

# 1 MSCOCO part of speech analysis

2 The distributions on Figure 1 generated on MSCOCO Image Captioning dataset demonstrate that,  
 3 unlike for translation task, conjunctions are not produced in the beginning of generation, as they  
 4 can no longer be copied from the source, but rather depend on the currently generated sequence.  
 5 Adjectives and adverbs are now mostly produced in the end of generation as a further refinement.  
 6 The adjectives and adverbs are hard to generate first based on the image alone, because it is hard to  
 7 tell in advance what aspects of the image the model will describe in the generated sentence.

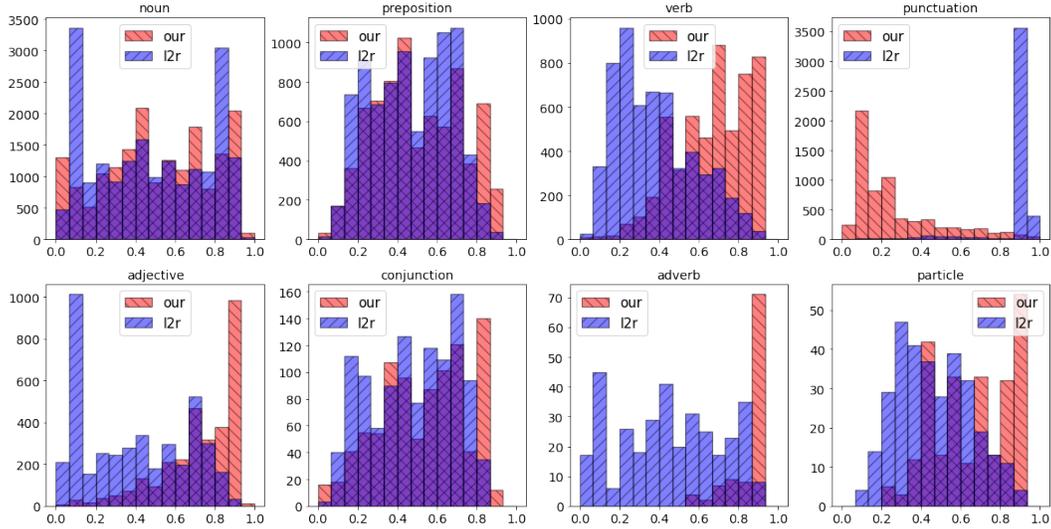


Figure 1: The distributions of the relative generation order of different parts of speech on MSCOCO data set.

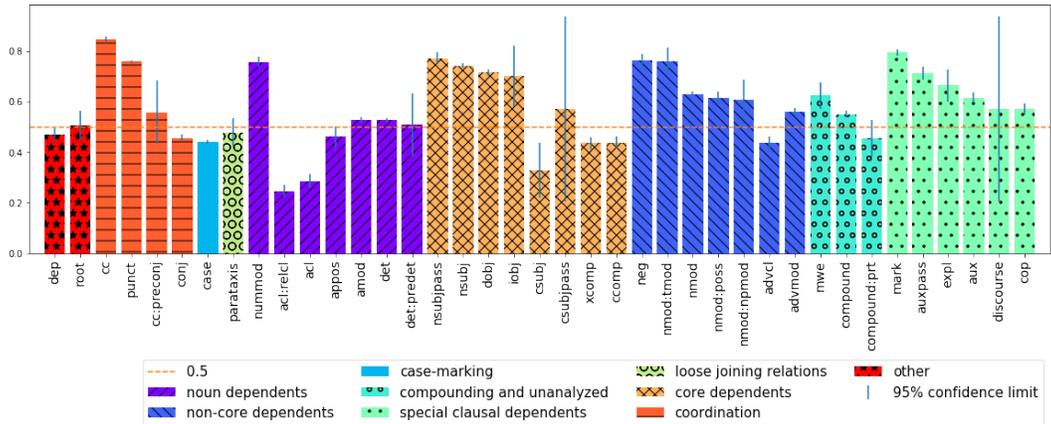


Figure 2: Learned order dependency inversion fractions for several dependency types. The full dependency taxonomy is available on universal dependencies website: <https://universaldependencies.org/docs/en/dep/>.

## 8 2 Decoding examples

and death is part of everyday life .  
and death is part of everyday life .

Figure 3: Example of Ru-En decoding order.

the army faces mounting pressure on rape advocates  
the army faces mounting pressure on rape advocates

Figure 4: Example of Ru-En decoding order.

the study was conducted among 900 children .  
the study was conducted among 900 children .

Figure 5: Example of Ru-En decoding order.

some stories tell about honor and courage .  
some stories tell about honor and courage .

Figure 6: Example of Ru-En decoding order.

the costs will make millions of euros .  
the costs will make millions of euros .

Figure 7: Example of Ru-En decoding order.

the study was conducted among 900 children .  
the study was conducted among 900 children .

Figure 8: Example of Ru-En decoding order.

a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .  
a kitchen with a lot of stuff on the counter .

Figure 9: Example of MSCOCO decoding order.



