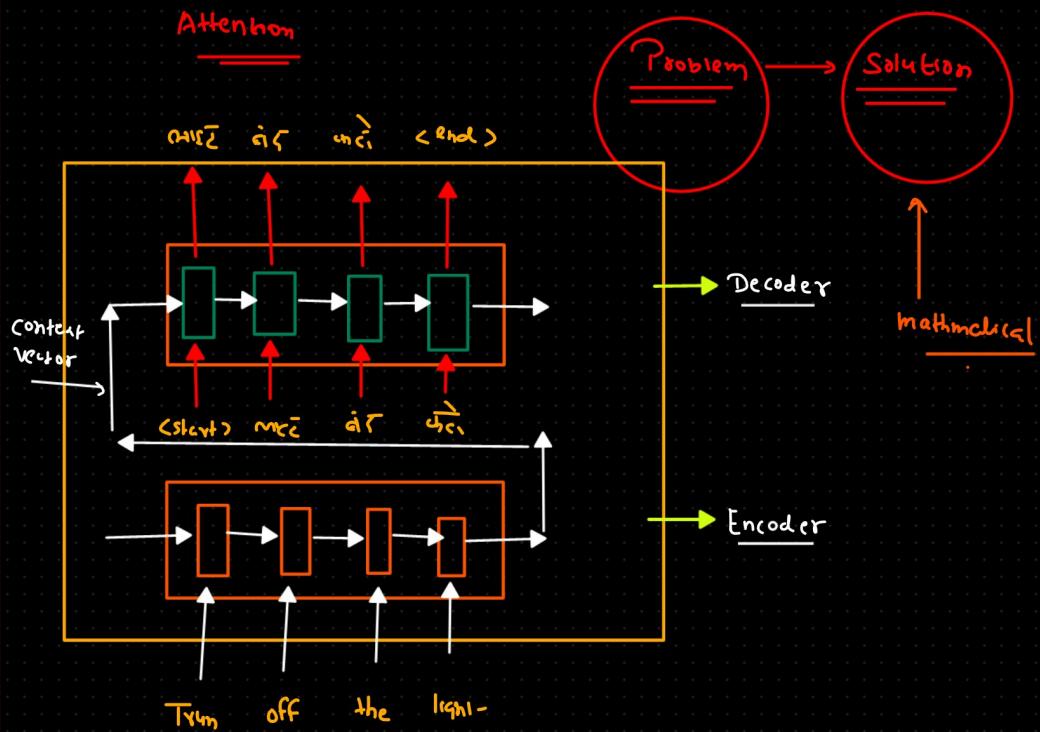


## Encoder-decoder

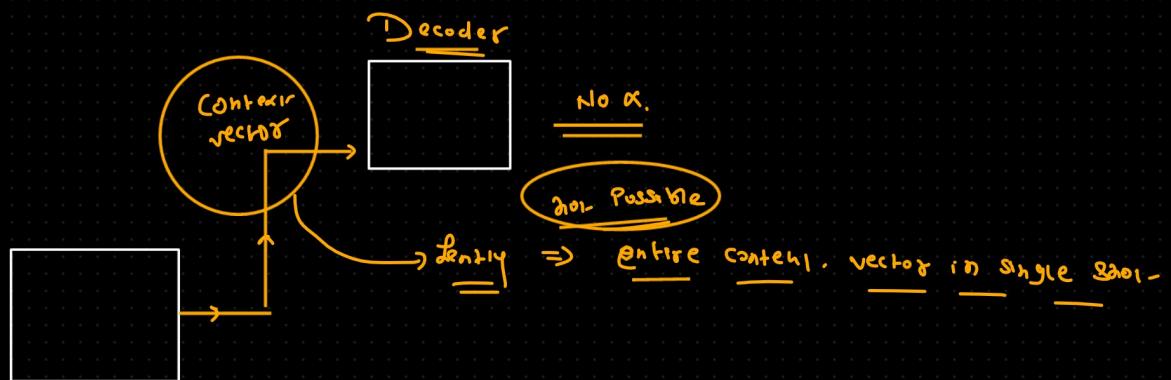
### Attention



Data science is an interdisciplinary academic field[1] that uses statistics, scientific computing, scientific methods, processes, algorithms and systems to extract or extrapolate knowledge and insights from potentially noisy, structured, or unstructured data.[2]

Data science also integrates domain knowledge from the underlying application domain (e.g., natural sciences, information technology, and medicine).[3] Data science is multifaceted and can be described as a science, a research paradigm, a research method, a discipline, a workflow, and a profession.[4]

Data science is a "concept to unify statistics, data analysis, informatics, and their related methods" to "understand and analyze actual phenomena" with data.[5] It uses techniques and theories drawn from many fields within the context of mathematics, statistics, computer science, information science, and domain knowledge.[6] However, data science is different from computer science and information science. Turing Award winner Jim Gray imagined data science as a "fourth paradigm" of science (empirical, theoretical, computational, and now data-driven) and asserted that "everything about science is changing because of the impact of information technology" and the data deluge.[7][8]

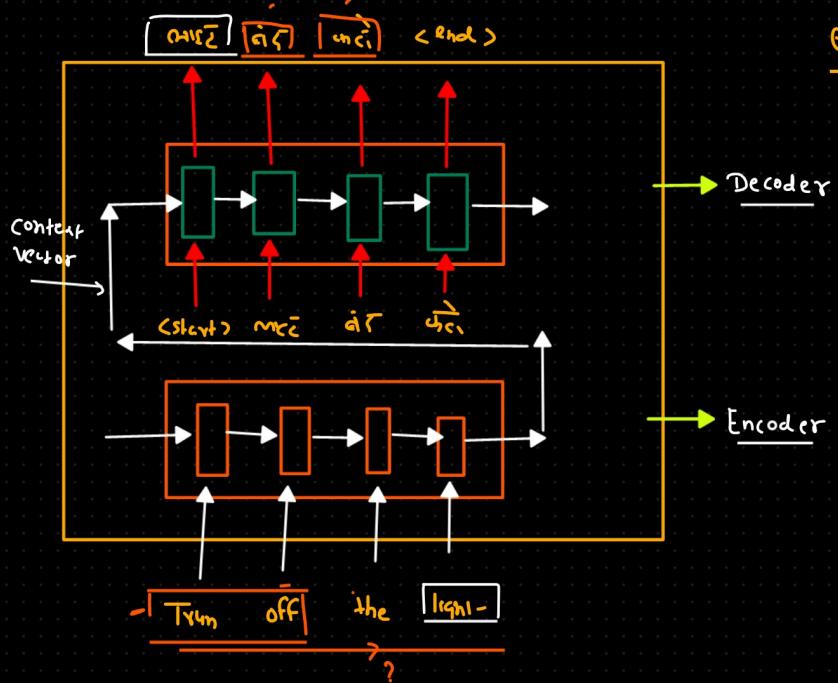
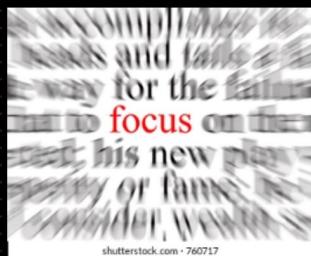


Problem statements  $\Rightarrow$  we cannot translate longer sentences

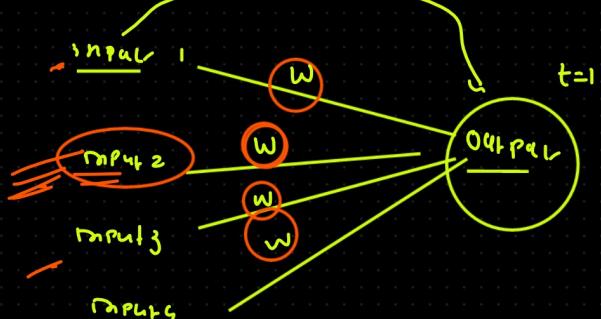
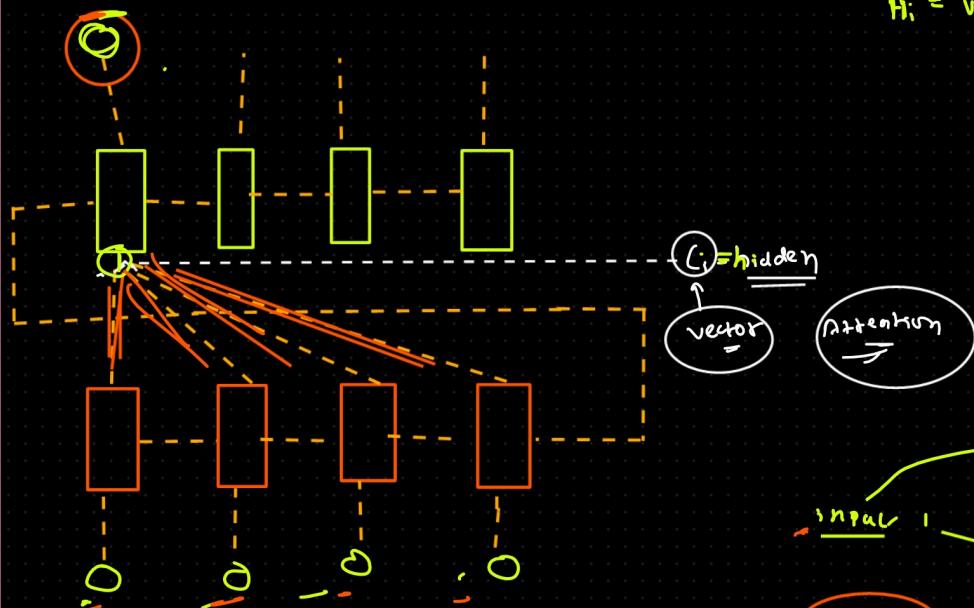
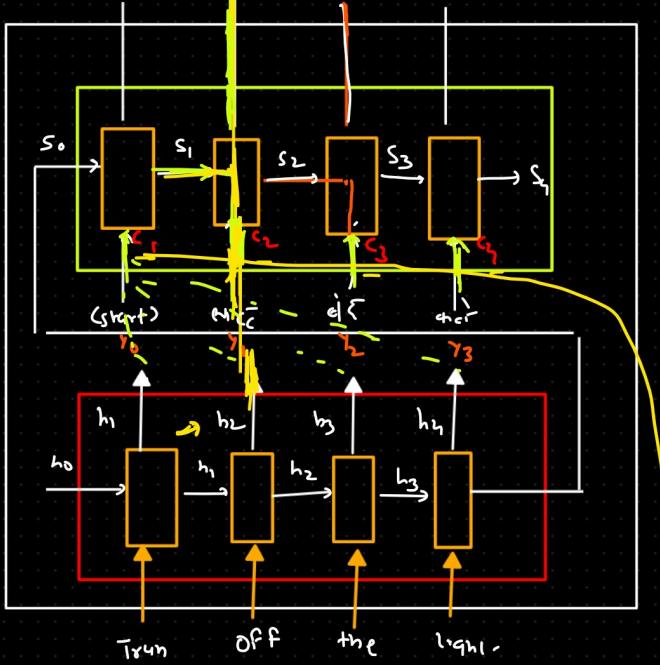
= Attention  $\Rightarrow$  Real time human understanding  $\xrightarrow{\text{Focus}}$  Focus / blur

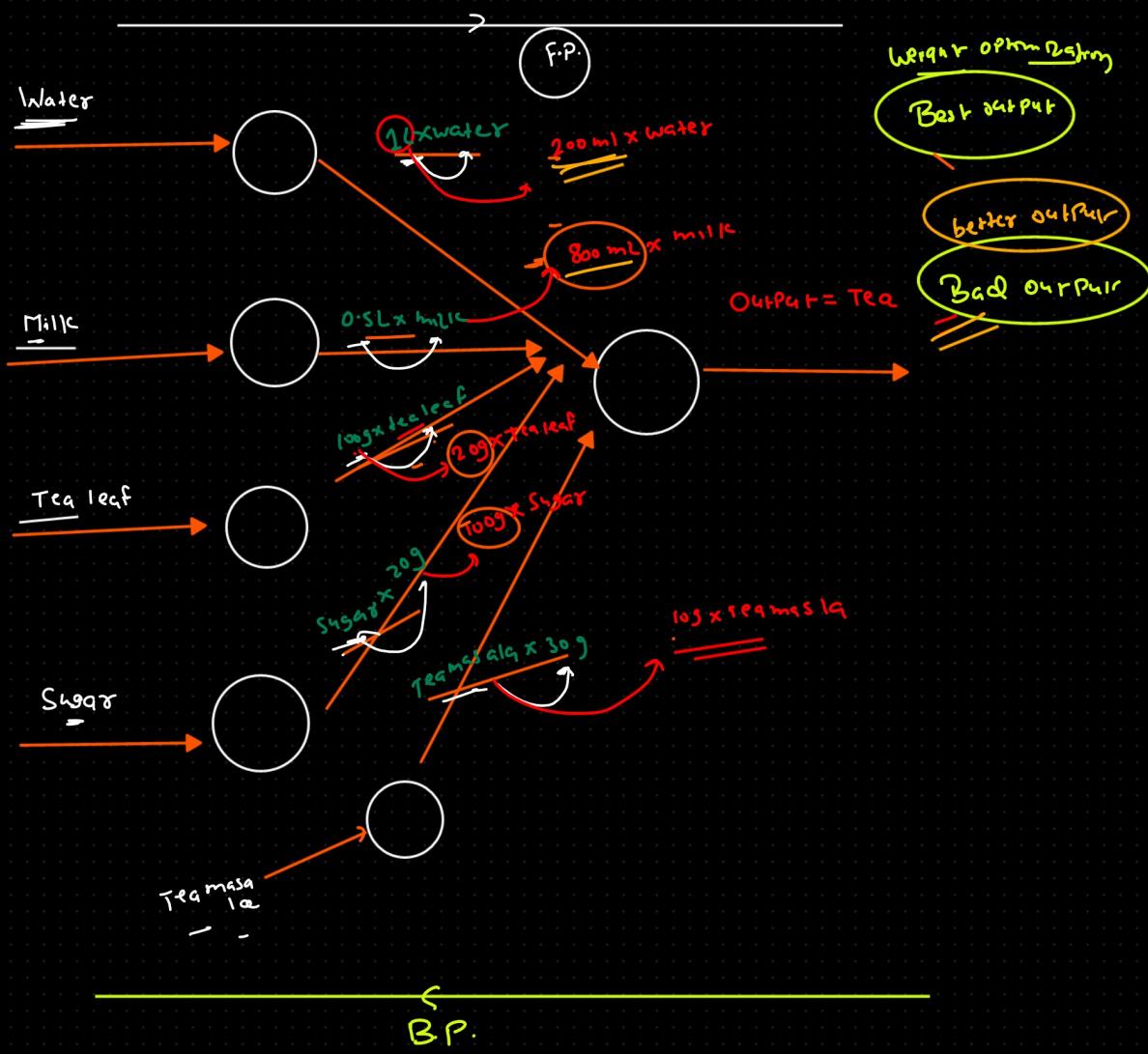
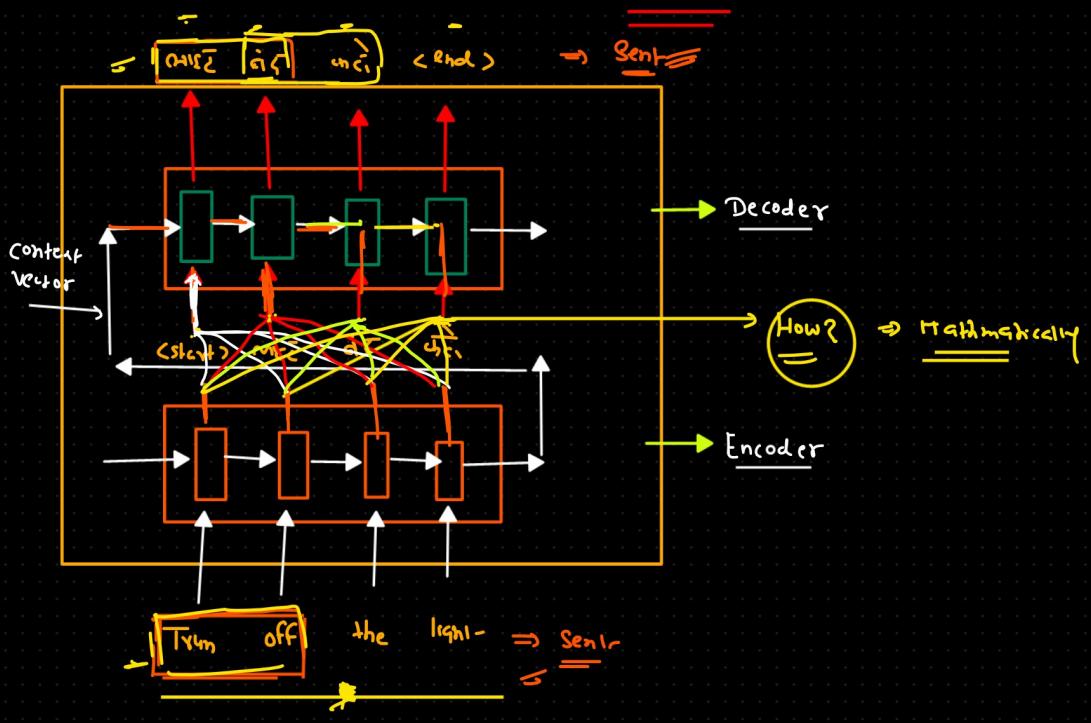
Focus Data mining is a particular data analysis technique that focuses on statistical modeling and knowledge discovery for predictive rather than purely descriptive purposes, while business intelligence covers data analysis that relies heavily on aggregation, focusing mainly on business information.[4] In statistical applications, data analysis can be divided into descriptive statistics, exploratory data analysis (EDA), and confirmatory data analysis (CDA).[5] EDA focuses on discovering new features in the data while CDA focuses on confirming or falsifying existing hypotheses.[6][7] Predictive analytics focuses on the application of statistical models for predictive forecasting or classification, while text analytics applies statistical, linguistic, and structural techniques to extract and classify information from textual sources, a species of unstructured data. All of the above are varieties of data analysis.[8]

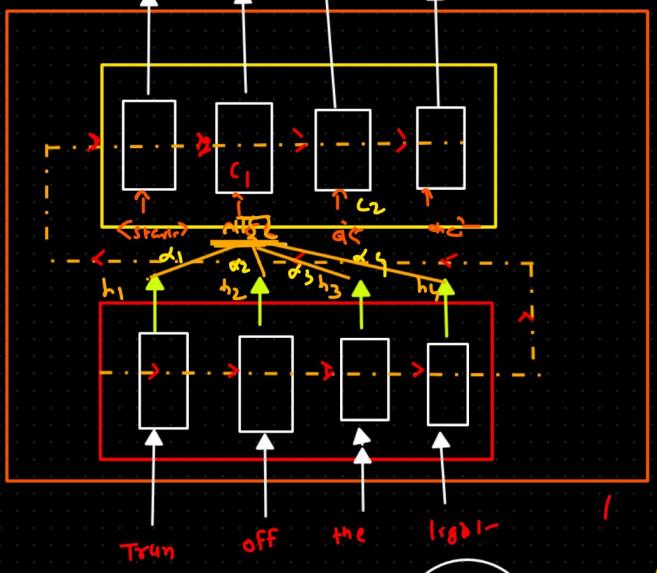
Focus  $\Rightarrow$  Whatever part we are reading we are focusing on that.  
Blur  $\Rightarrow$  Rest part will be blur  
 ↴  
Mathematically



Example  $\Rightarrow \{ \text{Doesn't Required entire scene} \}$







Here my end goal to find out a weight

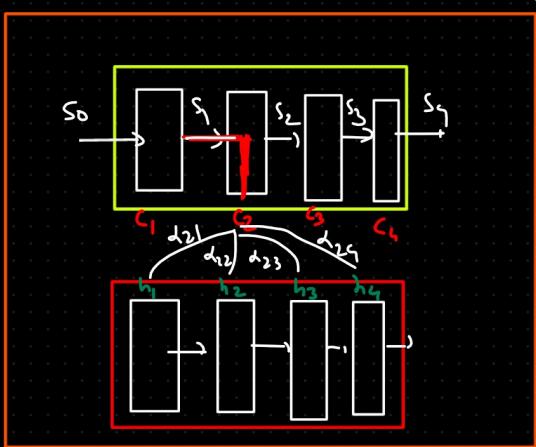
$$c_1 = \alpha_{11} \cdot h_1 + \alpha_{12} \cdot h_2 + \alpha_{13} \cdot h_3 + \alpha_{14} \cdot h_4$$

$$\alpha = \text{Weight}$$

$$c_2 = \alpha_{21} \cdot h_1 + \alpha_{22} \cdot h_2 + \alpha_{23} \cdot h_3 + \alpha_{24} \cdot h_4$$

$$c_i = \sum \alpha_i \cdot h_i$$

Find out ..



$$c_i = \alpha_{ij} \cdot h_i$$

$$\alpha_{21}$$

Previous hidden state of Decoder

$h_{t-1}$

$$\alpha_{21} \rightarrow f(h_{t-1}, s_1)$$

$$\alpha_{1j} \rightarrow f(h_j, s_{i-1})$$

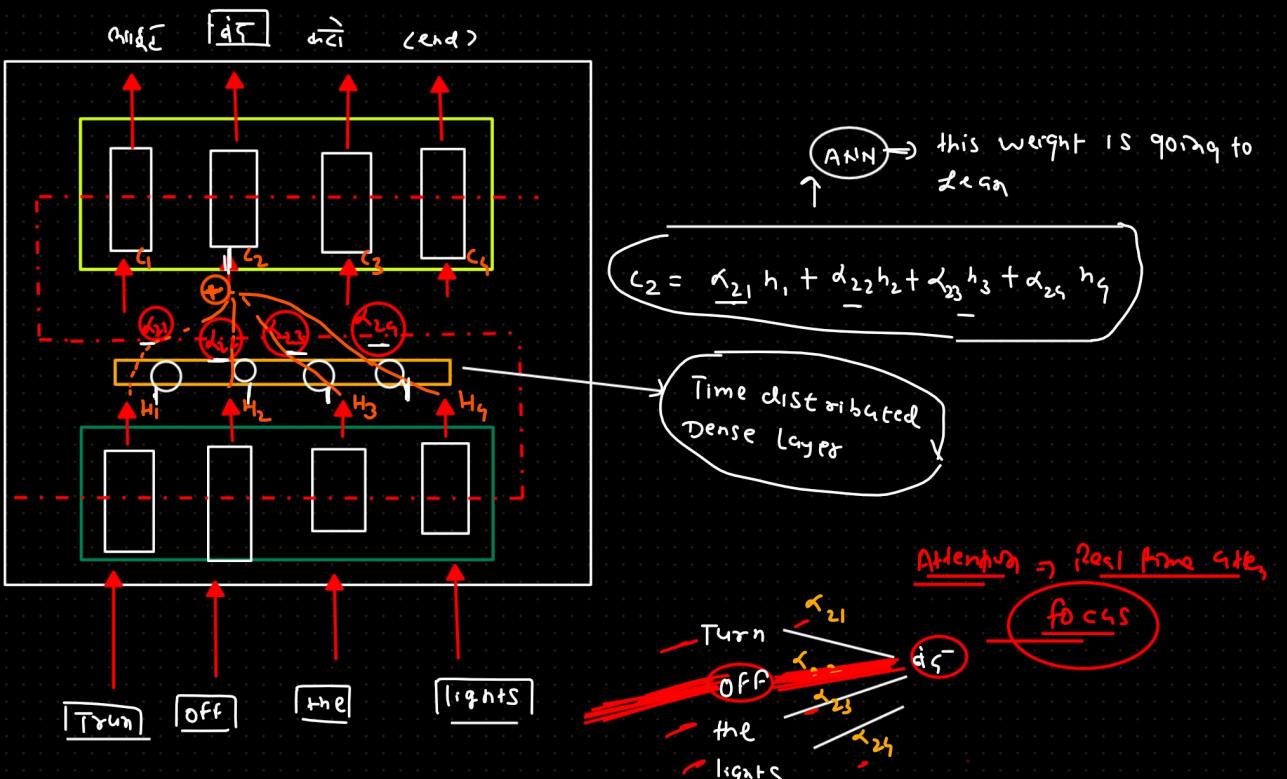
optimization

ANN

↳ Attention layer  $\rightarrow$  ANN  $\rightarrow$  to Find our all weight between input and output

$$H \rightarrow (\underline{s}, \underline{h}) \rightarrow C \rightarrow O$$

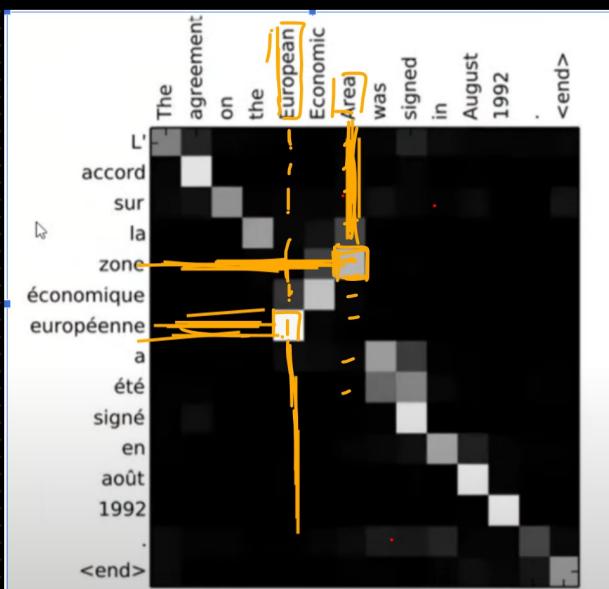
$\uparrow$   
Weight  $\Rightarrow$  ANN



RNN

Bi-Directional RNN

Weight  
Heatmap

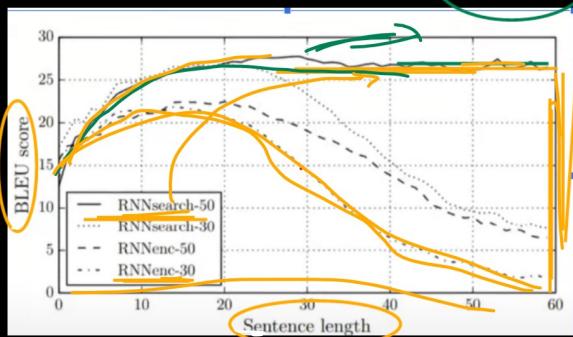


turn off the lights  
 $\alpha_{11} \alpha_{12} \alpha_{13} \alpha_{14}$   
 $\alpha_{21} \alpha_{22} \alpha_{23} \alpha_{24}$   
 $\alpha_{31} \alpha_{32} \alpha_{33} \alpha_{34}$   
 $\alpha_{41} \alpha_{42} \alpha_{43} \alpha_{44}$

Focus  
Blur

Real human learning

higher



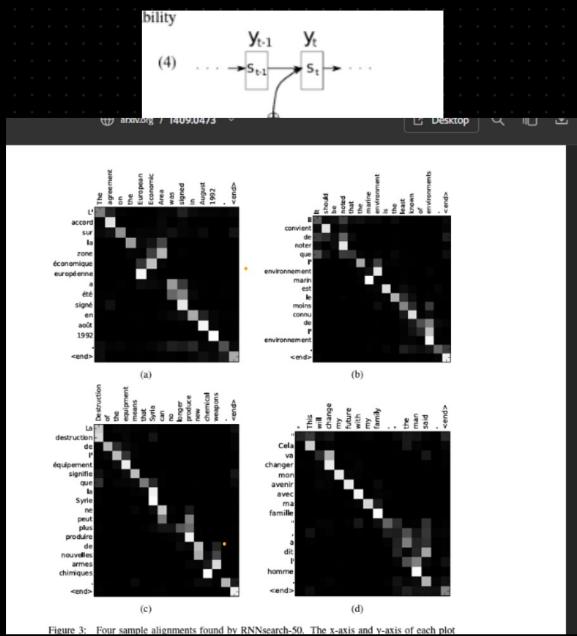


Figure 3: Four sample alignments found by RNNsearch-50. The x-axis and y-axis of each plot

Transform, Berr, 9A-

## Projects