

Was Neil Armstrong misquoted? Study suggests his accent could've been to blame

September 9 2016, by Ian Mcloughlin



Credit: NASA

It's one of the most famous quotes of all time. "That's one small step for man, one giant leap for mankind," were the first words NASA astronaut Neil Armstrong uttered when he set foot on the moon at 02.56 GMT on July 21 1969.

Or were they? Armstrong himself [has always insisted](#) he said "one small step for *a* man" not "one small step for man". While the former is grammatically correct and meaningful, the latter is contradictory when coupled with "mankind" in the next part of the sentence.

Try and judge for yourself by [listening to the recording](#). Most people hear "for man". Assuming that Armstrong is correct in his claim (a reasonable assumption since he was the only one there [and by all accounts an honest and trustworthy individual](#)) – the reason most of us don't hear an "a" could be due to a combination of factors including the noisy radio link, the 250,000-mile distance, the stressful situation for the speaker affecting his speaking rate and his particular [North American Midwest accent](#), where the "a" is naturally shortened and merged with the preceding word. Another factor is how our brains perceive speech. It is worth noting he also agreed the "a" was inaudible in recordings, but still maintained he had spoken it.

In 2006, [news stories](#) reported that audio analysis, including [spectrograms](#) like those used for voice prints, had found the missing "a", mysteriously hiding behind a burst of static. However subsequent [efforts by others](#) failed to substantiate this story.

Skip forward a decade, and [researchers in the US](#) have finally shed some

new light on the controversy. In some intriguing experiments published in *PLOS ONE*, the team analysed a large number of recordings of Midwestern [American speech](#), and also used a group of Midwestern listeners to investigate how the speakers said the phrases "for" and "for a" respectively – and how the listeners perceived them.

Many recordings of Ohio residents speaking both phrases were analysed, and revealed that timing statistics for both versions overlapped so much that it was very often impossible to tell them apart. This means that whichever version Armstrong actually uttered, it would probably be indistinguishable anyway.

The listeners were then presented with the recordings, including slowed down versions – because Armstrong's speech was actually spoken quite slowly. Interestingly, results showed that more people heard "for" as opposed to "for a" when the speech either side of the phrase was itself slow. This was probably because listeners expected all syllables to be lengthened proportionally, whereas the duration of the very brief "a" sound (which was relatively constant), became shorter in comparison to the lengthened syllables surrounding it.

So if Armstrong did say "for a", it's quite likely many of us would still hear it as "for" anyway, because of his accent, slow speech and unclear recording. We still don't know for certain what he said, but with these latest findings, the balance of probability now much more firmly supports his version of events.

Auditory illusions and other quirks

So does it matter? Not to Armstrong, who left the Earth for good on August 25 2012. However it certainly feels appropriate to reaffirm the legacy of someone who was a hero to so many.

It also illustrates some interesting speaking and hearing effects. Many [dialects](#) have short single-syllable words that [fuse with](#) the word before or after them when spoken and yet are highly intelligible. Or consider the Australian accent that some believe to be derived from the [heavy-drinking early settlement days as a kind of drunken drawl](#), leaving behind just the most essential parts of words. Most of us seldom speak words one-by-one anyway, and often [flow our words into one another](#) (relaxed pronunciation). Listening to accents or speakers we are familiar with, this works well, but can have amusing consequences when we listen to others.

Did you ever try to guess unclear song lyrics and get the meaning completely wrong? You are not alone. This is called a [Mondegreen](#) and turns out to be both frequent, as well as occasionally [quite hilarious](#).

It is all due to the fact the human brain is amazingly good at filling in blanks by guessing information that is missing. If the [brain does not recognise speech that it is hearing](#), it unconsciously searches for the closest match, and then "snaps" the meaning into place. We hear what the brain thinks is there, rather than what might actually be there. Auditory illusions, like optical illusions with sound, illustrate this.

For example, listen to these examples of [sinewave speech](#), which are acoustic signals from sinewaves that vary in frequency in the same pattern as speech. When first hearing SWS, we understand nothing. But listen to the original version of the speech recording, then try again. Like magic, the sinewave speech is suddenly intelligible as the brain now "hears" it as speech.

[Phantom words](#) are another illusion which arises when we hear continually repeated speech. They are the brain "grasping at straws" as it tries to extract additional meaning from the syllables being heard.

These are just a few of the exciting and fascinating aspects of [speech](#), hearing and brain research that come together in the field of [psychoacoustics](#), which has given us [MP3 music](#), [mobile phone](#) communications, and more great sounding [products](#) that literally are one giant leap ahead of 1969.

This article was originally published on [The Conversation](#). Read the [original article](#).

Source: The Conversation

Citation: Was Neil Armstrong misquoted? Study suggests his accent could've been to blame (2016, September 9) retrieved 3 May 2024 from <https://phys.org/news/2016-09-neil-armstrong-misquoted-accent-couldve.html>

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