Teaching Resources for Chapter 2

**Links**

• [*intermediate*] There are several researchers who work extensively with Nicaraguan Sign Language. One such researcher is Ann Senghas, currently at Columbia University/Barnard College. To see images of NSL signers and learn more about the language, visit her lab website: http://www.columbia.edu/~as1038/index.html. Additional information about NSL can be found on this site, including a short documentary featuring another researcher of NSL, Judy Kegl: http://thebeautifulbrain.com/2011/03/snapshots-and-words/

• [*intermediate*]This website provides an overview of how different kinds of brain imaging techniques work.

http://psychcentral.com/lib/2007/types-of-brain-imaging-techniques/

• [*basic- intermediate-advanced*] This site provides an overview of various biological aspects of language, including the genes and neurological structures that have been linked to language. Using the links in the boxes at the top of the page, you can get information on these different areas, and also read descriptions at beginning, intermediate, and advanced levels of difficulty.

http://thebrain.mcgill.ca/flash/d/d\_10/d\_10\_m/d\_10\_m\_lan/d\_10\_m\_lan.html

**Activities for Students**

• Determine if you are left hemisphere or right hemisphere dominant for language. At this site (sponsored by the UCLA Linguistics department) you can participate in an online dichotic listening experiment: http://www.linguistics.ucla.edu/people/schuh/lx001/dichotic/dichotic.html

• Many people believe that their pet dog (or cat) has language. Try to evaluate this claim by looking at what dogs actually do. If you don’t have a pet of your own, you can find lots of examples on youtube of other people’s pets (search for key terms like “My cat can talk” or “talking dog”). Compare these examples with this rigorous test of the vocabulary and language skills of the Border Collie Chaser: http://www.youtube.com/watch?v=KbI13nbDRRI

• Talk to a few people you know who speak more than one language. Ask each person their experiences with their second language: At what age did they learn the second language? In what contexts do they speak it? What aspects of the second language did they find easiest to learn? What aspects do they find most difficult? Are there any domains (e.g. number words, technology terms, animal names) that are easier to talk about in their first language or in their second language? Do the experiences of the people you talked to support or contradict the critical period hypothesis for language?

• One aspect of language that may have a genetic basis is the age at which a person starts to talk. Interview your parents, grandparents, aunts and uncles and find out at (approximately) what age the people in your family said their first words. Can you find any patterns to support a genetic component? What other explanations might explain the patterns you found?

**Online Movies**

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| --- | --- | --- | --- |
| Movie Name | Access | Description | Time |
| A Molecular Window into Speech and Language | http://royalsociety.org/events/2008/molecular-speech-language/?gclid=CKqunZ\_pzq8CFZDrKgodgFcSGg | Simon Fisher gives a lecture to the Royal Society of London about the genetics of language. The link goes directly to a page providing a written abstract of the talk; click the button that says “watch the video”. The talk proper runs from minute 5:00 to minute 66:21. | 76:18 |
| Alex the talking parrot | http://www.youtube.com/watch?v=R6KvPN\_Wt8I | Documentary style clip of Irene Pepperberg showing off Alex’s language abilities. | 2:27 |
| Bee Dance (Waggle Dance) | http://www.youtube.com/watch?v=-7ijI-g4jHg | Video of bee’s doing the waggle dance and excellent explanations of how they communicate information with the dance | 0:55 |
| Birth of a Language | http://www.pbs.org/wgbh/evolution/library/07/2/l\_072\_04.html | Brief documentary about the birth of Nicaraguan Sign Language. Features Judy Kegl and shows lots of examples of children speaking NSL. | 4:57 |
| Broca’s Aphasia | http://www.youtube.com/watch?v=f2IiMEbMnPM | Historic footage from the Wisconsin Physio lab of a person with Broca’s Aphasia talking | 2:25 |
| Changing Brains: Language | Main page:  http://changingbrains.org/  Select Watch Online; choose the Language square | Short documentary focusing on early language development. Special emphases are on changes in brain structure, the importance of rich parental input for aiding language development, and positive benefits of bilingualism. | 9:13 |
| Genetic basis of language | http://www2.ku.edu/~cldp/MabelRice/ | Interview with Mabel Rice about genetic origins of language | 4:01 |
| Genie: Deprived Girl | http://www.liveleak.com/view?i=c83\_1226691722 | Documentary about Genie. Contains historic footage and interviews. | 47:17 |
| How your baby goes from Da Da to Daddy. | http://www.msnbc.msn.com/id/15051687 | Brief news piece about Pat Kuhl’s work looking at ERP changes in baby brains as a function of shifts in phonological perception | 2:22 |
| Kanzi and Novel Sentences | http://www.youtube.com/watch?v=2Dhc2zePJFE | Clip of Kanzi demonstrating comprehension of novel sentences. | 1:54 |
| Kanzi with Lexigram | http://www.youtube.com/watch?v=wRM7vTrIIis | Clip of Kanzi demonstrating his knowledge of his lexigram system | 2:39 |
| Live video movements during speech production (MRI at 20 ms) | http://www.youtube.com/watch?v=uTOhDqhCKQs | A brief x-ray video showing the vocal tract in motion as someone speaks. There is no sound. | 0:26 |
| Robert Seyfarth: Can Monkeys Talk? | http://www.youtube.com/watch?v=3lsF83rHKFc | Interview with primatologist Seyfarth about monkey communication, with a special focus on Vervet alarm calls | 3:36 |
| The Birth of a New Sign Language | http://thebeautifulbrain.com/2011/03/snapshots-and-words/ | A brief documentary about the origins of NSL. Note that there’s some general text about ASL that precedes it on this page. | 6:59 |
| The Charlie Rose Show: Dr. Patricia Kuhl Describes MEG | http://www.youtube.com/watch?v=3zNlkL4DMtU | Pat Kuhl explains how an MEG machine works and shows clips of an infant inside one. | 1:25 |
| The Linguistic Genius of Babies | http://www.ted.com/talks/lang/eng/patricia\_kuhl\_the\_linguistic\_genius\_of\_babies.html | A TED talk by Patricia Kuhl talking about her work on early infant speech perception, including bits on the statistics in the input, the importance of live input, and neuroimaging work. | 10:18 |
| Trailer for the movie Project Nim | http://movies.nytimes.com/movie/464286/Project-Nim/trailers | Official movie trailer for the documentary about the life and times of Nim Chimpsky. Additional clips from the movie are available on the site as well. | 2:30 |
| Wernicke’s Aphasia | http://www.youtube.com/watch?v=aVhYN7NTIKU | Historic footage from the Wisconsin Physio lab of a person with Wernicke’s Aphasia talking | 4:13 |
| Why Do We Talk? | Part 1:  http://www.youtube.com/watch?v=PZatrvNDOiE  Part 2:  http://www.youtube.com/watch?v=dsaqD9FVRsM  Part 3:  http://www.youtube.com/watch?v=oimnxkEj4ns  Part 4:  http://www.youtube.com/watch?v=UTbI-G42JoY  Part 5:  http://www.youtube.com/watch?v=pmsQJfyVrr0  Part 6:  http://www.youtube.com/watch?v=kqs-jKSdj8Y | BBC/Horizon documentary on language acquisition, with a general emphasis on speech. Broken down on youtube in sections:  Part 1: Overview; Roy’s Speechome project  Part 2: The larynx across species; language and brain damage  Part 3: language and brain damage, cont.; neuroanatomy of language; newborn speech perception with ERP; language savant Christopher  Part 4: Language savant Christopher, cont.; Interview with Chomsky; wild child Oxana, raised by dogs; language (bird song) with no experience in Finches  Part 5: Bird song, cont.; genetic components of language – KE family.  Part 6: Evolutionary origins of speech, conclusions | Each part, ~9:45 |

**Sample Test Questions for Chapter 2**

1. A Pidgin is a:
   1. second language.
   2. communication system invented by people thrown together without a common language. It typically draws lexical items from one or more of the contact languages, and may develop its own primitive syntax.
   3. language developed by children who were taken out of one environment and placed in another before their first language syntax was complete.
   4. language that develops in second generations from the simple language that two groups have developed to communicate in the absence of a common language.
2. A Creole is a language that:
   1. is acquired after a first language.
   2. is a communication system invented by people thrown together without a common language. It typically draws lexical items from one or more of the contact languages, and may develop its own primitive syntax.
   3. is learned by children born into a community in which a pidgin language is used as a common means of communication. The children add to the language and develop syntax complexities.
   4. is developed by children who were taken from environment and placed in another before their first language syntax was complete.
3. The development of Nicaraguan Sign Language (NSL):
   1. has demonstrated how all sign languages are basically the same.
   2. has demonstrated the importance of having fully formed input for language development.
   3. has demonstrated the importance of young children for adding complexity to a developing language.
   4. has demonstrated the importance of explicit instruction in language creation.

1. The human vocal tract is:
   1. well-adapted for producing speech sounds but carries an increased risk of choking on food relative to other species.
   2. poorly-adapted for producing speech sounds but very well adapted for other biological functions such as swallowing and breathing relative to other species.
   3. well-adapted for producing speech sounds and better-adapted than most other species in terms of biological functions such as swallowing and breathing.
   4. not particularly well-adapted for either speech or biological functions such as swallowing or breathing.

5. Aphasia is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* 1. a total loss of ability to speak
  2. evidence of language learning capacity
  3. an impairment of language due to brain injury
  4. mild language loss due to bilateral connections

6. Dichotic listening experiments examined adults and found that there is:

* 1. a right-ear advantage for all auditory stimuli.
  2. a right-ear advantage for adult users of language.
  3. a left-ear advantage for adult users of language.
  4. evidence of the invariance hypothesis.

7. The equipotentiality hypothesis holds that:

* 1. the left hemisphere is specialized for language at birth.
  2. the right hemisphere is specialized for language at birth.
  3. the right and left hemisphere have equal capacity for language at birth.
  4. language is equally well-processed by both hemispheres throughout the lifespan.

8. The invariance hypothesis refers to the view that:

* 1. the left hemisphere is specialized for processing language from birth.
  2. another term for the equipotentiality hypothesis.
  3. specialization for language is normally in the right hemisphere for children.
  4. children cannot process language well at all.

9. Efforts to study the neural processing of language in infants:

* 1. has found that infants tend to be less lateralized and develop left-hemisphere specialization of language over time.
  2. has found that infants have right-hemisphere dominance for language from as early as they have been tested.
  3. cannot be done because there are no brain investigation techniques suitable for working with infants.
  4. has found that infants have left-hemisphere dominance for language from as early as they have been tested.

10. Attempts to teach Chimpanzees human language have found:

* 1. that they learn language in very similar ways to human children.
  2. that their vocal tracts prevent them from learning a spoken language but they can easily acquire a sign language.
  3. that they have been unable to learn the grammar of a human language.
  4. that they simply refuse to communicate with humans.

11. The critical period hypothesis states that:

* 1. there is a critical length of time that is required for language to develop in children.
  2. there is a critical age range during which children are able to develop language.
  3. it is critical that adults provide input to children in order for them to develop language.
  4. children must be at least as old as the critical age before they can develop language.

12. The case of Genie is important for the study of language development because:

* 1. it shows that children can develop language normally even after years of abuse
  2. it provides evidence in support of the critical period for language.
  3. it provides evidence that all children have an innate ability to learn language.
  4. it shows that children’s later language skills and early experiences are largely unrelated .

13. Deaf children who are born to hearing parents and receive later exposure to a sign language such as ASL:

* 1. deaf children born to hearing parents are unable to learn sign languages.
  2. show patterns of acquisition that are similar to later learners of a second language
  3. learn sign language just as quickly and just as well as children who acquire it from birth
  4. never become very proficient with sign language

14. Adults’ ability to acquire a second language acquisition depends on:

* 1. the age at which they are exposed to the second language.
  2. their personal motivations to learn the second language.
  3. the type of social access they have to the second language.
  4. all of the above influence how well adults acquire a second language.

15. Recent research on the genetic basis of language development suggests that:

* 1. language development is wholly dependent on genetic effects.
  2. environmental effects have a greater influence on grammatical development than on lexical development.
  3. environmental effects have a greater influence on lexical development than on grammatical development.
  4. language development is wholly dependent on environmental effects.

1. Compare and contrast Broca’s Aphasia with Wernicke’s Aphasia. What do these two kinds of aphasia tell us about (1) the structure of language and (2) the biological basis of language?
2. What is meant by the “critical period hypothesis” for language? Provide one piece of evidence in support of the critical period and one piece of evidence against it.
3. Do any animal species besides humans have language? Be sure to consider the differences between language and communication, and discuss both animal communication systems in the wild as well as efforts to teach animals forms of human language.