Syntactic priming facilitates processing of previously encountered structures. The effects are well documented in both language comprehension and production (1), but under different conditions. Syntactic priming in comprehension is typically found when the verbs are the same in primes and targets, but in production priming is readily observed without verb overlap (2). The difference is theoretically important, implying lexically-driven parsing in comprehension and structurally-driven formulation in production. Alternatively, the disparity may stem from variations in the paradigms and sentence structures so far examined. To address the question, we assessed syntactic priming in both modalities using the same speakers, prime presentation technique, and materials, including the structures commonly used in comprehension and production paradigms.

For both modalities, prime trials consisted of sentences presented with RSVP at 100 ms per word, followed by a digit distractor task (3,4). On production trials, the word “Repeat” then appeared, prompting participants to repeat the sentence aloud. On comprehension trials, the word “Read” cued participants to read the sentence using self-paced moving-window presentation. Afterwards, a “same/different” question asked whether participants thought what they said or read was the same as the initially presented sentence. Target trials were identical to prime trials except for the sentences presented, and were in the same modality. Experimental stimuli were datives (prepositional and double-object) and transitives (main and reduced relative clauses). Targets were primed (same structure in prime and target) or unprimed (different structures in prime and target). Targets and primes shared verbs on half of the trials and on half they did not. Modality, priming, and verb overlap were counterbalanced for each participant.

Production targets were scored for the structures produced on prime and target trials (retaining only trials with correctly repeated primes, and targets produced in one of the two relevant structures). Responses were categorized as preserving or changing the primed structure. For comprehension targets, reading times were calculated for the critical region of the sentences (the phrase following the initial verb). The data from each modality (n=128) were analyzed using multi-level models. In production, participants were more likely to produce primed than unprimed structures, yielding predicted probabilities of primed structures that were significant for datives and transitives (p<0.01), with no significant contribution from verb overlap. In comprehension, participants read the critical regions of sentences faster when the structures were primed than when they were not, yielding a significant effect of priming (p<.05) but not verb overlap on reading times.

To directly compare priming in comprehension and production, standardized scores for each item in the primed and unprimed conditions were computed within each modality. MLM analysis of the z-scores revealed a significant effect of priming (p < 0.001), without significant effects of or interactions with modality. This suggests that modality mattered negligibly to the strength of priming.

The results imply that when the contributions of structures and priming tasks are minimized, syntactic priming is similar in comprehension and production. This argues for uniformity of priming mechanisms across modalities.
Example Stimuli (critical region in **bold**):

a) The charity shipped **some coats** to the homeless shelter. (prepositional object dative)
b) The charity shipped **the homeless shelter** some coats. (double-object dative)
c) The nanny scrubbed **the girl** who was filthy. (main clause transitive)
d) The girl scrubbed **by her nanny** was filthy. (reduced-relative clause transitive)

References