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DEFEND YOUR RESEARCH

I Can Make Your Brain Look Like Mine

by Uri Hasson

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The finding: In good communication, a listener's brain activity actually begins to mirror the speaker's brain activity.

The study: Uri Hasson and his colleagues Greg J. Stephens and Lauren J. Silbert recorded the brain responses of a woman who was telling a story about her prom and those of people who were listening to her. Afterward, the researchers asked questions to gauge the listeners' comprehension of the story. The recordings showed that the listeners' brains started to resemble the speaker's brain, or "couple" with it. The stronger the resemblance was, the higher the listener's comprehension of the story.

The challenge: Is communication a single cognitive process shared by two brains? Can people who are great at it literally change our minds? *Professor Hasson, defend your research.*

Hasson: It's a clear and dramatic correlation. The more listeners understand what a speaker is saying, the more closely their brain responses mirror the speaker's brain responses. What's more, while normally there was a slight delay in a listener's response matching up with the speaker's, in cases of extremely high comprehension, the delay nearly disappeared. In listeners who scored highest on comprehension, brain responses sometimes preceded the speaker's.

HBR: They understood what the speaker was going to say before she said it?

We believe that our recordings showed that good, active listeners were anticipating what the speaker would say. That was exciting to see.

Or creepy.

No, it's just two tightly coupled brains communicating well. It's that feeling you get that you just click with someone. It's almost visceral. You can finish their sentences. You just know you're on the same wave. By the way, you get similarly strong feelings when you're not in sync with someone. Sometimes you can just feel it when

someone's talking and you're not getting it. Your brains aren't coupling.

But why does it matter that the brain responses become similar? What does that explain?

Speech production and speech comprehension have been studied as separate processes that occur within the boundaries of a single brain. I speak and my brain is doing one thing. You listen and your brain is doing another. This is one of the first studies to look at interactions across two brains as a single shared process. Coupling is not a result of understanding. It is the neural basis on which we understand one another. We're suggesting that communication is a single act performed by two brains.

Subjects listened to a recording of the speaker while inside an MRI machine. Can this really translate to complex, real-world communication?

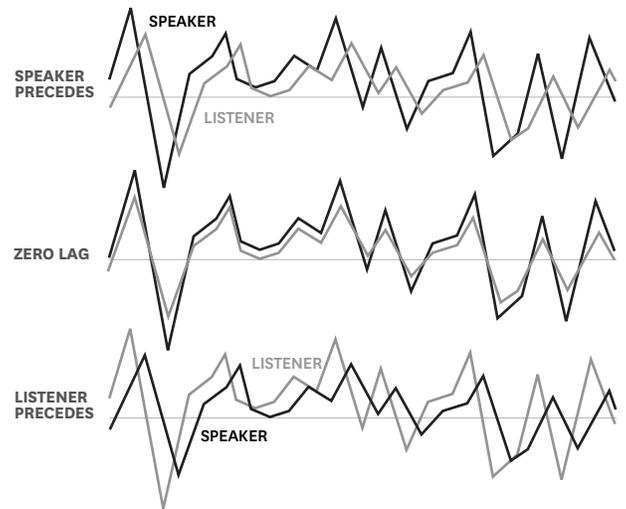
We suspect the coupling effect would be even stronger in face-to-face communication, which is enhanced by expressions and gestures. Moreover, you wouldn't have the unnatural noise distractions that you have in the MRI scanner. We did use special recording and listening equipment to eliminate some of those. And even though listeners didn't have any nonverbal cues, the coupling was widespread across all different levels of the brain's network, from low-level processing of auditory information to higher functions. Unfortunately, the state of technology doesn't allow brain responses to be measured in real-world settings yet. Someday!

So, here's the million-dollar question: Why do some people's brains couple more easily?

We don't know yet. That's what we're looking at next. Are some leaders, for example, better at coupling their brains with others'? I think of how mesmerized and engaged people are by good communicators. I saw Obama speak at a rally once, and people in the audience were captivated. Is he somehow more capable of inducing similar brain responses across all listen-

Meeting of the Minds

When brains couple, listeners' brain activity becomes similar to speakers'. The less lag, the higher the listener's comprehension of what the speaker is saying. In cases where comprehension is highest, the listener's brain activity actually precedes the speaker's. These are cases where you might say that two people "just click."



ers? What are the mechanisms that allow a listener's brain to couple or not? If you disagree with Obama's views, do you actively prevent your brain from coupling? Can I interfere with the signal? Why does miscommunication, or a lack of coupling, happen? How do children acquire the ability to couple brains? These are all questions we want to look at.

Do you think some people are born with the ability to couple their brains with others'?

There's probably a spectrum of abilities. On one end you have an autistic person who can't seem to transmit or pick up the right information to have successful brain coupling. He can't click with others. On the other end you have people who almost seem to transmit a common signal and are very easy to connect with.

Could understanding the mechanisms help us move along that continuum?

Absolutely. That's an important way ahead for us. What if we could help the autistic person click? What if we could test people's ability to transmit and receive these signals? Can we help people learn to lead better? Can we reduce miscommunication by increasing coupling?

You use terms related to wireless communications—"coupling," "wave," "signal." Do you see the brain as a kind of wireless transmitter?

That's precisely it. I'm generating a brain wave

that generates a sound wave that generates a brain wave in you. There's nothing mystical about this. It's not a Jedi mind trick. This is what communication is. It is what humans do best, and it's unique and amazing.

How?

I don't want to get too philosophical, but basically, all brains are coupled to the external world. If I sat next to you in a movie theater and someone measured our brain responses, they'd see extremely similar patterns. We couple to external stimuli in the same way because as a species, humans have similar perceptions of the external world. All monkeys' brains respond to a banana in pretty much the same way. But humans can couple brains directly, without external stimuli. I can say "elephant" and you'll comprehend what I'm saying even if there's no elephant in the room. My brain conveyed the idea of an elephant directly to your brain. Not all animals can do that. But humans can.

Honestly, this is all giving me a headache.

Our brains must be out of sync.

Uri Hasson is an assistant professor of psychology at Princeton University.

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