

## Supplementary Material

### Description of fMRI Stimuli:

All sentences contained a right branching embedded clause. The main clause contained a subject and a verb of cognition that took a clause as its complement. The embedded clause contained a subject, a verb of action and a direct object. The movement sentences were created by having the subject of the embedded clause be a wh-phrase (WhP). The wh-phrase appears phonologically sentence initial and a gap remains in its base position (subject of embedded clause). In the case of reflexive binding the object in the embedded clause was a reflexive. The reflexive was bound by the subject of the embedded clause. In the case of +BIND the subject of the embedded clause is an overt Noun Phrase (NP), whereas in the case of +MOV+REF the gap left by the wh-subject binds the reflexive. Ungrammatical cases for Reflexive binding stimuli were created by having the gender of the reflexive mismatch with the gender of the embedded subject. Ungrammatical cases for Movement stimuli were created by using an intransitive verb in the embedded clause.

### Graphical Representation of fMRI Stimuli:

<b>-MOV-BIND</b>				
NP	Cognate-VERB	NP	Action-VERB	NP
<b>-MOV+BIND</b>				
NP	Cognate-VERB	NP	Action-VERB	Reflexive
<b>+MOV-BIND</b>				
WhP	Cognate-VERB	---	Action-VERB	NP
<b>+MOV+BIND</b>				
WhP	Cognate-VERB	---	Action-VERB	Reflexive

### Complete List of fMRI Stimuli:

- |                       |
|-----------------------|
| <b>1. +BIND +GRAM</b> |
|-----------------------|
- 1 The teenage boy thinks the young woman pricked herself.
  - 2 The short woman believes Bill photographed himself.
  - 3 The girl supposes the cunning man scratched himself.
  - 4 The apologetic man knows Anne burnt herself.
  - 5 Susan assumes the tall fireman bruised himself.
  - 6 Simon suspects the athletic girl hurt herself.
  - 7 The well-dressed man supposes the girl served herself.
  - 8 The woman thinks Jonathan criticized himself.
  - 9 The rich Englishman knows Julia touched herself.
  - 10 Bob believes the sad artistic girl sketched herself.
  - 11 Jill thinks the curious boy examined himself.
  - 12 The young man suspects Olivia pinched herself.

- 13 The blond girl believes the hostile man licked himself.
- 14 The angry businessman assumes Jane disguised herself.
- 15 The waitress suspects the boy recorded himself.
- 16 The young woman knows David corrected himself.

## 2. +BIND -GRAM

- 1 The teenage boy thinks the young woman pricked himself.
- 2 The short woman believes Bill photographed herself.
- 3 The girl supposes the cunning man scratched herself.
- 4 The apologetic man knows Anne burnt himself.
- 5 Susan assumes the tall fireman bruised herself.
- 6 Simon suspects the athletic girl hurt himself.
- 7 The well-dressed man supposes the girl served himself.
- 8 The woman thinks Jonathan criticized herself.
- 9 The rich Englishman knows Julia touched himself.
- 10 Bob believes the sad artistic girl sketched himself.
- 11 Jill thinks the curious boy examined herself.
- 12 The young man suspects Olivia pinched himself.
- 13 The blond girl believes the hostile man licked herself.
- 14 The angry businessman assumes Jane disguised himself.
- 15 The waitress suspects the boy recorded herself.
- 16 The young woman knows David corrected herself.

## 3. +MOV+BIND +GRAM

- 1 Which young woman does the teenage boy think pricked herself?
- 2 Which boy does the woman believe photographed herself?
- 3 Which older man does Julia suppose scratched himself?
- 4 Which woman does the hostile young man know burnt herself?
- 5 Which man does the athletic girl assume bruised himself?
- 6 Which girl does the tall fireman suspect hurt herself?
- 7 Which sister does the well-dressed man suppose served herself?
- 8 Which young man does the actress think criticized himself?
- 9 Which woman does the rich Englishman know touched herself?
- 10 Which girl does the fat policeman believe sketched herself?
- 11 Which boy does the red-haired girl think examined himself?
- 12 Which grandmother does Jonathan suspect pinched herself?
- 13 Which man does the artistic girl believe licked himself?
- 14 Which woman does David suspect recorded herself?
- 15 Which boy does Olivia assume disguised himself?
- 16 Which uncle does the blond girl know corrected himself?

## 4. +MOV+BIND -GRAM

- 1 Which young woman does the teenage boy think pricked herself?
- 2 Which boy does the woman believe photographed herself?
- 3 Which older man does Julia suppose scratched herself?
- 4 Which woman does the hostile young man know burnt himself?
- 5 Which man does the athletic girl assume bruised herself?
- 6 Which girl does the tall fireman suspect hurt himself?
- 7 Which sister does the well-dressed man suppose served himself?
- 8 Which young man does the actress think criticized herself?

- 9 Which woman does the rich Englishman know touched himself?
- 10 Which girl does the fat policeman believe sketched himself?
- 11 Which boy does the red-haired girl think examined herself?
- 12 Which grandmother does Jonathan suspect pinched himself?
- 13 Which man does the artistic girl believe licked herself?
- 14 Which woman does David suspect recorded himself?
- 15 Which boy does Olivia assume disguised herself?
- 16 Which uncle does the blond girl know corrected herself?

#### 5. -MOV-BIND +GRAM

- 1 The teenage boy thinks the young woman pricked the artist.
- 2 The short woman believes Matthew photographed the thief.
- 3 The girl supposes the cunning man scratched Christopher.
- 4 The apologetic man knows Anne burnt the teacher.
- 5 Susan assumes the tall fireman bruised the young man.
- 6 Simon suspects the athletic girl hurt the doctor.
- 7 The well-dressed man supposes the girl served the pilot.
- 8 The woman thinks Jonathan criticized the waiter.
- 9 The rich Englishman knows Julia touched the blind girl.
- 10 Bob believes the sad artistic girl sketched the French boy.
- 11 Jill thinks the curious boy examined the student.
- 12 The young man suspects Olivia pinched the fat clown.
- 13 The blond girl believes the hostile man licked the doctor.
- 14 The angry businessman assumes Jane disguised the child.
- 15 The waitress suspects the tall boy recorded Adam.
- 16 The young woman knows David corrected the athlete.

#### 6. -MOV-BIND -GRAM

- 1 The teenage boy thinks the young woman existed Bill.
- 2 The short woman believes Matthew bicycled the thief.
- 3 The girl supposes the cunning man danced Christopher.
- 4 The apologetic man knows Anne blinked the teacher.
- 5 Susan assumes the tall fireman sang the young man.
- 6 Simon suspects the athletic girl fainted the boy.
- 7 The well-dressed man supposes the girl snored the pilot.
- 8 The businesswoman thinks Jonathan laughed the waiter.
- 9 The rich Englishman knows Julia sat the blind girl.
- 10 Bob believes the sad artistic girl sneezed the French boy.
- 11 Emily thinks the curious boy swam the student.
- 12 The young man suspects Olivia coughed the fat clown.
- 13 The blond girl believes the hostile man skied the doctor.
- 14 The angry businessman assumes Jane fainted the child.
- 15 The waitress suspects the tired boy blinked Jeremy.
- 16 The young woman knows David hiccuped the bald athlete.

#### 7. +MOV +GRAM

- 1 Which young woman does the teenage boy think pricked Alex?
- 2 Which boy does the woman believe photographed the thief?
- 3 Which older man does Julie suppose scratched the waitress?
- 4 Which woman does the hostile man know burnt the teacher?

- 5 Which man does the athletic girl assume bruised the boy?
- 6 Which girl does the fireman suspect hurt the chef?
- 7 Which sister does the well-dressed man suppose served the pilot?
- 8 Which man does the actress think criticized the waiter?
- 9 Which woman does the Englishman know touched the blind girl?
- 10 Which girl does the policeman believe sketched the French boy?
- 11 Which boy does the red-haired girl think examined Steven?
- 12 Which grandmother does Jonathan suspect pinched the child?
- 13 Which man does the artistic girl believe licked the clown?
- 14 Which woman does David assume disguised the student?
- 15 Which boy does Emily suspect recorded Adam?
- 16 Which man does the blond girl know corrected the athlete?

### 8. +MOV -GRAM

- 1 Which woman does the teenage boy think existed Bill?
- 2 Which boy does the woman believe bicycled the thief?
- 3 Which older man does Julie suppose danced Christopher?
- 4 Which woman does the hostile man know blinked the teacher?
- 5 Which man does the stubborn girl assume sang the young boy?
- 6 Which girl does the fireman suspect fainted the boy?
- 7 Which little girl does the man suppose snored the pilot?
- 8 Which man does the actress think laughed the German waiter?
- 9 Which woman does the Englishman know sat the blind girl?
- 10 Which girl does the policeman believe sneezed the French boy?
- 11 Which boy does the curious girl think swam the student?
- 12 Which grandmother does Jonathan suspect coughed the clown?
- 13 Which man does the red-haired girl believe skied the doctor?
- 14 Which woman does David assume fainted the actor?
- 15 Which boy does Olivia suspect blinked Jeremy?
- 16 Which man does the blond girl know hiccuped the bald athlete?

### fMRI Study Instructions:

Outside the Magnet:

This is a grammaticality and acceptability judgment experiment, aimed to test the syntactic abilities of healthy adults, where brain activity is monitored by MRI technology, and your responses are recorded through a response box.

What you will be asked to do is make judgments on English sentences. We will be playing sentences to you, read by a female voice, some of which are grammatical, others, ungrammatical or unacceptable. For example, you are expected to say that *John rinsed himself* is a grammatical sentence, but *John rinsed herself* is not.

All this will happen as you will be inside the magnet. We will get to this part in a minute.

Let's talk some more about your task. Sentences will be played once. We ask that you listen very carefully to the end of each, and then respond promptly. We will not be measuring reaction time, but you should respond quickly nonetheless. If you think the sentence is grammatical and it makes sense to you, indicate so by clicking the RIGHT mouse button; if you think it is ungrammatical, or it does not make sense, indicate so by clicking the LEFT mouse button. There are no tricks here – no issues of normative grammar, no funny stuff, just a plain grammaticality judgment task. Importantly, if the sentence sounds bad to you, do NOT adjust the

sentence in any way so that it becomes a good sentence. Make a judgment as to whether the sentence is good or bad based on exactly what you hear, without any alterations. Do not try to guess in advance, as the sentences are randomized. If after you heard the sentence you, are not sure about its grammatical status, take a guess.

In order to get you accustomed to the task, we will do a couple of practice items here. You will then put on scrubs, will remove all metal parts from your body, and we will enter the magnet room and get into the magnet. You will be helped inside, and will be requested to lie motionless; airbags will make your head comfortable, but will help immobilize it. You will be covered with blankets, a mouse will be given to you, to hold in your LEFT hand, and headphones will be put on you. They will help reduce magnet noise, and through them we will play the sentences to you.

### **Practice**

1. The rich man knows that Olivia pricked herself YES
2. Which young boy does the woman think photographed himself YES
3. The rich Englishman knows that Olivia pricked himself NO
4. Which young boy does the woman think photographed herself NO
5. Which young boy does the woman think photographed the pilot? YES
6. Which young boy does the woman think slept her mother? NO

When you are in the magnet, please try to lie still, with your eyes closed. Having your eyes open is perfectly safe, but we ask you to keep them closed in order to reduce visual stimulation, and motor activity of your eyeballs, and thereby reduce noise in the signal we will be picking up. At the beginning you might feel a little claustrophobic, but in our experience, this feeling goes away in about 60 seconds, and you actually start having fun. There is a microphone and speakers inside the magnet, so at any given time we will be able to talk to you, and if you speak, we will be hearing you. If at any time you feel uncomfortable and wish to stop, just say so, and the session will be terminated immediately.

The session will have several parts: first, a structural MR sequence will be conducted: it will consist of a short – 20 second part, then a short break, and then a longer, 15 minute part. You don't have to do anything during this part of the session – you can just relax, even take a little nap. The magnet makes a noise – this is normal. Sometimes this noise sounds a bit like a slow jackhammer. Most of this noise will be filtered by your headphones, but you will still be able to hear some of it.

Again, lying motionless is critical. If you can refrain from swallowing and coughing as the MR signal is picked up, we'll appreciate that; you can swallow and/or cough during the breaks, but please try to do so without moving your head. When talking to us, try not to move your head, and to minimize jaw movement.

We have thus far gone over the anatomical part of the session. We now move on to the next, experimental part: we will first have a short practice session with 8 sentences, some of which will be grammatical, others, ungrammatical. Please try not to move, and respond YES with the RIGHT button – index finger, and NO with the LEFT – middle finger. After we made sure that everything works, and that the volume level is comfortable to you, the experiment will begin. First, you will be hearing just the magnet for 17 seconds. You don't have to do anything during that time. Next, you will be hearing sequences of about 20 sentences each, some grammatical, some ungrammatical. They will be similar to the ones you have seen already. You will first be hearing the magnet for 2 seconds, and almost immediately after it goes off you will be

hearing a sentence. You are requested to respond YES or NO immediately, and without moving. Right afterwards you will be hearing the magnet again, then another sentence, and so on, with breaks 17 seconds long between strings of some 20 sentences, in which magnet will be sometimes heard. If you think you made a mistake, don't stop to agonize over it; just proceed to the next sentence, as it will be coming in very soon.

The length of the sentence sequences (between one pause to the next) may vary, so don't try to count. There will be 8 such sequences, with 17 second long pauses so that you can rest a bit. At one point, there will be a longer pause – about a minute long, and then you will hear another 8 sequences of sentences, with some silence interspersed. Then the experimental session ends. Thus the task part should last under 45 minutes, whereas altogether, with all its parts, you will be in the scanner a little over an hour.

So, please remember: Try not to move, especially your head; try to concentrate and listen very carefully to the sentences; YES is RIGHT button and NO is left; finally, you can terminate the session at any time if you feel that lying inside the magnet is too hard.

Do you have any questions?

Please fill out the questionnaire and sign the consent form. You will be paid at the end of the session.

Inside the Magnet:

We will do 10 practice sentences before we do the actual test. These sentences are very similar to the test sentences, and they should give you an idea of how fine the contrasts are. Make sure that you feel comfortable, that the volume level is right, and that you are in control of the mouse.

Please remember that you should not move, if you have to swallow or cough try to do that during the silence between sequences. Finally, index finger is YES, middle finger is NO. Enjoy!!

### Description of Aphasia Stimuli:

Each sentence contains two potential antecedents (NP<sub>1</sub> and NP<sub>2</sub>) that differ in gender. The reflexive matches the correct antecedent only in the grammatical cases. In the –MOV condition the closest NP is the correct antecedent to the reflexive whereas in the +MOV condition the furthest NP is the correct antecedent to the reflexive. Sentences for each condition come in two different varieties. In the –MOV condition, the main clause contains a subject, verb and complement clause/prepositional phrase+complement clause. The subject of the main clause is either an NP or expletive. In the prepositional phrase there is the preposition “to” and an NP. The complement clauses contain an NP, verb and reflexive. In the +MOV condition, the main clause contains a subject, verb and complement clause/prepositional phrase+infinitival phrase (IP). The complement clause/IP has a subject - either a Wh-phrase (WhP) or an NP – verb and reflexive. The subject of the complement clause/IP moves in both instances to subject position of the main clause. The ungrammatical conditions contain a gender mismatch between the reflexive and its antecedent.

### Graphical Representation of Aphasia Stimuli:

-MOV							
NP <sub>1</sub>	Verb		that	NP <sub>2</sub>	Verb	Reflexive	
It	Verb	to	NP <sub>1</sub>	that	NP <sub>2</sub>	Verb	Reflexive
+MOV							
WhP <sub>1</sub>	does		NP <sub>2</sub>	Verb	---	Verb	Reflexive
NP <sub>1</sub>	Verb	to	NP <sub>2</sub>	to	---	Verb	Reflexive

### Complete List of Aphasia Stimuli:

#### 1. +MOV+GRAM

- 1 Which man does Mary think likes himself?
- 2 Which woman does John believe hates herself?
- 3 Which girl does the young man suspect scratched herself?
- 4 Which boy does Sally know blamed himself?
- 5 Which woman does the man from California believe served herself?
- 6 Which girl does Peter think cut herself?
- 7 Which boy does the blonde woman know washed himself?
- 8 Which lady does the fireman suspect burned herself?
- 9 Which son does the mother believe bruised himself?
- 10 Which little boy does Lisa think dressed himself.
- 11 John seems to Mary to reward himself.
- 12 The girl appears to Bill to honor herself.
- 13 Mary appears to the young man to appreciate herself.
- 14 The father seems to Sally to insult himself.
- 15 The small girl seems to uncle Bob to evaluate herself.

- 16 Peter seems to the woman to promote himself.
- 17 The blonde woman appears to the tall boy to disguise herself.
- 18 The uncle appears to Lisa to curse himself.
- 19 The talented woman seems to the young man to praise herself.
- 20 The fireman seems to the lady to applaud himself.

## 2. +MOV-GRAM

- 1 Which man does Mary think likes herself?
- 2 Which woman does John believe hates himself?
- 3 Which girl does the young man suspect scratched himself?
- 4 Which boy does Sally know blamed herself?
- 5 Which woman does the man from California believe served himself?
- 6 Which girl does Peter think cut himself?
- 7 Which boy does the blonde woman know washed herself?
- 8 Which lady does the fireman suspect burned himself?
- 9 Which son does the mother believe bruised herself?
- 10 Which little boy does Lisa think dressed herself?
- 11 John seems to Mary to reward herself.
- 12 The girl appears to Bill to honor himself.
- 13 Mary appears to the young man to appreciate himself.
- 14 The father seems to Sally to insult herself.
- 15 The small girl seems to Uncle Bob to evaluate himself.
- 16 Peter seems to the woman to promote herself.
- 17 The blonde woman appears to the tall boy to disguise himself.
- 18 The uncle appears to Lisa to curse herself.
- 19 The talented woman seems to the young man to praise himself.
- 20 The fireman seems to the lady to applaud herself.

## 3. -MOV+GRAM

- 1 The man thinks that Mary likes herself.
- 2 The woman believes that John hates himself.
- 3 The girl suspects that the young man scratched himself.
- 4 The boy knows that Sally blamed herself.
- 5 The woman knows that the man from California served himself.
- 6 The girl thinks that Peter cut himself.
- 7 The boy knows that the blonde woman washed herself.
- 8 The lady suspects that the fireman burned himself.
- 9 The son believes that the mother bruised herself.
- 10 The little boy thinks that Lisa dressed herself.
- 11 It seems to Sally that the father insults himself.
- 12 It seems to Mary that John rewards himself.
- 13 It appears to Bill that the girl honors herself.
- 14 It appears to the young man that Mary appreciates herself.
- 15 It seems to Uncle Bob that the small girl evaluates herself.
- 16 It seems to the woman that Peter promotes himself..
- 17 It appears to the tall boy that the blonde woman disguises herself.
- 18 It appears to Lisa that the uncle curses himself.
- 19 It seems to the young man that the talented woman praises herself.
- 20 It seems to the lady that the fireman applauds himself.

## 4. -MOV-GRAM

- 1 The man thinks that Mary likes himself.
- 2 The woman believes that John hates herself.

- 3 The girl suspects that the young man scratched herself.
- 4 The boy knows that Sally blamed himself.
- 5 The woman knows that the man from California served herself.
- 6 The girl thinks that Peter cut herself.
- 7 The boy knows that the blonde woman washed himself.
- 8 The lady suspects that the fireman burned herself.
- 9 The son believes that the mother bruised himself.
- 10 The little boy thinks that Lisa dressed himself.
- 11 It seems to Sally that the father insults herself.
- 12 It seems to Mary that John rewards herself.
- 13 It appears to Bill that the girl honors himself.
- 14 It appears to the young man that Mary appreciates himself.
- 15 It seems to Uncle Bob that the small girl evaluates himself.
- 16 It seems to the woman that Peter promotes herself.
- 17 It appears to the tall boy that the blonde woman disguises himself.
- 18 It appears to Lisa that the uncle curses herself.
- 19 It seems to the young man that the talented woman praises himself.
- 20 It seems to the lady that the fireman applauds herself.

### **Aphasia Study Instructions:**

In this study you will be looking at and listening to sentences. You will hear a sentence (I will read each sentence aloud twice) and you will also be able to see the sentence written on a piece of paper. Some of these sentences are good English sentences, but some are bad English sentences. The ones that are bad sentences are bad because they don't make any sense or they sound funny when you hear them spoken.

For example, the sentence "**The player hit the baseball lightly**" is a good sentence, but the sentence "**Lightly hit player the baseball the**" is a bad sentence - it doesn't make any sense and it sounds strange. When you hear and see the sentence, it is your job to decide whether it is a good sentence or a bad sentence. If it is good, point to the smiling face, which is the **YES** response. If it is a bad sentence, point to the frowning face, which is the **NO** response.

We are interested in what you think about these sentences, i.e., your intuition - which is not always what you learned in grammar school. For example, when you hear the sentence "**where are you coming from?**", this sounds like a good sentence, right? (Wait for subject to confirm). However, in school they teach you that even though this sentence looks and sounds good to you, it is a bad sentence because it ends in a preposition. But we are interested in YOUR intuitions. So, think about the sentence "**John was seen Bill Mary**". It doesn't end with a preposition and still, you know that this is a bad sentence because it looks and sounds funny.

In other words, when you hear and see the sentence, don't make judgments about the sentence based on rules of grammar that you learned in school - just ask yourself if the sentence looks and sounds good to you, and also if it makes sense to you.

Furthermore, if the sentence looks and sounds bad to you, do not adjust the sentence in any way so that it becomes a good sentence.

Make a judgment as to whether the sentence is good or bad based on exactly what you see and hear, without any alterations.

**FOR APHASICS ONLY:**

It is important to listen carefully and make a decision about each sentence based on your own intuition, which is how you feel about the sentence. Remember, point to the smiling face when you feel that the sentence is a good one and point to the frowning face when you feel that the sentence is a bad one.

Do you have any questions?

We will do some practice items before we do the actual test. We will discuss each of the practice items together so that you will understand how the experimental items should be completed. During the experiment, we will take a short break and then continue on with the test items.

## Appendix II

### Lesion Information for Patients in Aphasia Study

<i>Broca's</i>	<i>Gender</i>	<i>DOB</i>	<i>Date of Onset</i>	<i>Lesion Information</i>
JB	F	1946	1994	Large left fronto-parietal lesion involving all of the IFG and some white matter, insular cortex, and the lateral putamen with posterior extension across the anterior temporal isthmus. The temporal lobe is spared. The lesion continues superiorly to involve the lower pre-motor and motor cortex areas for mouth as well as the supramarginal gyrus area. This superior lesion extends deep to include all of the periventricular white matter. There is an additional lesion in the left pons which may be a result of Wallerian degeneration from the periventricular white matter lesion interrupting fibers of the deep descending pyramidal tract pathways.
JC	F	1942	1995	Large area of decreased attenuation with loss of visualization of the gray-white junction in the left parasylvian region extending into the left fronto-parietal region.
FC	M	1932	1973	Very large left dorsolateral frontal lobe lesion involving almost all of the IFG and MFG, and and the white matter deep to Broca's area. The lesion continues superiorly and includes the lower 2/3 of the pre-motor, motor and sensory cortex and the white matter and periventricular white matter deep to these areas. There is no lesion in the temporal and parietal lobules.
AR	M	1920	1989	Left lesion involving portions of the IFG and MFG including portions of Broca's area with deep extension that spare the medial subcallosal fasciculus. Lesion involving a portion of the anterior limb of the internal capsule, anterior insular structures and anterior putamen. No posterior lesion into the temporal lobe.

RB	M	1929	1985	Left frontoparietal lesion involving all of Broca's area and some of the MFG anterior to it. Lesion extends deep across to the left frontal horn, including the white matter deep to Broca's area and the medial subcallosal fasciculus, through Wernicke's area and in area 37 posterior to Wernicke's area. Lesion also involves all of the putamen and globus pallidus and cuts across the anterior limb of the internal capsule. The posterior portion of the lesion may also interrupt auditory pathways through the temporal isthmus. The lesion continues superiorly and includes the pre-motor, motor and sensory cortex areas and the supramarginal and angular gyrus areas. The lesion extends deep and includes all of the white matter and periventricular white matter deep to these areas. The lesion comes up into the superior parietal lobule to the vertex.
<b><i>Wernicke's</i></b>	<b><i>Gender</i></b>	<b><i>DOB</i></b>	<b><i>Date of Onset</i></b>	<b><i>Lesion Information</i></b>
NL	M	1929	1987	Decreased density in the left posterior parietal area. Although it is adjacent to the posterior body of the left lateral ventricle, it does not appear to distort the ventricle. Low attenuation region in the left posterior temporo-parietal region.
CC	M	1926	1984	Left hemisphere lesion involving portion of posterior temporal lobe with superior extension into supramarginal and angular gyrus areas (surface and deep) and large occipital lobe lesion.
JM	M	1936	1986	Low density left posterior (inferior) division of MCA distribution consistent with a subacute infarct. Vague patchy lesion involving the temporal isthmus (which likely interrupted the auditory fibers from the medial geniculate nucleus before reaching Heschl's gyrus and Wernicke's area) and the posterior -superior portion of the putamen and insular areas. Patchy, superior lesion extension in the posterior supramarginal

				and angular gyrus areas with deep extension across to the border of the body of the left lateral ventricle, interrupting pathways of the arcuate fasciculus (auditory contralateral pathways).
WD	M	1924	1991	Left hemisphere lesion in the posterior part of the inferior section of MCA; one fourth of Wernicke's area deep to supermarginal gyrus.
HS	M	1923	1991	Lesion involves central half of Wernicke's area, continuing superiorly to involve motor and sensory cortex areas for mouth, supramarginal and angular gyri, and white matter deep to these areas. Lesion also involves lateral portion of middle 1/3 of Periventricular white matter and all of posterior Periventricular white matter. Lesion continues up into superior parietal lobule.
<b><i>Right Hemisphere</i></b>	<b><i>Gender</i></b>	<b><i>DOB</i></b>	<b><i>Date of Onset</i></b>	<b><i>Lesion Information</i></b>
KE	M	1931	1989	Large right MCA CVA (middle frontal, inferior frontal, superior temporal, middle temporal, deep into white matter), left caudate (putamen, insular structures), right pulvinar (optic radiations on transition slice) and right PCA--area 19 (Supramarginal gyrus, Angular gyru, superior parietal lobe, centrum sinnauele)
CB	M	1932	1985	Initial CT scan showed right hemisphere sulcal effacement, consistent with acute infarct. Repeat CT scan at one week showed question minimal hemorrhage in the area of infarct versus luxury perfusion. Final non-contrast CT scan from 5/21/85 showed a patchy area of inhomogeneous attenuation in the right middle cerebral artery distribution with decreased edema and mass effect. These findings were consistent with a right middle cerebral artery infarct.
JM	F	1941	1989	Infarct involving the right MCA and lenticulostriate arteries. Area of diminished density involving

				<p>the head of the caudate, and basal ganglia out to the insula; the Sylvian fissure is obliterated, and obliteration of the right frontal horn of the lateral ventricle; slight midline shift. A focal rounded area is present in the parietal lobe. Cortical, Subcortical, and MCA territory.</p>
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