Typically, performance in almost any audio-visual task is enhanced when the auditory and visual stimuli are close together in time and space (cf. Calvert, Spence, & Stein, 2004).

Thought to underly this enhanced performance are the overlapping receptive fields of multisensory cells in the superior colliculus (cf. Stein & Stanford, 2008).

Driver (1996) reported data, unique in the literature, where performance in a difficult audio-visual shadowing task was improved when the sound source was displaced from the talker (highlighted row in Table).

Despite being widely cited (>228 citations) there are almost no published replications of the effect.

Driver presented 12 participants with 112 word triplets, all in the same female voice which were carefully synchronised to the lip movements in a video of the talker.

Half the triplets matched the talker’s lip movements, half did not.

The participant’s task was to shadow the words that matched the lip movements, and ignore the other words.

On half the trials all the spoken words were presented from the speaker under the active video monitor, on the other half the sound and visual stimuli were displaced (28°).

In all successful replications, participants reported a strong ventriloquist effect. Driver asserted the advantage in shadowing words in the displaced condition was a consequence of the ventriloquist effect producing an illusory spatial separation between the target and distractor words.

In 15 unpublished experiments from other laboratories, 2 successful replications.

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The stimuli were digital recordings of 480 words.

Replications

Experiments 1 & 2 replicated Driver’s original study but with slight (unplanned) changes to the room configuration between experiments.

Experiment 3 was conducted in a larger room with the visual stimuli presented via a projector.

Experiment 4 attempted to remove specific room effects and used headphones and generic Head Related Transfer Functions (HRTF) to manipulate the apparent sound source.

Simplified responding and memory requirements

Experiment 5 simplified the presentation to word pairs (target + distractor) to decrease memory load.

Experiment 6 simplified the response to a multiple choice task and presented the words in triplets as in all experiments other than Experiment 5.

Enhancing the ventriloquist illusion

Experiment 7 was designed to optimise the ventriloquist effect. Driver asserted the advantage in shadowing words in the displaced condition was a consequence of the ventriloquist effect producing an illusory spatial separation between the target and distractor words.

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**References**

