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Level 6 – 3rd April, 2020

Computer translates brainwaves into sentences

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<https://breakingnewsenglish.com/2004/200403-brainwaves.html>

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Please try Levels 4 and 5 (they are easier).

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THE ARTICLE

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Scientists may soon be able to interpret what someone is saying simply by analysing their brainwaves as they speak. This revolutionary advance in neuroscience would help millions of people who suffer from communication problems and neurological disorders. The scientists developed a form of artificial intelligence that can decode brainwaves and translate them into text. Algorithms take the brain activity created as a person speaks and translates it in real time into sentences on a screen. The scientists are from the University of California, San Francisco. They say their algorithms have a 97 per cent translation accuracy rate but are working hard to improve on this.

The scientists say they are at the early stages of being able to machine-translate everything someone says. The software used in their experiments matched features of speech that were repeated frequently to parts and shapes of the mouth. These included elements of English speech such as vowels, consonants and commands. The experiments were limited to around 40 short and simply-constructed spoken sentences. The scientists said: "Although we should like the decoder to learn and exploit the regularities of the language, it remains to show how many data would be required to expand from our tiny languages to a more general form of English."

Sources: <https://www.bbc.com/news/science-environment-52094111>
<https://www.theguardian.com/science/2020/mar/30/scientists-develop-ai-that-can-turn-brain-activity-into-text>
<https://www.inverse.com/innovation/brain-to-text>

WARM-UPS

1. BRAINWAVES: Students walk around the class and talk to other students about brainwaves. Change partners often and share your findings.

2. CHAT: In pairs / groups, talk about these topics or words from the article. What will the article say about them? What can you say about these words and your life?

scientists / interpret / brainwaves / speak / communication / intelligence / translation
early stages / software / experiments / mouth / vowels / language / data / English

Have a chat about the topics you liked. Change topics and partners frequently.

3. NO LANGUAGE LEARNING: Students A **strongly** believe we will not need to learn languages in the future; Students B **strongly** believe we will. Change partners again and talk about your conversations.

4. ENGLISH: What problems do you have with these aspects of English? What are the solutions? Complete this table with your partner(s). Change partners often and share what you wrote.

	Problems	Solutions
Grammar		
Pronunciation		
Vocabulary		
Speaking		
Punctuation		
Writing		

5. INTELLIGENCE: Spend one minute writing down all of the different words you associate with the word "intelligence". Share your words with your partner(s) and talk about them. Together, put the words into different categories.

6. LANGUAGE: Rank these with your partner. Put the most important things to learn at the top at the top. Change partners often and share your rankings.

- vocabulary
- spelling
- grammar
- syllables
- punctuation
- writing sentences
- slang
- intonation

VOCABULARY MATCHING

Paragraph 1

- | | |
|-----------------|--|
| 1. interpret | a. A development or improvement. |
| 2. advance | b. Convert a scrambled message into understandable language. |
| 3. neuroscience | c. A disease or abnormal physical or mental condition. |
| 4. disorder | d. The studies that deal with the structure or function of the nervous system and brain. |
| 5. decode | e. Translate the words of a person speaking a different language. |
| 6. algorithms | f. The quality or state of being correct or precise. |
| 7. accuracy | g. A process or set of rules to be followed in calculations or other problem-solving operations. |

Paragraph 2

- | | |
|------------------|--|
| 8. feature | h. Make full use of and get benefit from. |
| 9. frequently | i. A distinctive quality, characteristic or aspect of something. |
| 10. element | j. A basic sound in speech made by the lips or tongue blocking the breath. |
| 11. vowel | k. Things that are constant or the same. |
| 12. consonant | l. A part (often essential) of something. |
| 13. exploit | m. A letter representing a sound, such as a, e, i, o, u. |
| 14. regularities | n. Regularly or habitually; often. |

BEFORE READING / LISTENING

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

1. TRUE / FALSE: Read the headline. Guess if a-h below are true (T) or false (F).

- a. Scientists can translate what someone is saying in different languages. **T / F**
- b. New technology would help people with neurological problems. **T / F**
- c. Algorithms could translate brainwaves into written text. **T / F**
- d. Scientists say the algorithms are 97% accurate. **T / F**
- e. Scientists are nearing the end of their testing. **T / F**
- f. Software matched features of speech to the shape of a mouth. **T / F**
- g. Scientists analysed over 40 thousand short sentences. **T / F**
- h. Scientists said they needed to reduce the data they have. **T / F**

2. SYNONYM MATCH:

Match the following synonyms. The words in **bold** are from the news article.

- | | |
|-------------------------|-----------------|
| 1. simply | a. components |
| 2. revolutionary | b. precision |
| 3. disorders | c. utilize |
| 4. translates | d. illnesses |
| 5. accuracy | e. cutting-edge |
| 6. stages | f. corresponded |
| 7. matched | g. phases |
| 8. elements | h. just |
| 9. exploit | i. broaden |
| 10. expand | j. converts |

3. PHRASE MATCH: (Sometimes more than one choice is possible.)

- | | |
|--|---------------------------|
| 1. analysing their brainwaves | a. accuracy rate |
| 2. communication problems and | b. frequently |
| 3. translates it in real | c. spoken sentences |
| 4. algorithms have a 97 per cent translation | d. neurological disorders |
| 5. working hard to improve | e. the early stages |
| 6. scientists say they are at | f. as they speak |
| 7. features of speech that were repeated | g. form of English |
| 8. elements of English speech such as | h. on this |
| 9. 40 short and simply-constructed | i. vowels |
| 10. a more general | j. time |

GAP FILL

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Scientists may soon be able to (1) _____ what someone is saying simply by analysing their brainwaves as they speak. This revolutionary (2) _____ in neuroscience would help millions of people who (3) _____ from communication problems and neurological (4) _____. The scientists developed a form of artificial intelligence that can decode brainwaves and translate them into (5) _____. Algorithms take the brain activity created as a person speaks and translates it in (6) _____ time into sentences on a screen. The scientists are from the University of California, San Francisco. They say their (7) _____ have a 97 per cent translation accuracy (8) _____ but are working hard to improve on this.

advance
text
rate
interpret
disorders
algorithms
real
suffer

The scientists say they are at the early (9) _____ of being able to machine-translate everything someone says. The software used in their experiments (10) _____ features of speech that were repeated frequently to parts and (11) _____ of the mouth. These included elements of English speech such as vowels, (12) _____ and commands. The experiments were limited to around 40 short and simply-constructed spoken (13) _____. The scientists said: "Although we should like the decoder to learn and (14) _____ the regularities of the language, it remains to show how many (15) _____ would be required to expand from our tiny languages to a more general (16) _____ of English."

exploit
matched
consonants
stages
data
sentences
form
shapes

LISTENING – Guess the answers. Listen to check.

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

- 1) simply by analysing their brainwaves _____
 - a. as they speaking
 - b. as they spoken
 - c. as they speak
 - d. as they speech
- 2) people who suffer from communication problems and _____
 - a. new illogical disorders
 - b. newer logical disorders
 - c. neurological disorders
 - d. new logical disorders
- 3) a form of artificial intelligence that can decode brainwaves and translate _____
 - a. them unto text
 - b. them into text
 - c. them as to text
 - d. them in two texts
- 4) a person speaks and translates it in real time into sentences _____
 - a. on a screen
 - b. on a scree
 - c. on a screed
 - d. on a scream
- 5) They say their algorithms have a 97 per cent translation _____
 - a. accurate sea rate
 - b. accuracy rated
 - c. accuracies ratio
 - d. accuracy rate
- 6) The software used in their experiments matched _____
 - a. features of speech
 - b. featured of speak
 - c. featureless of speech
 - d. features of speak
- 7) These included elements of English speech such as vowels, consonants _____
 - a. and commends
 - b. and comma ends
 - c. and commanders
 - d. and commands
- 8) experiments were limited to around 40 short and simply-_____ sentences
 - a. construct it spoken
 - b. constructed speaking
 - c. construct it speaking
 - d. constructed spoken
- 9) the regularities of the language, it remains to show how many _____ required
 - a. data would been
 - b. datum would be
 - c. dates would be
 - d. data would be
- 10) be required to expand from our tiny languages to a more _____ English
 - a. generals form of
 - b. generally firm of
 - c. general form off
 - d. general form of

LISTENING – Listen and fill in the gaps

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Scientists may soon be (1) _____ what someone is saying simply by analysing their brainwaves as they speak. This revolutionary advance in neuroscience would help millions of (2) _____ from communication problems and neurological disorders. The scientists developed a (3) _____ intelligence that can decode brainwaves and (4) _____ text. Algorithms take the brain activity created as a person speaks and translates it in real time (5) _____ a screen. The scientists are from the University of California, San Francisco. They say their algorithms have a 97 per cent translation (6) _____ are working hard to improve on this.

The scientists say they are at the (7) _____ being able to machine-translate everything someone says. The software used in their experiments (8) _____ speech that were repeated frequently to parts and shapes of the mouth. These included elements of English speech (9) _____, consonants and commands. The experiments were limited to around 40 short and simply-constructed spoken sentences. The scientists said: "Although we should (10) _____ to learn and exploit the regularities of the language, it remains to show how many data would be (11) _____ from our tiny languages to a more (12) _____ English."

COMPREHENSION QUESTIONS

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

1. Who may be able to interpret what someone is saying?
2. What kind of disorders might the software help?
3. What translates brain activity as a person speaks?
4. When does the software translate brainwaves?
5. What is the accuracy rate of the scientists' algorithms?
6. What stage are the scientists at in the testing?
7. What was matched to parts and shapes of the mouth?
8. How many short sentences were used in the experiments?
9. What do scientists want to exploit regularities of language?
10. What must scientists expand to get to a more general form of English?

MULTIPLE CHOICE - QUIZ

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

- 1) Who may be able to interpret what someone is saying?
 - a) interpreters
 - b) scientists
 - c) translators
 - d) people with brainwaves
- 2) What kind of disorders might the software help?
 - a) software disorders
 - b) major disorders
 - c) software disorders
 - d) neurological disorders
- 3) What translates brain activity as a person speaks?
 - a) Google translate
 - b) a mobile phone
 - c) algorithms
 - d) a website
- 4) When does the software translate brainwaves?
 - a) in real time
 - b) 10 minutes after a person speaks
 - c) next year
 - d) in 2021
- 5) What is the accuracy rate of the scientists' algorithms?
 - a) 3%
 - b) 97%
 - c) 50%
 - d) 40%
- 6) What stage are the scientists at in the testing?
 - a) the early stages
 - b) stage two
 - c) the final stage
 - d) stage 17
- 7) What was matched to parts and shapes of the mouth?
 - a) a grammar book
 - b) identity software
 - c) features of speech
 - d) people
- 8) How many short sentences were used in the experiments?
 - a) 40
 - b) 36
 - c) 30
 - d) 24
- 9) What do scientists want to use to exploit regularities of language?
 - a) other languages
 - b) people's ability to learn
 - c) grammar books
 - d) their decoder
- 10) What must scientists expand to get to a more general form of English?
 - a) brain power
 - b) vocabularies
 - c) data
 - d) muscles

ROLE PLAY

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Role A – Vocabulary

You think vocabulary is the most important part of learning a language. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): spelling, punctuation or grammar.

Role B – Spelling

You think spelling is the most important part of learning a language. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): vocabulary, punctuation or grammar.

Role C – Punctuation

You think punctuation is the most important part of learning a language. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): spelling, vocabulary or grammar.

Role D – Grammar

You think grammar is the most important part of learning a language. Tell the others three reasons why. Tell them what is wrong with their things. Also, tell the others which is the least important of these (and why): spelling, punctuation or vocabulary.

AFTER READING / LISTENING

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

1. WORD SEARCH: Look in your dictionary / computer to find collocates, other meanings, information, synonyms ... for the words 'brain' and 'wave'.

brain	wave
--------------	-------------

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

2. ARTICLE QUESTIONS: Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

3. GAP FILL: In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?

4. VOCABULARY: Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

5. TEST EACH OTHER: Look at the words below. With your partner, try to recall how they were used in the text:

<ul style="list-style-type: none">• soon• millions• developed• created• from• improve	<ul style="list-style-type: none">• early• software• elements• 40• remains• general
--	--

BRAINWAVES SURVEY

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Write five GOOD questions about brainwaves in the table. Do this in pairs. Each student must write the questions on his / her own paper. When you have finished, interview other students. Write down their answers.

	STUDENT 1 _____	STUDENT 2 _____	STUDENT 3 _____
Q.1.			
Q.2.			
Q.3.			
Q.4.			
Q.5.			

- Now return to your original partner and share and talk about what you found out. Change partners often.
- Make mini-presentations to other groups on your findings.

BRAINWAVES DISCUSSION

STUDENT A's QUESTIONS (Do not show these to student B)

1. What did you think when you read the headline?
2. What images are in your mind when you hear the word 'brain'?
3. When was the last time you had a brainwave?
4. What do you know about brainwaves?
5. What do you know about neuroscience?
6. How can we help people with communication problems?
7. What communication problems have you had?
8. What do you know about artificial intelligence?
9. How good are you at translating English into your language?
10. How important is accuracy when speaking English?

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BRAINWAVES DISCUSSION

STUDENT B's QUESTIONS (Do not show these to student A)

11. Did you like reading this article? Why/not?
12. What do you think of when you hear the word 'wave'?
13. What do you think about what you read?
14. What do you think is the future of this technology?
15. Would you like software that instantly translates brainwaves?
16. Would you learn English if there was real-time translation software?
17. What is most difficult when speaking English?
18. Do you think we will need English teachers in the future?
19. In what other ways could translating brainwaves help us?
20. What questions would you like to ask the researchers?

DISCUSSION (Write your own questions)

STUDENT A's QUESTIONS (Do not show these to student B)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

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DISCUSSION (Write your own questions)

STUDENT B's QUESTIONS (Do not show these to student A)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

LANGUAGE - CLOZE

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Scientists may soon be able to interpret what someone is saying (1) _____ by analysing their brainwaves as they speak. This revolutionary advance (2) _____ neuroscience would help millions of people who suffer from communication problems and neurological disorders. The scientists developed a (3) _____ of artificial intelligence that can decode brainwaves and translate them (4) _____ text. Algorithms take the brain activity created as a person speaks and translates it in real (5) _____ into sentences on a screen. The scientists are from the University of California, San Francisco. They say their algorithms have a 97 per cent translation accuracy rate but are working hard to improve (6) _____ this.

The scientists say they are at the early stages of (7) _____ able to machine-translate everything someone says. The software used in their experiments matched features of speech that were repeated (8) _____ to parts and shapes of the mouth. These included elements of English speech such (9) _____ vowels, consonants and commands. The experiments were limited to around 40 short and simply-(10) _____ spoken sentences. The scientists said: "Although we should like the decoder to learn and exploit the regularities of the language, it (11) _____ to show how many data would be required to expand from our tiny languages to a (12) _____ general form of English."

Put the correct words from the table below in the above article.

- | | | | | |
|-----|------------------|-----------------|-----------------|----------------|
| 1. | (a) simple | (b) sample | (c) simply | (d) samples |
| 2. | (a) in | (b) at | (c) by | (d) as |
| 3. | (a) form | (b) firm | (c) frame | (d) farm |
| 4. | (a) into | (b) unto | (c) onto | (d) as to |
| 5. | (a) tome | (b) time | (c) tame | (d) tum |
| 6. | (a) of | (b) as | (c) to | (d) on |
| 7. | (a) been | (b) be | (c) being | (d) begin |
| 8. | (a) frequented | (b) frequency | (c) frequent | (d) frequently |
| 9. | (a) as | (b) has | (c) is | (d) was |
| 10. | (a) restructured | (b) constructed | (c) constricted | (d) contrasted |
| 11. | (a) stays | (b) remains | (c) waits | (d) keeps |
| 12. | (a) many | (b) much | (c) more | (d) mare |

SPELLING

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Paragraph 1

1. tiprernet what someone is saying
2. revolutionary advance in unosiceercne
3. problems and neurological ioddrsers
4. loatirhgms take the brain activity
5. nsnetcees on a screen
6. translation ucarccay rate

Paragraph 2

7. matched etfruaes of speech
8. repeated rqfneutely
9. vowels, oscanonnts and commands
10. simply ontccurtsed
11. xlpeoit the regularities of the language
12. be quiereed to expand

PUT THE TEXT BACK TOGETHER

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Number these lines in the correct order.

- () The scientists say they are at the early stages of being able to machine-translate everything someone
- () of artificial intelligence that can decode brainwaves and translate them into text. Algorithms take the brain
- () consonants and commands. The experiments were limited to around 40 short and simply-constructed
- () algorithms have a 97 per cent translation accuracy rate but are working hard to improve on this.
- (**1**) Scientists may soon be able to interpret what someone is saying simply by analysing their brainwaves as
- () spoken sentences. The scientists said: "Although we should like the decoder to
- () learn and exploit the regularities of the language, it remains to show how many data
- () they speak. This revolutionary advance in neuroscience would help millions of people who
- () says. The software used in their experiments matched features of speech that were repeated
- () would be required to expand from our tiny languages to a more general form of English."
- () activity created as a person speaks and translates it in real time into sentences on a
- () screen. The scientists are from the University of California, San Francisco. They say their
- () frequently to parts and shapes of the mouth. These included elements of English speech such as vowels,
- () suffer from communication problems and neurological disorders. The scientists developed a form

PUT THE WORDS IN THE RIGHT ORDER

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

1. interpret able someone is to Be what saying .
2. from Millions people communication who of suffer problems .
3. artificial form scientists a intelligence . developed The of
4. real Algorithms it translate time into sentences . in
5. 97% rate . algorithms translation Their have a accuracy
6. at Scientists say they are the stages . early
7. of were that frequently . Matched repeated speech features
8. English Elements speech of as vowels . such
9. short Around spoken 40 simply-constructed and sentences .
10. how many would Show be data required .

CIRCLE THE CORRECT WORD (20 PAIRS)

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

Scientists may soon be able to *interpreter / interpret* what someone is saying simply by analysing their brainwaves as they *spoken / speak*. This revolutionary advance in neuroscience would help millions of people who suffer *from / of* communication problems and neurological *orders / disorders*. The scientists developed a *firm / form* of artificial intelligence that can decode brainwaves and translate *them / it* into text. Algorithms take the brain activity created as a person speaks and translates *them / it* in real time into sentences on *the / a* screen. The scientists are from the University of California, San Francisco. They say *their / them* algorithms have a 97 per cent translation accuracy rate but are working hard to improve *of / on* this.

The scientists say they are at the *fast / early* stages of being able to machine-translate *everything / thing* someone says. The software used *in / on* their experiments matched features of *speak / speech* that were repeated frequently to parts and shapes of the *mouthed / mouth*. These included elements of English speech such *was / as* vowels, consonants and commands. The experiments were *limited / limits* to around 40 short and simply-constructed spoken sentences. The scientists said: "Although we should like the decoder to learn and *exploit / expedite* the regularities of the language, it *remains / remaining* to show how many data would be required to expand from our tiny languages to a more *general / generally* form of English."

Talk about the connection between each pair of words in italics, and why the correct word is correct.

INSERT THE VOWELS (a, e, i, o, u)

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

S c__ n t_s t s m_y s__ n b__ b l_ t_ _ n t_r p r_t w
h_t s_m__ n_ _s s_y_n g s_m p l_y b_y _n l_y s_n g
t h__ r b r__ n w_v_s _s t h_y s p__ k . T h_s
r_v_l_t__ n_r y _d v_n c_ _n n__ r_s c__ n c_ w__ l d
h_l p m_l l__ n s _f p__ p l_ w h_ s_f f_r f_r m c_m
m_n_c_t__ n p r_b l_m s _n d n__ r_l_g_c_l d_s_r d_r s
. T h_ s c__ n t_s t s d_v_l_p_d _ f_r m _f _r t_f_c__
l _n t_l_l_g_n c_ t h_t c_n d_c_d_ b r__ n w_v_s _n d
t_r_n s_l_t_ t h_m _n t_ t_x t . A l_g_r_t h m s t_k_ t
h_ b r__ n _c t_v_t y c r__ t_d _s _ p_r s_n s p__ k s
_n d t_r_n s_l_t_s _t _n r__ l t_m_ _n t_ s_n t_n c_s
_n _ s c r__ n . T h_ s c__ n t_s t s _r_ f_r m t h_ U
n_v_r s_t y _f C_l_f_r n__ , S_n F_r n c_s c_ . T h_y
s_y t h__ r _l g_r_t h m s h_v_ _ 9 7 p_r c_n t t
r_n s_l_t__ n _c c_r_c y r_t_ b_t _r_ w_r k_n g h_r d
t_ _m p r_v_ _n t h_s .

T h_ s c__ n t_s t s s_y t h_y _r_ _t t h_ __ r l_y s
t_g_s _f b__ n g _b l_ t_ m_c h_n_ - t_r_n s_l_t_ _v_r y t
h_n g s_m__ n_ s_y s . T h_ s_f t_w_r_ _s_d _n t h__
r _x p_r_m_n t s m_t c h_d f__ t_r_s _f s p__ c h t
h_t w_r_ r_p__ t_d f_r_q__ n t l_y t_ p_r t s _n d s
h_p_s _f t h_ m__ t h . T h_s_ _n c l_d_d _l_m_n t s
_f E n g l_s h s p__ c h s_c h _s v_w_l s , c_n s_n_n
t_s _n d c_m m_n d s . T h_ _x p_r_m_n t s w_r_
l_m_t_d t_ _r__ n d 4 0 s h_r t _n d s_m p l_y - c_n s
t_r_c t_d s p_k_n s_n t_n c_s . T h_ s c__ n t_s t s
s__ d : " A l t h__ g h w_ s h__ l d l_k_ t h_ d_c_d_r
t_ l__ r n _n d _x p l__ t t h_ r_g_l_r_t__ s _f t h_
l_n g__ g_ , _t r_m__ n s t_ s h_w h_w m_n y d_t_
w__ l d b_ r_q__ r_d t_ _x p_n d f_r m __ r t_n y
l_n g__ g_s t_ _ m_r_ g_n_r_l f_r m _f E n g l_s h . "

PUNCTUATE THE TEXT AND ADD CAPITALS

From <https://breakingnewsenglish.com/2004/200403-brainwaves.html>

scientists may soon be able to interpret what someone is saying simply by analysing their brainwaves as they speak this revolutionary advance in neuroscience would help millions of people who suffer from communication problems and neurological disorders the scientists developed a form of artificial intelligence that can decode brainwaves and translate them into text algorithms take the brain activity created as a person speaks and translates it in real time into sentences on a screen the scientists are from the university of california san francisco they say their algorithms have a 97 per cent translation accuracy rate but are working hard to improve on this

the scientists say they are at the early stages of being able to machinetranslate everything someone says the software used in their experiments matched features of speech that were repeated frequently to parts and shapes of the mouth these included elements of english speech such as vowels consonants and commands the experiments were limited to around 40 short and simplyconstructed spoken sentences the scientists said although we should like the decoder to learn and exploit the regularities of the language it remains to show how many data would be required to expand from our tiny languages to a more general form of english

PUT A SLASH (/) WHERE THE SPACES ARE

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Scientists may soon be able to interpret what someone is saying simply by analysing their brainwaves as they speak. This revolutionary advance in neuroscience would help millions of people who suffer from communication problems and neurological disorders. The scientists developed a form of artificial intelligence that can decode brainwaves and translate them into text. An algorithm takes the brain activity created as a person speaks and translates it in real time into sentences on a screen. The scientists are from the University of California, San Francisco. They say their algorithm has a 97 percent translation accuracy rate but are working hard to improve on this. The scientists say they are at the early stages of being able to machine-translate everything someone says. The software used in their experiments matched features of speech that were repeated frequently: lip parts and shapes of the mouth. These included elements of English speech such as vowels, consonants and commands. The experiments were limited to around 40 short and simply-constructed spoken sentences. The scientist said: "Although we should like the decoder to learn and exploit the regularities of the language, it remains to show how many data would be required to expand from our tiny language to a more general form of English."

HOMework

1. VOCABULARY EXTENSION: Choose several of the words from the text. Use a dictionary or Google's search field (or another search engine) to build up more associations / collocations of each word.

2. INTERNET: Search the Internet and find out more about this news story. Share what you discover with your partner(s) in the next lesson.

3. BRAINWAVES: Make a poster about brainwaves. Show your work to your classmates in the next lesson. Did you all have similar things?

4. NO LESSONS: Write a magazine article about language lessons being ended because of being able to translate brainwaves. Include imaginary interviews with people who are for and against this.

Read what you wrote to your classmates in the next lesson. Write down any new words and expressions you hear from your partner(s).

5. WHAT HAPPENED NEXT? Write a newspaper article about the next stage in this news story. Read what you wrote to your classmates in the next lesson. Give each other feedback on your articles.

6. LETTER: Write a letter to an expert on brainwaves. Ask him/her three questions about them. Give him/her three of your ideas on what we can use the brainwave-reading technology for. Read your letter to your partner(s) in your next lesson. Your partner(s) will answer your questions.

ANSWERS

VOCABULARY (p.4)

1. e 2. a 3. d 4. c 5. b 6. g 7. f
8. i 9. n 10. l 11. m 12. j 13. h 14. k

TRUE / FALSE (p.5)

- a F b T c T d T e F f T g F h F

SYNONYM MATCH (p.5)

1. h	2. e	3. d	4. j	5. b
6. g	7. f	8. a	9. c	10. i

COMPREHENSION QUESTIONS (p.9)

1. Scientists
2. Neurological disorders
3. Algorithms
4. In real time
5. 97%
6. The early stages
7. Features of speech
8. Forty
9. Regularities of the language
10. Data

WORDS IN THE RIGHT ORDER (p.20)

1. Be able to interpret what someone is saying.
2. Millions of people who suffer from communication problems.
3. The scientists developed a form of artificial intelligence.
4. Algorithms translate it in real time into sentences.
5. Their algorithms have a 97% translation accuracy rate.
6. Scientists say they are at the early stages.
7. Matched features of speech that were repeated frequently.
8. Elements of English speech such as vowels.
9. Around 40 short and simply-constructed spoken sentences.
10. Show how many data would be required.

MULTIPLE CHOICE - QUIZ (p.10)

1. b 2. d 3. c 4. a 5. b 6. a 7. c 8. a 9. d 10. c

ALL OTHER EXERCISES

Please check for yourself by looking at the Article on page 2.
(It's good for your English ;-)