

THE STUDY OF LANGUAGE BY GEORGE YULE

# THE LANGUAGE AND THE BRAIN

كفايات سارا

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## أهم المصطلحات لأول معيار LANGUAGE AND THE PRAIN

### Neurolinguistics.

The study of the relationship between **language and the brain** .

علم اللغة العصبية: دراسة العلاقة بين اللغة والدماغ.

### Aphasia

defined as an impairment of language function due to localized brain damage that **leads to difficulty understanding and/or producing linguistic forms**.

فقدان القدرة على الكلام: ضعف في وظيفة اللغة نتيجة لحدوث إضرار موضعية على الدماغ تؤدي إلى صعوبة في إنتاج أو فهم اللغة.

### Broca's aphasia

A language disorder in which speech **production** is typically reduced, distorted, slow and missing grammatical markers.

حبسة البروكا: اضطراب اللغة في إنتاج الكلام نتيجة انخفاض وتشوهه وبطء وفقد العلامات النحوية.

### Broca's area

a part of the brain in the left hemisphere involved in **speech production**

Broca's aphasia is called **motor aphasia**.

منطقة البروكا: جزء من الدماغ موجود بالنصف الأيسر تختص بالمنطقة بإنتاج الكلام وتسمى أيضا motor aphasia.

### Wernicke's aphasia

a language disorder in which **comprehension** is typically slow while speech is fluent, but vague and missing content words

حبسة الفييرنيكه: اضطراب اللغة لما يكون الشخص بالفهم بطيء وبالتعبير طلق ولكنه غامض ويفقد محتوى الكلمات

### **Wernicke's area**

a part of the brain in the left hemisphere involved in language  
**comprehension**

**منطقة فيرنيكة:** جزء من الدماغ بالنصف الايسر مختص بفهم اللغة.

### **conduction aphasia**

It is a type of aphasia has been associated with damage to the  
arcuate fasciculus in **which repeating words** or phrases is difficult

**حبسة التوصيل:** هذا النوع يكون تكرار الكلمات والعبارات فيها صعب لما تتضرر منطقة  
. **arcuate fasciculus.**

### **anomia**

A language disorder in which it is difficult to find words, often associated  
**with Wernicke's aphasia**

**فقد التسمية:** اضطراب باللغة التي فيها من الصعب الحصول على كلمات ومرتبطة هالنوع ب  
**Wernicke's aphasia**

### **slip of the tongue**

a speech error in which a sound or word is produced in the  
(**'wrong place**, as in black bloxes (instead of 'black boxes

**زلة اللسان:** خطأ في الكلام بحيث ان الصوت او الكلمة تنتج في المكان الخاطئ، يعني مثلا بدل  
boxes مايقول boxes يقول

### **spoonerism**

a slip of the tongue in which two parts of words or two words are  
(**'switched**, as in a dog of bag food (for 'a bag of dog food

**التلعثم:** زلة لسان بحيث انه يبدل بين كلمتين مثلا dog of bag يقول bag of dog

### **slip of the ear**

a processing error in which one word or phrase is heard as  
another, as in hearing great ape when the utterance was 'gray tape

زلة الاذن :لما عبارة او كلمه تسمع ككلمة اخرى

### **agrammatic speech**

the type of speech without grammatical markers, often associated with **Broca's aphasia**

نوع من الكلام من دون العلامات النحوية ودائما مرتبط بحبسة البروكا.

The brain is composed of cerebral hemispheres

**Right hemisphere**: supervises **left side of body**

الجزء الأيمن من الدماغ مسؤول عن الجزء الأيسر من الجسم

**Left hemisphere**: supervises **right side of body**

الجزء الأيسر من الدماغ مسؤول عن الجزء الأيمن من الجسم

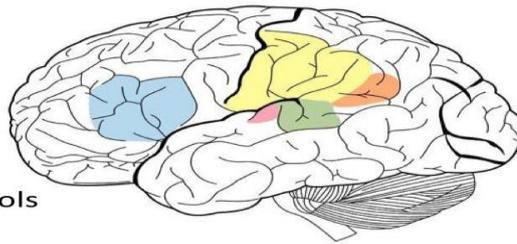
**Anomia** associated with **Wernicke's aphasia**-

**A grammatic speech** associated with **Broca's aphasia**-

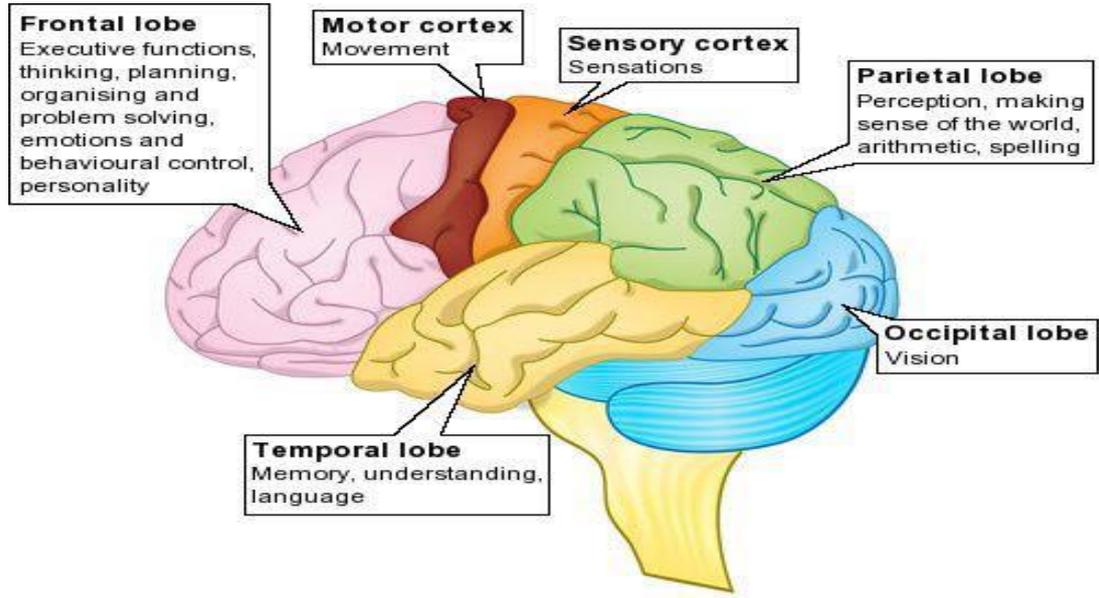
### Broca's and Wernicke's Areas

- Broca's area controls **Syntax**

- Wernicke's area controls **Semantics**



- Broca's Area
- Wernicke's Area
- Supramarginal Gyrus
- Angular Gyrus
- Primary Auditory Cortex



هنا من الصورة لازم تعرفون كل واحد مسوول عن شنو

### Frontal Lobe:

This lobe controls a several elements including **creative thought, problem solving, intellect, judgment, behavior, attention.**

**الفص الامامي:** يتحكم باشياء عديده مثل حل المشكلات والتفكير والسلوك والاراء

### Motor Cortex:

This helps the brain monitor and control **movement** throughout the body

**القشرة الحركية:** جزء من الدماغ الذي يتحكم بحركة العضلات.

### Temporal Lobe:

The temporal lobe controls **visual and auditory** memories

**الفص الصدغي:** يتحكم بالذكريات السمعية والبصريه.

## الأسئلة

الكلمه الي محددده بالاصفر بالسؤال هيا الي تدل على الجواب  
فاربطوا بينهم.

1-Which of the following is a primary disturbance in comprehension or **production of speech** that is caused by brain damage

A.Alexia

B.Dysgraphia

**C.Aphasia** ✓  (because production of speech)

D.Agraphia

2-.....People **with Broca's aphasia** have trouble.

A.Writing words on paper

B.Spelling simple words

C.Understanding speech

**D.Producing speech** ✓  (because Broca's aphasia)

E.Recognizing the emotional content of speech

3- .....People with **Broca's aphasia** have the most difficulty with.

A. Spelling content words

**B. Saying function words** ✓  (because Broca's aphasia )

C. Reading a map

D. Recognizing complex geometrical forms

4- Which of the following brain regions is involved **in Broca's aphasia**.

A. Portions of the Planum temporale

B. Left posterior cerebral cortex

- C. The arcuate fasciculus
- D. Inferior right frontal lobe

**E. Inferior left frontal lobe** ✓  (because Broca's aphasia in the left)

5- A person who has **difficulties in the use of word order, use of function words, and selection of appropriate word endings would be said to have**

- A. Averbia
- B. Ansomnia

**C. Agrammatism** ✓  (because difficulties in the use of word order, use of function words etc)

- D. Articulation disorder
- E. Anomia

6- A direct **neural connection between Broca's area and Wernicke's area** is provided by the

- A. Stria terminalis
- B. Anterior commissure
- C. Corpus callosum
- D. Fornix

**E. Arcuate fasciculus** ✓ (connection between BROCKA AND WERNICKE)

7- Someone with **conduction aphasia** is unable to.

- A. Name proper nouns
- B. Repeat nonwords** ✓  (because conduction aphasia)
- C. Repeat words that have familiar meanings
- D. Name objects

8- **Wernicke's aphasia** is caused by damage to.

A. The frontal association cortex of the right hemisphere

B. Broca's area and the caudate nucleus

**C. The superior temporal gyrus of the left hemisphere** ✓

D. The inferior occipital gyrus of the right hemisphere

E. The left parietal lobe

9- Which skills associated with the **Broca Area** in the brain-?

a-writing

b-reading

**c-speaking**

d-listening

اخترنا مهارة التحدث لانه مثل ما ذكرنا فوق ( البروكا مرتبطه بالنحو وإنتاج الكلام )

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### **SUMMARY**

**( هذه الزبده لكل الكلام الى فوق ولا يحتاج ترجمه لانه نفس المصطلحات مترجمة فوق )**

Parts of the brain The brain has two basic parts : The left hemisphere, and the right hemisphere. We will first concentrate on the left hemisphere.

1- **Broca's Area** ( the anterior speech cortex ) It deals with producing speech.

2- **Wernicke's Area** ( the posterior speech cortex ) It deals with comprehension.

3- **The Motor Cortex** It controls movement of muscles, when speaking face, jaw, tongue, and larynx.

4-**The Arcuate Fasciculus** It forms a crucial connection between Wernicke's area and Broca's area

## **Tongue Tips and Slips**

- **The Tip of the Tongue** : You feel that some word is just eluding you, that you know the word.

- **Slip of the tongue** : Tangled expressions.

e.g. long shorty stort (long story short) or word reversals: (spoonerism)

e.g. use the door to open the key

Although the slips of the tongue are mostly treated as errors of articulation, it has been suggested that they many result from “ slips of the brain “ as it tries to organize linguistic messages.

- **Slip of the ear** : A type of misunderstanding. e.g. Have you seen the “ great ape ? But the speaker said “ grey tape.

**Broca’s Aphasia ( Motor Aphasia)** It is serious language disorder characterized by a substantially reduced amount of speech, distorted articulation and slow often effortful speech. They generally use lexical morphemes but not functional morphemes. In Broca’s aphasia comprehension is typically much beter than production.

**Wernick’s Aphasia ( Sensory Aphasia )** The type of language disorder which results in difficulties in auditory comprehension is sometimes called “ sensory aphasia “ someone suffering fom this disorder can actually produce very fluent speech which is, however, often difficult to make sense of it.

**Dichotic Listening** Anything experienced on the right-hand side of the body is processed in the left hemisphere of the brain and anything on the left side is processed in the right hemisphere. So a signal coming in the right ear will go to the left hemisphere and a signal coming in the left ear will go to the right .hemisphere