more complicated internal life as a result of language, respond emotionally not only to their surroundings, but to their own thoughts. Whenever a sought-for answer snaps into place, there is a shudder of pleased recognition. Creative discovery being pleasurable, humans have learned to find ways of milking this natural response. The fact that jokes tap into our general evaluative machinery explains why the line between funny and disgusting, or funny and frightening, can be so fine. Whether a joke gives pleasure or pain depends on a person's outlook.

Humour may be a luxury, but the mechanism behind it is no evolutionary accident. As Peter Derks, a psychologist at William and Mary College in Virginia, says: 'I like to think of humour as the distorted mirror of the mind. It's creative, perceptual, analytical and lingual. If we can figure out how the mind processes humour, then we'll have a pretty good handle on how it works in general.'

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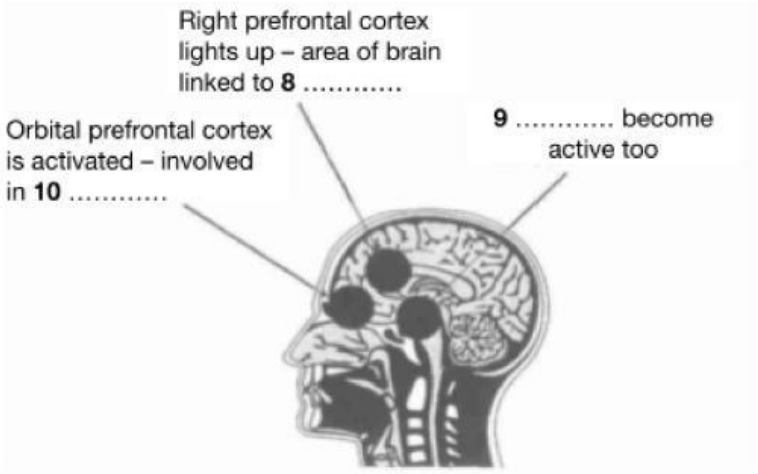
Questions 1–7

*Are the following statements **TRUE**, **FALSE** or **NOT GIVEN**?*

1 Arthur Koestler considered laughter biologically important in several ways.
2 Plato believed humour to be a sign of above-average intelligence.
3 Kant believed that a successful joke involves the controlled release of nervous energy.
4 Current thinking on humour has largely ignored Aristotle's view on the subject.
5 Graeme Ritchie's work links jokes to artificial intelligence.
6 Most comedians use personal situations as a source of humour.
7 Chimpanzees make particular noises when they are playing.

Questions 8–10

The diagram below shows the areas of the brain activated by jokes.
*Label the diagram with **NO MORE THAN TWO WORDS** from the passage for each answer.*



Questions 11–14

*Complete each sentence with the correct ending **A–G** below.*

11 One of the brain's most difficult tasks is to
12 Because of the language they have developed, human
13 Individual responses to humour
14 Peter Derks believes that humour

A react to their own thoughts.
B helped create language in humans.
C respond instantly to whatever is happening.
D may provide valuable information about the operation of the brain.
E cope with difficult situations.

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F relate to a person's subjective views.

G led our ancestors to smile and then laugh.

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POST-TEST EXERCISE

1. Complete the keyword table.

Keyword in questions	Similar words in the passage
biologically important in several ways	
humour to be a sign of **above-average intelligence**	
a **successful** joke involves the *controlled release* of **nervous energy**	
Current **thinking on humour** has largely **ignored** Aristotle's *view* on the subject	
Graeme Ritchie's work links jokes to **artificial intelligence**	
Chimpanzees make **particular noises** when they are playing	
Right prefrontal cortex lights up – area of brain **linked to** problem solving	
temporal lobes **become active** too	
Orbital prefrontal cortex **is activated** – involved in evaluating information	
One of the brain's most difficult tasks is to respond **instantly** to *whatever is happening*	
human **react to** their own thoughts.	
Individual responses to **humour** *relates to a person's subjective views*	
provide valuable information about *the operation of the brain*	

2. Translate the following words into English.

1. punchline (n) .....
2. reflex (n) .....
3. pedigree (n) .....
4. superiority (n) .....

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5. ludicrous (adj) .....
6. settle on (phr v) .....
7. incongruity (n) .....
8. appeasement (n) .....
9. instinctual (adj) .....
10. arousal (n) .....

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PASSAGE 2

Greying population stays in the pink

Elderly people are growing healthier, happier and more independent, say American scientists. The results of a 14-year study to be announced later this month reveal that the diseases associated with old age are afflicting fewer and fewer people and when they do strike, it is much later in life.

In the last 14 years, the National Long-term Health Care Survey has gathered data on the health and lifestyles of more than 20,000 men and women over 65. Researchers, now analysing the results of data gathered in 1994, say arthritis, high blood pressure and circulation problems – the major medical complaints in this age group – are troubling a smaller proportion every year. And the data confirms that the rate at which these diseases are declining continues to accelerate. Other diseases of old age – dementia, stroke, arteriosclerosis and emphysema – are also troubling fewer and fewer people.

'It really raises the question of what should be considered normal ageing,' says Kenneth Manton, a demographer from Duke University in North Carolina. He says the problems doctors accepted as normal in a 65-year-old in 1982 are often not appearing until people are 70 or 75.

Clearly, certain diseases are beating a retreat in the face of medical advances. But there may be other contributing factors. Improvements in childhood nutrition in the first quarter of the twentieth century, for example, gave today's elderly people a better start in life than their predecessors.

On the downside, the data also reveals failures in public health that have caused surges in some illnesses. An increase in some cancers and bronchitis may reflect changing smoking habits and poorer air quality, say the researchers. 'These may be subtle influences,' says Manton, 'but our subjects have been exposed to worse and worse pollution for over 60 years. It's not surprising we see some effect.'

One interesting correlation Manton uncovered is that better-educated people are likely to live longer. For example, 65-year-old women with fewer than eight years of schooling are expected, on average, to live to 82. Those who continued their education live an extra seven years. Although some of this can be attributed to a higher income, Manton believes it is mainly because educated people seek more medical attention.

The survey also assessed how independent people over 65 were, and again found a striking trend. Almost 80% of those in the 1994 survey could complete everyday activities ranging from eating and dressing unaided to complex tasks such as cooking and managing their finances. That represents a significant drop in the number of disabled old people in the

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population. If the trends apparent in the United States 14 years ago had continued, researchers calculate there would be an additional one million disabled elderly people in today's population. According to Manton, slowing the trend has saved the United States government's Medicare system more than $200 billion, suggesting that the greying of America's population may prove less of a financial burden than expected.

The increasing self-reliance of many elderly people is probably linked to a massive increase in the use of simple home medical aids. For instance, the use of raised toilet seats has more than doubled since the start of the study, and the use of bath seats has grown by more than 50%. These developments also bring some health benefits, according to a report from the MacArthur Foundation's research group on successful ageing. The group found that those elderly people who were able to retain a sense of independence were more likely to stay healthy in old age.

Maintaining a level of daily physical activity may help mental functioning, says Carl Cotman, a neuroscientist at the University of California at Irvine. He found that rats that exercise on a treadmill have raised levels of brain-derived neurotrophic factor coursing through their brains. Cotman believes this hormone, which keeps neurons functioning, may prevent the brains of active humans from deteriorating.

As part of the same study, Teresa Seeman, a social epidemiologist at the University of Southern California in Los Angeles, found a connection between self-esteem and stress in people over 70. In laboratory simulations of challenging activities such as driving, those who felt in control of their lives pumped out lower levels of stress hormones such as cortisol. Chronically high levels of these hormones have been linked to heart disease.

But independence can have drawbacks. Seeman found that elderly people who felt emotionally isolated maintained higher levels of stress hormones even when asleep. The research suggests that older people fare best when they feel independent but know they can get help when they need it.

'Like much research into ageing, these results support common sense,' says Seeman. They also show that we may be underestimating the impact of these simple factors. 'The sort of thing that your grandmother always told you turns out to be right on target,' she says.

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Questions 1–9

*Complete the summary using the list of words, **A–Q**, below.*

Research carried out by scientists in the United States has shown that the proportion of people over 65 suffering from the most common age-related medical problems is **1** ..... and that the speed of this change is **2** ..... . It also seems that these diseases are affecting people **3** ..... in life than they did in the past. This is largely due to developments in **4** ..... but other factors such as improved **5** ..... may also be playing a part. Increases in some other illnesses may be due to changes in personal habits and to **6** ..... . The research establishes a link between levels of **7** ..... and life expectancy. It also shows that there has been a considerable reduction in the number of elderly people who are **8** ..... which means that the **9** ..... involved in supporting this section of the population may be less than previously predicted.

A cost
B falling
C technology
D undernourished
E earlier
F later
G disabled
H more
I increasing
J nutrition
K education
L constant
M medicine
N pollution
O environmental
P health
Q independent

Questions 10–13

*Complete each sentence with the correct ending, **A–H**, below.*

A may cause heart disease.
B can be helped by hormone treatment.
C may cause rises in levels of stress hormones.
D have cost the United States government more than $200 billion.
E may help prevent mental decline.
F may get stronger at night.
G allow old people to be more independent.
H can reduce stress in difficult situations.

10 Home medical aids
11 Regular amounts of exercise
12 Feelings of control over life
13 Feelings of loneliness

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POST-TEST EXERCISE

1. Complete the keyword table.

Keyword in questions	**Similar words in the passage**
proportion of people over 65 *suffering from* the most common **age-related medical problems** is falling and …	
… that **the speed of this change** is *increasing*	
these diseases are **affecting** people later in life	
This [=few suffering from age-related medical problems] is largely due to developments in medicine	
improved nutrition may also be *playing a part*	
some other illnesses may be due to *changes in personal habits* and to **pollution**	
The research *establishes* a **link** between levels of education and *life expectancy*.	
It also shows … a considerable reduction in the number of **elderly people who are disabled** …	
the cost involved … **less than** previously predicted	
Home medical aids allow old people to be *more* **independent**	
Regular amounts of exercise may **help prevent mental decline**	
Feelings of control over life can **reduce stress** in difficult situations	
Feelings of **loneliness** may cause *rises in levels of* stress hormones	

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2. Translate the following words into English.

1. afflict (v) .....
2. retain (v) .....
3. ageing (n) .....
4. retreat (v) .....
5. predecessor (n) .....
6. correlation (n) .....
7. simulation (n) .....
8. financial burden (n) .....
9. deteriorate (n) .....
10. self-esteem (n) .....

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