The effect of extra-sentential context on Speech to Discrete Unit Translation

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Abstract

Contextual information, possibly from previous sentences, is well known to be useful during translation, for resolving ambiguity or translating obscure words. This has been successfully exploited by textual machine translation, and similar success has recently been found in direct speech-to-text translation. More end-to-end speech-to-speech translation is yet to take advantage of these extra-sentential context clues, and it is not clear how well existing methods might apply. This work shows that extra-sentential context can be usefully incorporated into direct speech-to-speech translation, using a method called speech-to-unit translation (S2UT), and a crucial tool for reducing redundancy in the speech input, Adaptive Feature Selection. Results show that S2UT is sensitive to training data choices and parameter choices, but despite that sensitivity, incorporating extra-sentential context yields improvements of up to +5.4 Bleu score over the S2UT baseline.

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