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1 Question 1

As discussed in these slides, the greedy decoding is highly sub-optimal, though being computationally efficient. However, finding an exact optimal solution is too expensive. We could maybe think of other heuristic decoding strategy. The slides propose to explore different solutions and to pick the most suitable one.

2 Question 2

The translations coming from pretrainedmoodle.pt do not make any sense. Words are not link and are often repeated. For example: **She is so mean -¿ elle elle elle . elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle elle**. I don't know how to explain these issues neither do I know how your model was trained.
The translations coming from my trained model are more coherent. The major issue I found is that the model tends to never end the sentences. It tends to repeat the last words. For example: **This river is full of fish. -¿ cette rivière est pleine de poisson poisson . poisson . poisson . poisson . poisson . poisson . poisson . poisson . poisson . poisson . poisson . poisson .** Or : **I have a red car. -¿ j ai une voiture voiture . ¡EOS¿** On more complex sentences, I observe that the model is successful at the being but is being quickly overwhelmed by the rest of the sentence, whose sense is clearly not grasped. Example : **The cat fell asleep in front of the fireplace -¿ le chat est endormi devant la la cause tous cause la cause la cause la cause la cause la cause la cause la cause la cause la cause la cause**
As simple fixes, I would firstly transform the unidirectional RNN of the encoder as a bidirectional RNN, so as to be able to entirely translate the context of the sentence. More precisely, the encoder hidden states would be more precise and would be contexts of the entire sentence and not only of the previous nth words (which may be the main reason why the models are unsuccessful – it focuses on the beginning of the sentences).

3 Question 3

You can find my contribution at the end of my notebook. On Fig. 1, you can find a good example of words inversion. The 'did not' translates to 'ne ai', we observe an inversion of the word meaning. You can find the other sentence at the end of my notebook.

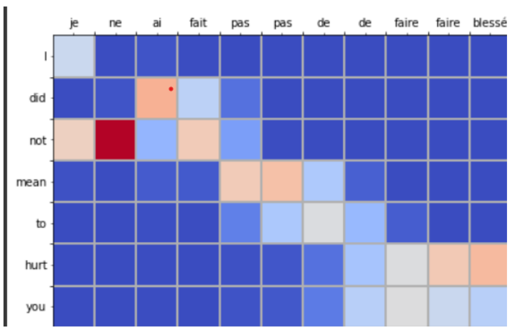

Figure 1: Attention weights.

4 Question 4

The pretrained model don't translate both sentences in the right way. However, my model should be able to translate both words according to the context given by the sentence they are in. 'Mean' in these sentences can either mean 'méchant' or 'blesser'. It is well known that transformers models - as they are able to grasp the context surrounding words - are able to successfully deal with polysemous words.
And indeed, it worked well in grasping the context.

She is so mean -¿ elle est tellement impossible .
And **I did not mean to hurt you -¿ je ne ai fait pas pas de de faire faire blessé blessé de blessé blessé de blessé blessé de blessé blessé de blessé blessé de blessé blessé de blessé blessé** .
Here, 'mean' had a different meaning in each sentence, this meaning was well handled by the modle (blessé and impossible (dans le sens, impossible à vivre)).

References