

The Clever Hans Phenomenon Conference

There was a horse in the early 1900s who could do math. If given a problem, Clever Hans would communicate the answer to his owner in a series of hoof taps and head shakes. According to the New York Times reporter that witnessed this spectacle in 1904, Hans was trained like a child might be in arithmetic by his owner, a former schoolteacher, gaining many abilities over four years. The horse, the reporter wrote, could “do almost anything but talk” (Heyn, 1904).

Of course, he was fake. Oskar Pfungst, a psychologist, realized that the owner was so excited his horse could do math that he would exhale sharply when the horse had reached the correct number of hoof taps, and Hans, eager for a sugar cube, would stop tapping (Fowler, 1980, p. 355). While not intentional, it was a hoax, and one with significant impacts on a specific field: animal language and cognition. This story was so impactful it led, eighty years later, to Duane and Sue Rumbaugh sitting sour-faced as they listened to a magician pontificate on the weakness of their scientific experiments.

The Rumbaughs were scientists studying apes’ ability to form language through their adopted chimp Lana, and they were at an anti-ape language conference. They had been raising Lana for a decade, and the method they had chosen for her language acquisition was lexigrams, or symbols she had been, incredibly, taught to connect to words. According to the 1978 paper detailing their experiments with Lana, they chose lexigrams because they doubted the rigor of previous experiments done on chimps using American Sign Language (ASL) by the Gardners, other ape language researchers (Rumbaugh & Savage-Rumbaugh, p. 121). Entitled the Clever Hans Phenomenon Conference, the gathering they were at was out to prove the fallacy of ape language, and other researchers (including the Gardners) had run as far as they could, but the Rumbaughs faced their detractors, attending the conference to argue their case (Wade, 1980, p. 1349). It can be assumed that the Rumbaughs were incensed by the accusation of cuing a-la

Clever Hans in their research, and felt they could argue their side given the significant efforts they had put toward avoiding cuing.

They attended the conference, and according to reports from journalists attending, engaged in lively debate. Their biggest adversary was the conference host, Thomas Sebeok. An Indiana University professor of linguistics and anthropology, Sebeok had a general derision for ape language studies, citing “social contamination” and “experimenter-induced errors” – even “deception” – as impacting the validity of ape communication in his 1981 paper “Clever Hans and Smart Simians: The Self-Fulfilling Prophecy and Kindred Methodological Pitfalls” which he wrote with his wife, Jean (Umiker-Sebeok & Sebeok, p. 90). It would make sense that in the explosion of ape language studies after 1950, he would take a stand and call out what he saw as false science, especially focusing on those undergoing the research. Sebeok reportedly decided to send the manuscript for “Clever Hans and Smart Simians” to the Rumbaughes before the conference, which would fan the flames of their disagreement. The public arguments between severe, thickly-bespectacled Sebeok and the disapproving Rumbaughes were scintillating to the reporters in attendance, transcribed to different degrees in articles for publications like *The New Yorker* and *Science* (Wade, 1980, pp. 1350-1351; Fowler, 1980, pp. 356-357).

Journalist Nicholas Wade was rapt as Sue Savage-Rumbaugh took the stage with a script she had reorganized in order to incorporate her response to Sebeok’s manuscript (Wade, 1980; p. 1351).

“The Sebeoks don’t understand our methods,” she said in a tone Wade described as ‘chilling’, “and their critical comments in this regard embarrassingly reveal their incompetence.”

Sebeok put on an unaffected air, explaining to the crowd when it was his turn that he was “very saddened by Sue Savage-Rumbaugh’s polemics,” (Wade, 1980; p. 1351). He continued to explain that, unsupported by data, her statements were essentially nonsense.

Clearly, there was a lot of scientific discussion going on at the Clever Hans Phenomenon Conference.

The second day included a press conference where Sebeok answered questions and made various statements on the state of the field, introducing the last figure one needs to know to understand great ape language circa 1980.

“In my opinion, the alleged language experiments divide into three groups: one, outright fraud; two, self-deception; and three, those conducted by Terrace” (Wade, 1980; p. 1351).

Dr. Herbert Terrace was the researcher raising the chimpanzee with the delightful name Nim Chimpsky. Why, one might ask, did Sebeok hold him aside from the others who he accused of self-deception and fraud?

Terrace dropped a bomb on the field of ape language research when, after years of teaching Nim to sign using ASL and extensive analysis of his recorded utterances, he decided that rather than language, Nim was simply learning cues to receive bananas (Frey, 2012, p. 21).

Terrace had wanted to prove ape language, but worried about the anecdotal nature of previous research, seeking to compile a complete report of all utterances Nim could produce to analyze. However, while watching his tapes, Terrace reports having a Pfungst-like moment, noticing one of the assistants inadvertently cuing Nim’s signs. Terrace analyzed other tapes of chimps being taught to “speak” using lexigrams a-la Rumbaugh and found similar results. He

published his findings in 1979, earning his spot in Sebeok's pantheon of ape language deniers in time for the conference (Terrace, 2019, pp. 18-20).

Not much is written about Terrace's participation in the Clever Hans Phenomenon Conference. However, his attendance underlines the complete mess that ape language research had become in the pursuit of, or obsession with, a perceived truth. The Rumbaugh's wanted to prove the capabilities that humans were denying apes despite their aptitude, Sebeok wanted to combat what he saw as blatant misinterpretation of data, and Terrace simply wanted to engage with his experiments scientifically. In an article for the international psychology honor society, Terrace is quoted as explaining, "the only line between success and failure for scientists is whether or not they honestly report their results" (Frey, 2012, p. 21).

We return to the image from the beginning at the end of the second day. Duane and Sue, tight-lipped as they sit and listen to magician James Randi describe their years of research as "a magic trick", citing his experience debunking misinformation spread by sensationalist magicians.

Possibly cued by the talk of fraud from the previous press conference, and certainly motivated by Randi's thinly-veiled accusations, someone from the audience asked whether he believed ape language researchers were involved in fraud.

"Yes", said Randi plainly.

The audience member asked what his evidence was. Which films did he suspect to be fraudulent? Had he read the papers?

"No," said Randi, and he reminded his audience of the time in order to leave the stage, ending the Clever Hans Phenomenon Conference (Fowler, 1980, p. 357).

Since the Clever Hans Phenomenon Conference (and the scientists involved) publicly made a monkey of ape language research, agencies aren't excited to fund studies that led to such public nonsense. Research has shifted to focus on using symbols like the Rumbaugh's lexigrams to evaluate ape cognition, but the most notable change has been in the environment for the monkeys involved (Pepperberg, 2017, p. 183).

Sue Savage-Rumbaugh continued studying bonobos similarly to the way she studied chimps, using the less scandalous description "cognition" rather than "language" for her experiments, but raising her bonobos from infancy and forming close, intimate bonds with them. When speaking about the matter, the scientist who eventually replaced her at the institute researching the bonobos revealed he didn't agree with this method: "I disagree with the idea of taking a bonobo even for part of the day, rearing it with humans... I think that the detriment to the individual animal is not justified by the benefit you get from the science" (Stern, 2015).

Think back to the chimps that were being "adopted" by ape researchers in the 1900s. These animals were being subjected to an existence that wasn't theirs: raised as a human child and evaluated by their use of human language within a human context. Even disregarding the complete mess that was made of this research, the foundation of the science begins to turn to sand when one considers the nonsense of evaluating animals on a human level.

Now think again to Clever Hans. He didn't evolve to solve math problems or argue with his enemies about science experiments, but to navigate the complex social hierarchy of a herd and lead his mares to the best food across hundreds of acres of land. The fact that he could communicate with humans is wonderful in and of itself—because he *was* communicating. By

tapping his hoof, Hans was evaluating his owner's body language and responding in a way that, if translated from Horse to Human, would sound a lot like:

"I'd really like a sugar cube, please. I think they're delicious."

References

- Fowler, Susan (1980) The Clever Hans Phenomenon Conference. *International Journal for the Study of Animal Problems*: Vol. 1: No. 6, Article 4.
- Frey, M. (2012). Language, Cognition, and Primates With Dr. Herbert Terrace. *Eye on Psi Chi Magazine*, Vol. 16, pp. 20–21.
<https://doi.org/10.24839/1092-0803.Eye16.4.20>
- Heyn, Edward T. (1904). Berlin's wonderful horse: he can do almost anything but talk– how he was taught. *The New York Times*.
<https://timesmachine.nytimes.com/timesmachine/1904/09/04/101396572.pdf>
- Pepperberg, Irene M. (2017). Animal language studies: What happened? *Psychonomic Bulletin & Review*, Vol. 24, pp. 181–185.
<https://doi.org/10.3758/s13423-016-1101-y>
- Rumbaugh, Duane M., & Savage-Rumbaugh, Sue. (1978). Chimpanzee language research: Status and potential. *Behavior Research Methods & Instrumentation*, Vol. 10, pp. 119–131.
<https://doi.org/10.3758/BF03205114>
- Stern, Lindsay. (2020). What can bonobos teach us about the nature of language? | *Smithsonian*. Retrieved February 11, 2025, from
<https://www.smithsonianmag.com/science-nature/bonobos-teach-humans-about-nature-language-180975191/>
- Terrace, H. S. (2019). Why chimpanzees can't learn language and only humans can. *Columbia University Press*.

<https://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=2087965>

Umiker-Sebeok, Jean, and Thomas A. Sebeok. (1981). Clever hans and smart simians: The self-fulfilling prophecy and kindred methodological pitfalls.” *Anthropos*, Vol. 76, pp. 89–165.

<http://www.jstor.org/stable/40460295>. Accessed 13 Feb. 2025.

Wade, Nicholas. (1980). Does man alone have language? Apes reply in riddles, and a horse says neigh. *Science*. Vol. 208, pp. 1349-1351.

[10.1126/science.7375943](https://doi.org/10.1126/science.7375943)