1. A Transformer Network, like its predecessors RNNs, GRUs and LSTMs, can process information one word at a time. (Sequential architecture). **1 / 1 point**

● False

○ True

✓ **Correct**
Correct! A Transformer Network can ingest entire sentences all at the same time.

2. Transformer Network methodology is taken from: (Check all that apply) **1 / 1 point**

☑ Convolutional Neural Network style of processing.

✓ **Correct**

☑ Attention mechanism.

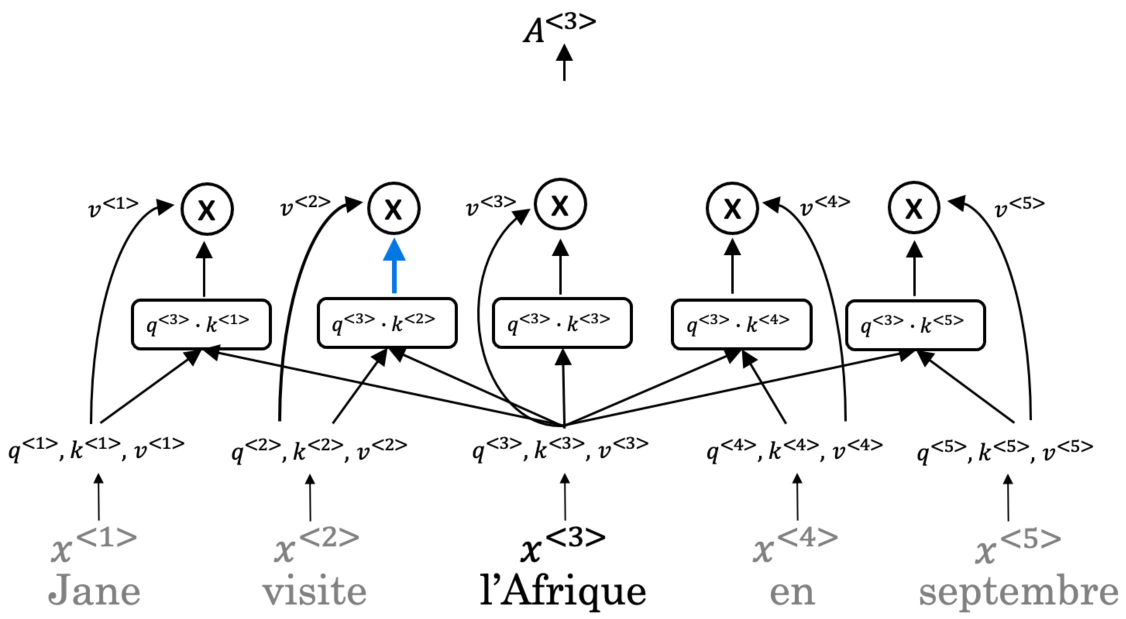
✓ **Correct**

□ None of these.

□ Convolutional Neural Network style of architecture.

3. **1 / 1 point**

The concept of *Self-Attention* is that:



○ Given a word, its neighbouring words are used to compute its context by selecting the lowest of those word values to map the Attention related to that given word.

○ Given a word, its neighbouring words are used to compute its context by taking the average of those word values to map the Attention related to that given word.

● Given a word, its neighbouring words are used to compute its context by summing up the word values to map the Attention related to that given word.

○ Given a word, its neighbouring words are used to compute its context by selecting the highest of those word values to map the Attention related to that given word.

✓ **Correct**

4. Which of the following correctly represents *Attention ?* **1 / 1 point**

● $Attention(Q, K, V) = softmax(\frac{QK^T}{\sqrt{d_k}})V$

○ $Attention(Q, K, V) = min(\frac{QV^T}{\sqrt{dk}})K$

○ $Attention(Q, K, V) = softmax(\frac{QV^T}{\sqrt{dk}})K$

○ $Attention(Q, K, V) = min(\frac{QK^T}{\sqrt{dk}})V$

✓ **Correct**

5. Are the following statements true regarding Query (Q), Key (K) and Value (V) ? **1 / 1 point**

Q = interesting questions about the words in a sentence

K = specific representations of words given a Q

V = qualities of words given a Q

● False

○ True

✓ **Correct**

Correct! Q = interesting questions about the words in a sentence, K = qualities of words given a Q, V = specific representations of words given a Q

6. $$\boldsymbol{Attention(W_i^Q Q, W_i^K K, W_i^V V)}$$ **1 / 1 point**

$i$ here represents the computed attention weight matrix associated with the $ith$ “word” in a sentence.

● False

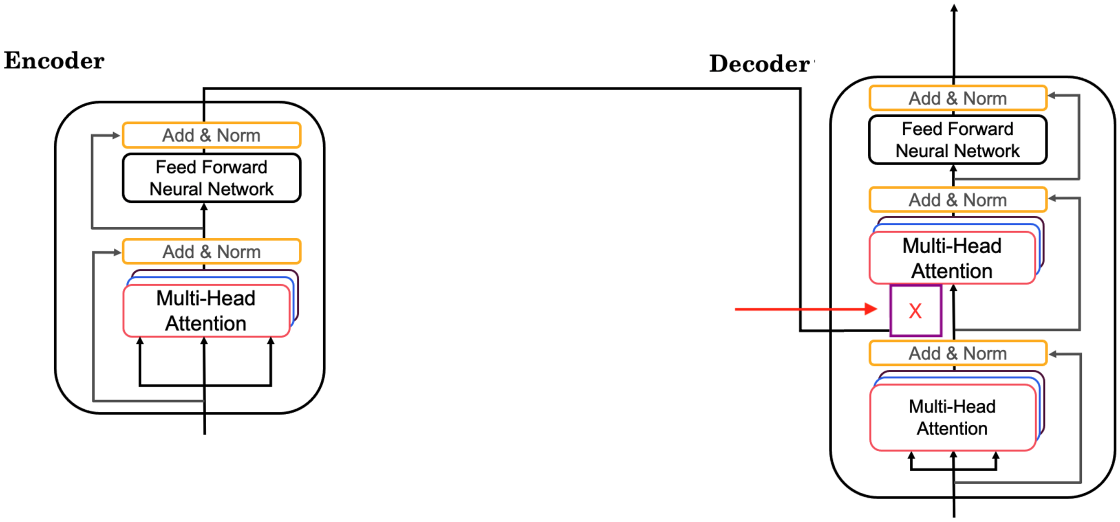
○ True

✓ **Correct**

Correct! $i$ here represents the computed attention weight matrix associated with the $ith$ "head" (sequence).

7. Following is the architecture within a Transformer Network. ***(without displaying positional encoding and output layers(s))***

**1 / 1 point**



What information does the *Decoder* take from the *Encoder* for its second block of *Multi-Head Attention*? (Marked $X$, pointed by the independent arrow)

(Check all that apply)

□ Q

☑ V

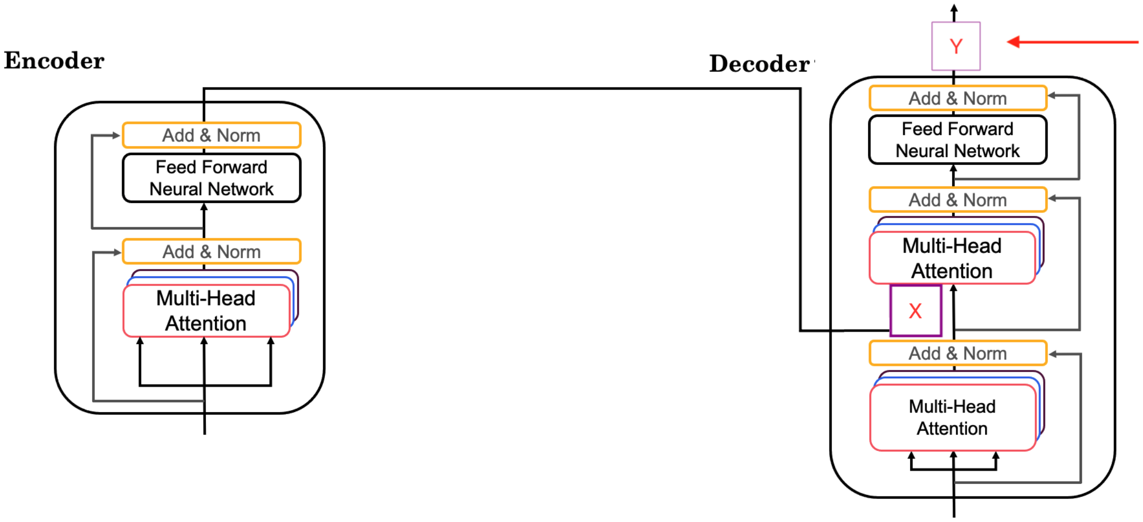
✓ **Correct**

☑ K

✓ **Correct**

8. Following is the architecture within a Transformer Network. ***(without displaying positional encoding and output layers(s))***

**1 / 1 point**



What is the output layer(s) of the *Decoder*? (Marked $Y$, pointed by the independent arrow)

○ Softmax layer followed by a linear layer.

● Linear layer followed by a softmax layer.

○ Linear layer

○ Softmax layer

✓

✓ **Correct**

9. Why is positional encoding important in the translation process? (Check all that apply) **1 / 1 point**

☑ Position and word order are essential in sentence construction of any language.

✓ **Correct**

□ It helps to locate every word within a sentence.

□ It is used in CNN and works well there.

☑ Providing extra information to our model.

✓ **Correct**

10. Which of these is a good criteria for a good positionial encoding algorithm? **1 / 1 point**

☑ It should output a unique encoding for each time-step (word’s position in a sentence).

✓ **Correct**

☑ Distance between any two time-steps should be consistent for all sentence lengths.

✓ **Correct**

☑ The algorithm should be able to generalize to longer sentences.

✓ **Correct**

□ None of the these.