

- **Non-human apes and language?**
- **Visual symbol systems**
- **Sign-based systems**

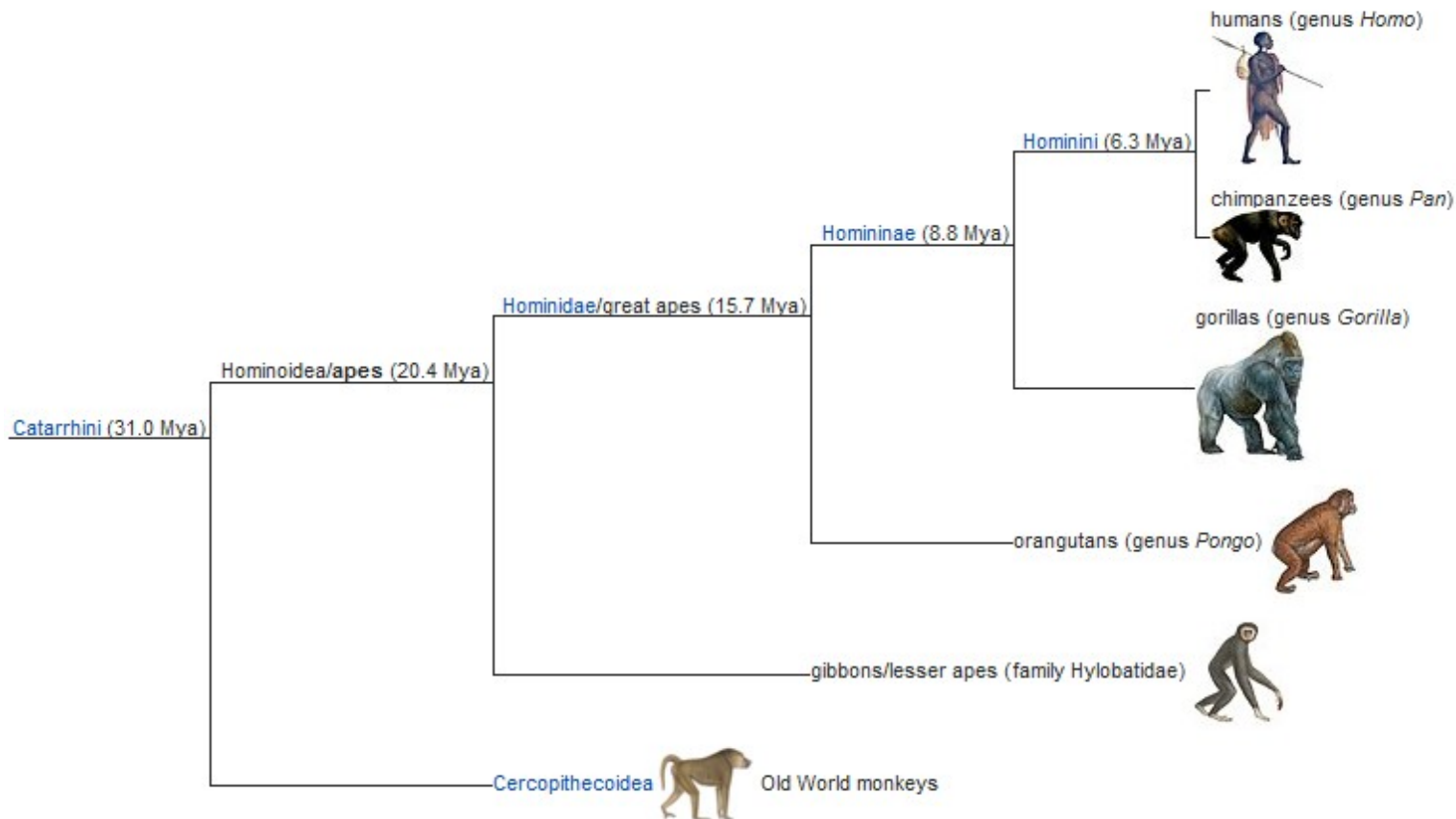
Background preparation:

- *Kaplan Ch 4, "Chimpanzees can talk to us"*

1. Can apes learn language?

- Taxonomy of apes (from [Wikipedia](#))

The [cladogram](#) of the superfamily Hominoidea shows the descendant relationships of the extant hominoids that are broadly accepted today.^{[12][13][3][clarification needed]} For each clade, it is indicated approximately how many million of years ago (Mya) newer extant clades radiated.^[14]



1. Can apes learn language?

- What kinds of language (or “language”) systems have been used in language-learning experiments with chimpanzees/bonobos/gorillas?

1. Can apes learn language?

- What kinds of language (or “language”) systems have been used in language-learning experiments with chimpanzees/bonobos/gorillas?
 - Spoken human language
 - Visual symbol systems
 - ASL-inspired signing systems

2. Spoken human language

- Attempts to teach apes to produce **spoken human language** were not successful
 - Video of [Viki](#) (1940s), the chimpanzee raised in a human family and taught spoken English words (YouTube)
- What are some potential reasons for this lack of success?
 - How did later experiments try to address these issues?

3. Visual symbol systems

- Discussion:

Sarah (chimpanzee)

Lana (chimpanzee)

Kanzi (bonobo)

- What were their symbol systems like?
- What was their training like?
- How was their symbol use like and unlike human language use?

3. Visual symbol systems

- Sarah (chimpanzee), 1960s
 - Magnetic plastic symbols for words
 - Had to be placed in the appropriate order to make a “sentence”
- [RIP Sarah](#), August 2019! (*NY Times*)

3. Visual symbol systems

- For discussion:
 - (a) What was Sarah's training like?
 - (b) What kinds of things did Sarah learn to do with her symbol system?
 - (c) In what ways was Sarah's use of this system like, and unlike, human language?

3. Visual symbol systems

- Lana (chimpanzee), 1970s
 - Computerized system with abstract visual symbols for words — “lexigrams”
 - Lexigram buttons had to be pushed in the appropriate order to make a “sentence”

3. Visual symbol systems

- Video of [Lana](#) (interesting episode at 2:24)

(warning: there is a discussion of human developmental disorders at 4:33 that is disturbing by modern standards)

- What do you see Lana and her trainers doing here?
- Lexigrams! (from the Kaplan textbook web site)
 - Some [utterances](#), and their results
 - A [list of lexigrams](#) and their “translations” as assigned by the researchers

3. Visual symbol systems

- For discussion:
 - (a) What was Lana's training like? How did it compare to Sarah's?
 - (b) What kinds of things did Lana learn to do with her symbol system?
 - (c) In what ways was Lana's use of this system like, and unlike, human language?

3. Visual symbol systems

- Kanzi (bonobo), 1980s–
 - Same lexigram system as Lana
 - Upgraded technology!
- Video of [Kanzi](#) (YouTube)
 - What do you see Kanzi and his trainer doing here?

3. Visual symbol systems

- For discussion:
 - (a) What was Kanzi's training like? How did it compare to Lana's?
 - (b) What kinds of things did Kanzi learn to do with his symbol system?
 - (c) In what ways was Kanzi's use of this system like, and unlike, human language?

4. “Design features” of language (Hockett 1960)

- H’s proposed **design features of language** include:
 - **Displacement**: Can be about things that are removed in space and time, or don’t exist
 - **Arbitrariness** (Saussure): No logical connection between sound and meaning
 - **Productivity**: New thoughts can be expressed for the first time
 - **Duality of patterning**: Meaningful units are made up of combinations of meaningless units
- Do we see these characteristics in Sarah’s, Lana’s, and Kanzi’s use of their symbol systems?

5. ASL-inspired systems

- Discussion:

Washoe (chimpanzee)

Koko (gorilla)

Nim (chimpanzee)

Loulis (chimpanzee)

- What were their signing systems like?
- What was their training like?
- How was their signing use like and unlike human language use?

5. ASL-inspired systems

- Washoe (chimpanzee), 1960s–70s
 - Exposure began as infant
 - Did not spontaneously begin to sign very much; trainers had to shape her hands
 - Early [video of Washoe](#) (YouTube; start at 15:45)
- What kinds of things did Washoe learn to do? What kinds of things did she not do with her signing?
- What are some of the problems or concerns in interpreting Washoe's signing?

5. ASL-inspired systems

Did Washoe have a language system?

- Gestures, actions, or signs?
 - Deaf signers thought the hearing trainers were too generous in recording 'signs' by Washoe
- 'Rich interpretation,' or overinterpretation?
 - Example: WATER BIRD (when W saw swan on lake)
- What were Washoe's motivations for using signs?
 - H. Terrace later argued that many of Washoe's utterances were imitations of trainer utterances
 - What else did Washoe typically sign *about*?

5. ASL-inspired systems

- Koko (gorilla), 1970s–2010s
 - Exposure to spoken English and to ASL signs (in English word order)
 - Knew and used many signs
 - [Video of Koko](#) (YouTube)
- What are some of the issues with reports of Koko's abilities?

5. ASL-inspired systems

- Koko (gorilla), 1970s–2010s
- What are some of the issues with reports of Koko's abilities?
 - Signs, or pointing gestures / pantomime?
 - Rich interpretation, or overinterpretation?
- [Transcript of AOL "live chat"](#), mediated by trainer
 - Discussion? How plausible do you find the trainer's commentary on what Koko is signing?

5. ASL-inspired systems

- Nim Chimpsky (chimpanzee), 1970s
 - Began training as infant
 - Social interaction and formal teaching sessions
- What is the significance of the following utterance?
GIVE ORANGE ME GIVE EAT ORANGE ME EAT
ORANGE GIVE ME EAT ORANGE GIVE ME YOU
- What is the significance of...?
 - What Nim typically signed about
 - Imitation

5. ASL-inspired systems

- Loulis (chimpanzee), 1970s
 - Given as infant to Washoe to raise
 - Was not taught ASL signs by humans
 - Part of a social group of signing chimps: Washoe and three others
- What are some of the things he (and his group) did, that previous signing-based studies had not found?
- Did his use of signing still have characteristics that were not like language?

5. ASL-inspired systems

- What Loulis could do
 - He learned many signs from Washoe (sometimes she shaped his hands)
 - He (and the others) signed to other chimps, with or without humans present
- Characteristics that were not like language
 - Long utterances very repetitive
 - No increase in grammatical complexity over time
 - High proportion of chimpanzee gestures (seen in wild) as opposed to ASL-derived signs

6. Is the myth busted?

In summary...

- What are some of the things that chimpanzees, bonobos, and gorillas can do when taught language-like systems?
- What are some aspects of human language that differ from the way other apes use their language-like systems?