



Speed Listening: *An Introduction to Speech Compression*¹

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Can your ears work as fast as your eyes? Reading silently is a relatively fast way to put information into your mind. When you begin to form words with your lips, or to silently form the sounds of words in your mind, your input slows down. Why? Reading aloud, or any procedure that calls for the normal sounds of language, is relatively slow—*much* slower than the average mind is capable of processing. In this age of speed and exploding knowledge, even computers are now getting bogged down by the slowness of information input. Both the computer and the human mind are capable of more efficient processing—if only there were faster ways to input information.

A speech has impractical limits. You can *read* a speech silently in less than a fourth the time it takes the speaker to present it, and if you really try, you'll remember more from the reading.

Why do teachers take the slow way and give lectures? Why do speakers not all become writers? Perhaps the answer lies in avoidance of monotony. We like to listen as well as to read. We like to give the eyes a rest from reading just as we like, occasionally, to give the ears a rest from listening.

The *skill* of listening is not very often mentioned. This is probably because we rarely find our skills of listening seriously challenged. Truly, in certain civil aviation, military, and naval procedures where hearing skills are crucial, training is rigorous and gains in skills are phenomenal. But most of us haven't needed to push our hearing skills and consequently we remain lazy listeners. Although we are becoming a listening and watching culture, we aren't being challenged to become more skillful.

After you get "tuned in" to the sound of a particular voice—to the speaker's tone, enunciation, inflection, and pace, he can speed up his rate of delivery a bit without getting ahead of you. For example, you may or may not be aware of a rather important speed-up in my delivery since the first of this tape. Tuning in, and actually trying harder to follow along helps. But now you are limited by the fact that if I try to talk much faster I cannot speak clearly at all.

Of course, all of this assumes you really *want* to listen. The speaker always has the job of keeping your interest one way or another. It's harder to keep the attention of your *ears* than of your *eyes*. The dominance of seeing over hearing will cause a listener to not only *look* away at a distraction, but to let her *mind* wander away as well. In general, the eyes control the attention of the mind. You tend to look at a person who is talking to you in order to *hear* her better! It is not just politeness that causes people to look at one another during conversation—the "looking" helps to focus attention.

Keeping a listener's attention is an especially serious problem with recorded speech. I cannot see you and you cannot see me as you listen to these words. Thus, your eyes will wander and your mind will follow.

A new procedure in processing recorded speech called "compressed speech" is based, in part, on the idea that recordings of speech might hold your attention better if they were more challenging. Maybe recorded speech is dull because it is too *easy* to listen to. An intriguing possibility!

"Rate of hearing" is an informal term we can apply to the quickness—the responsiveness—of perceptions of oral speech. Our "rate of hearing" is conditioned by the sounds of normal speech. This rate is usually limited, *not* by the brain's processing capability but by the acoustic limitations and

¹Tape-script of a demonstration tape. Regional Instructional Materials Center for Handicapped Children and Youth, USOE/Michigan State University, Dissemination Document #15, 1969.

speech productions of the non-mental processes. In other words, the more confused the sounds around us, the slower our rate of hearing. Further, the relatively slow responses of speech-making mechanisms in the lips, throat, and tongue, put a rather tight ceiling on the upper limits to which we can push our “rate of hearing.”—Until *now*!

“Compressed speech” holds much promise as a way to train ourselves to improve our “rate of hearing.” Exactly what is “compressed speech?”

To find the answer, we must begin with an older procedure for speeding up recorded sounds, because then we can be sure not to confuse “compressed” speech with speeded-up recordings.

Merely speeding up a recording produces a Donald Duck effect, also known as the “chipmunk chirp.” When a tape or disc is played at twice the speed it was recorded, it produces a sound one octave higher and one-half the time duration. Most hearers cannot accept this much distortion. And so the chipmunk-type recordings are made by speaking very slowly while making the original recording, so that the natural pace of the speech is maintained; the remaining effect results from the octave-raising of the pitch.

Compressed speech is a new technique, very different from the “chipmunk chirp.” Speech compressor units are elaborate electronic devices. They use computers or computer-like procedures to remove tiny bits of sound—micro-seconds—on a very high-speed calculated schedule, thus reducing the overall time required to produce a sound but without affecting the pitch, tone, and inflection.

The effect is a speed-up and an apparent increase in the preciseness of the speech. You are startled when you first encounter this odd-sounding procedure, but the early experiments are very promising that almost anyone can learn to listen attentively to compressed speech and attain much-improved hearing rates.



The future of compressed speech looks very promising, indeed. It offers a way to produce materials inexpensively that have all the values and convenience of conventional recordings of speech, but can, at the same time, be a great timesaver for the listener.

Existing tapes and discs, recorded in the standard and old-fashioned ways, can be electro-mechanically compressed. The tape you are now hearing, for example, began as a standard-speed tape recording of a speech made with ordinary recording equipment.

For the student or the professional who must read vast quantities of material each day, eye fatigue can be a serious problem. Yet the scan-speed of such reading is much, much faster than ordinary spoken language. *Compressed* speech, however, can offer a substitute or partial substitute—relieving eye strain without significantly slowing the process of information acquisition.

For non-readers or illiterate persons, as well as for the blind, the compressed-speech technique offers a most important hope of rapid information input. We are at the threshold of a new era of communication.

In order to test your comprehension of this recording, consider these questions:

1. Is the eye or the ear more apt to control the center of attention?
2. What accounts for the rate difference between the eye and the ear?
3. What are some advantages of compressed speech?
4. What are some disadvantages and limitations of compressed speech?

Take a few minutes to talk over these questions and to discuss ways to improve rate of hearing.