

UNDERSTANDING EMPATHY EXPRESSED IN TEXT-BASED MENTAL HEALTH SUPPORT



BACKGROUND

APPROXIMATELY **20% OF PEOPLE WORLDWIDE** ARE
SUFFERING FROM A MENTAL HEALTH DISORDER.

(HOLMES ET AL., 2018)

MILLIONS OF PEOPLE ARE TURNING TO TEXT-BASED
PEER SUPPORT PLATFORMS.



HOW TO MEASURE EMPATHY?

EPITOME

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**EMOTIONAL
REACTIONS**



INTERPRETATIONS



EXPLORATIONS

OUTCOMES



- (0) peers not expressing them at all (no communication)
- (1) peers expressing them to some weak degree (weak communication)
- (2) peers expressing them strongly (strong communication)

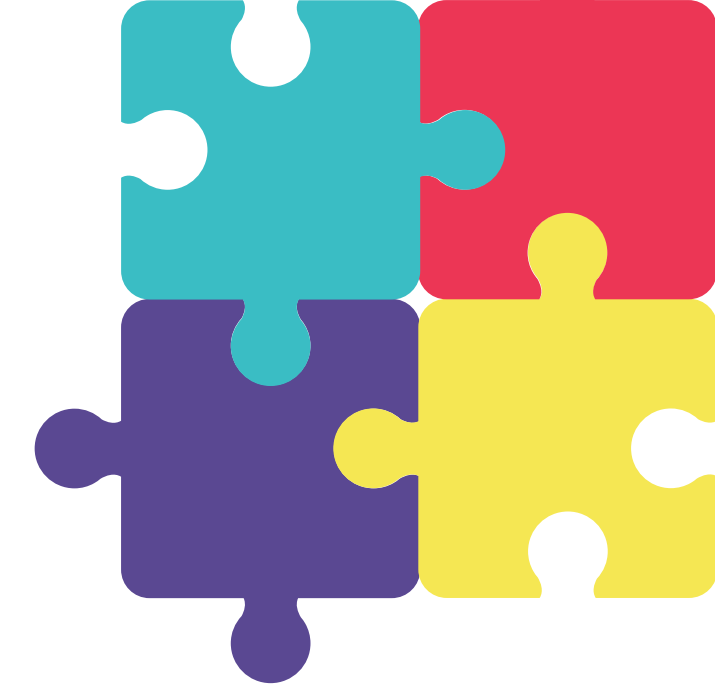
DATA

- TALKLIFE
- MENTAL HEALTH
SUBREDDITS
- CROWDWORKERS
RECRUITING AND
TRAINING



10,143 ROWS OF DATA

MODEL



Let $\mathbf{S}_i = s_{i1}, \dots, s_{im}$ be a seeker post

and $\mathbf{R}_i = r_{i1}, \dots, r_{in}$ be a corresponding response post.

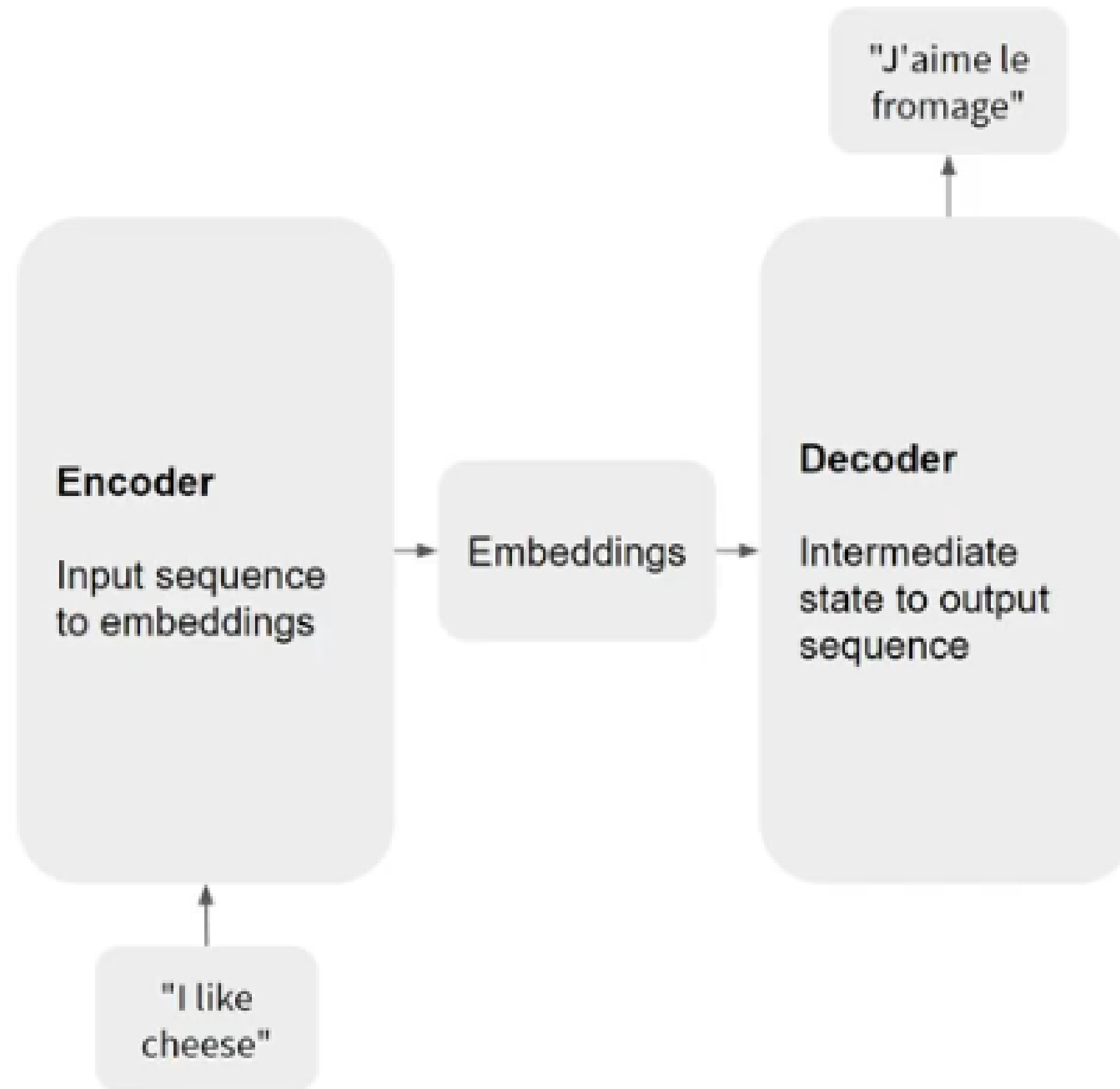
- **EMPATHY IDENTIFICATION** Identify how empathic \mathbf{R}_i is in the context of \mathbf{S}_i .
- **RATIONALE EXTRACTION** Extract rationales underlying the identified level l_i

ROBERTA

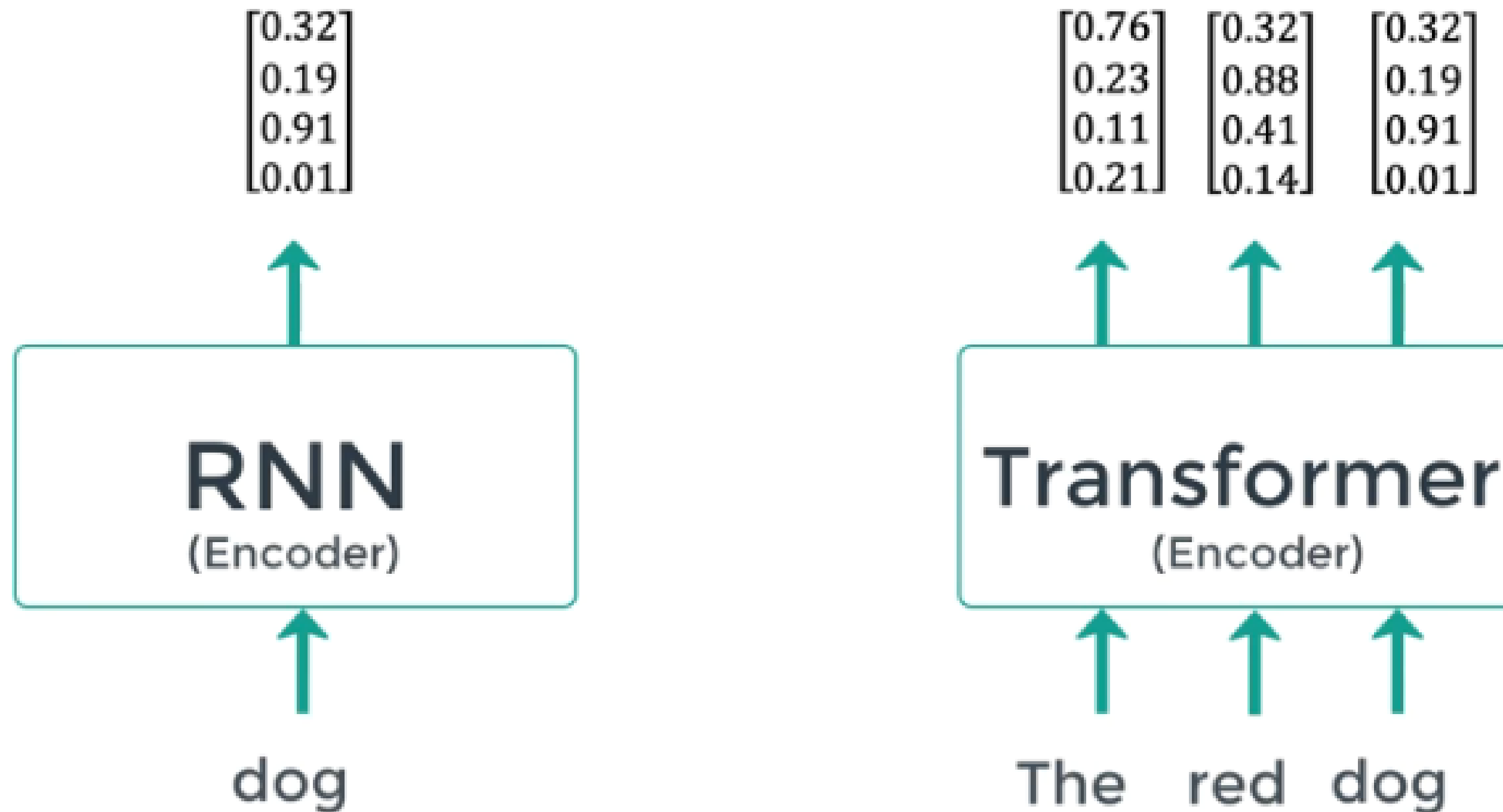


- **Robustly optimized BERT approach**
- **BERT** (Bidirectional Encoder Representations from Transformers) is a revolutionary self-supervised pretraining technique that learns to predict intentionally hidden (masked) sections of text.

TRANSFORMERS



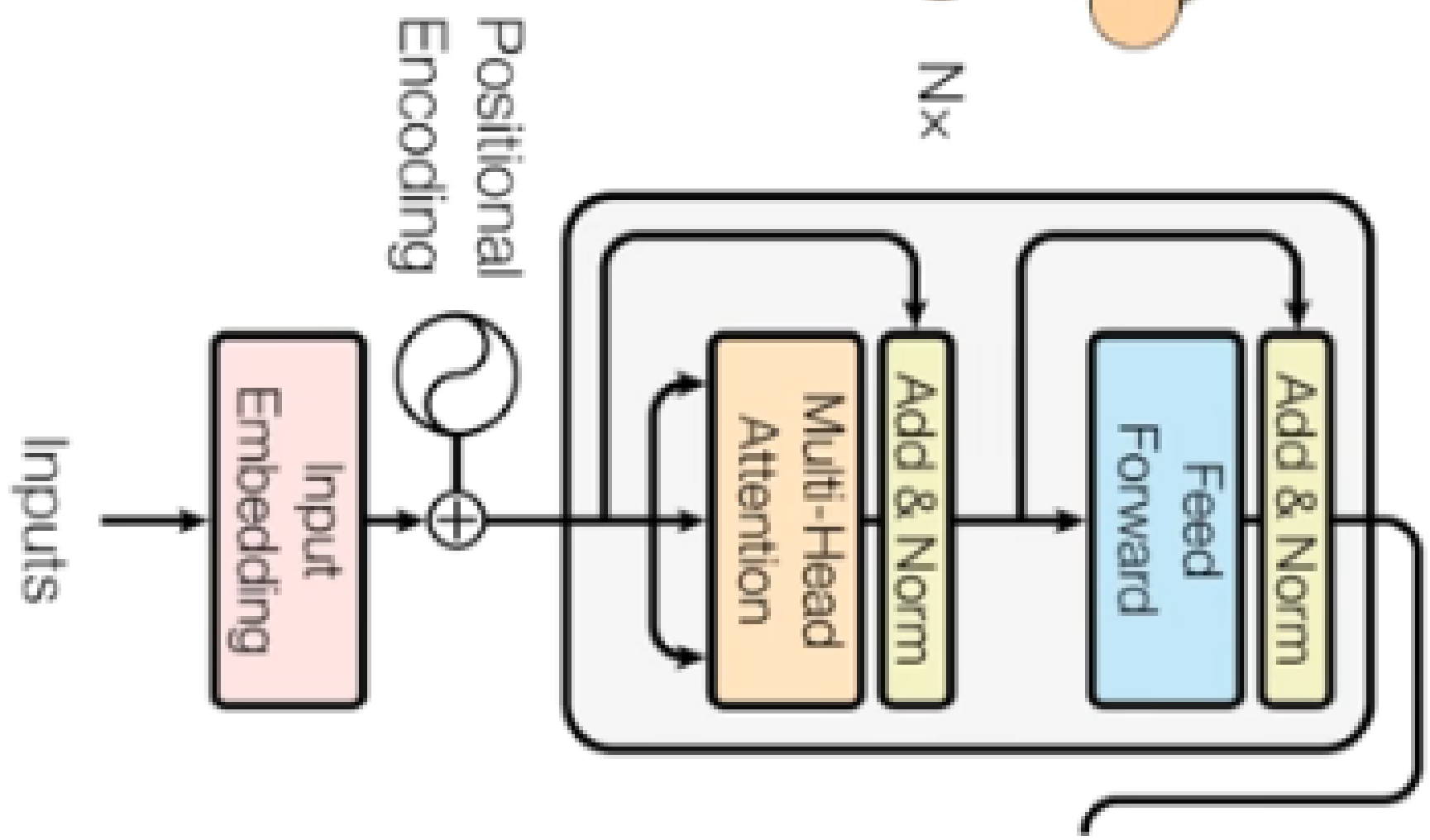
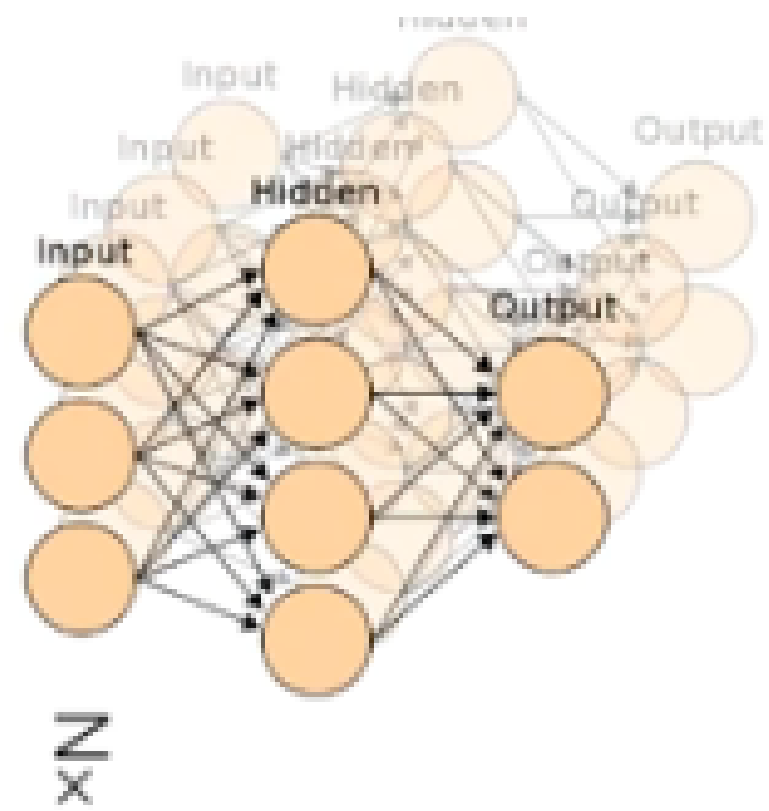
TRANSFORMERS



ENCODER

The big red dog

$\begin{bmatrix} 0.71 \\ 0.04 \\ 0.07 \\ 0.18 \end{bmatrix}$



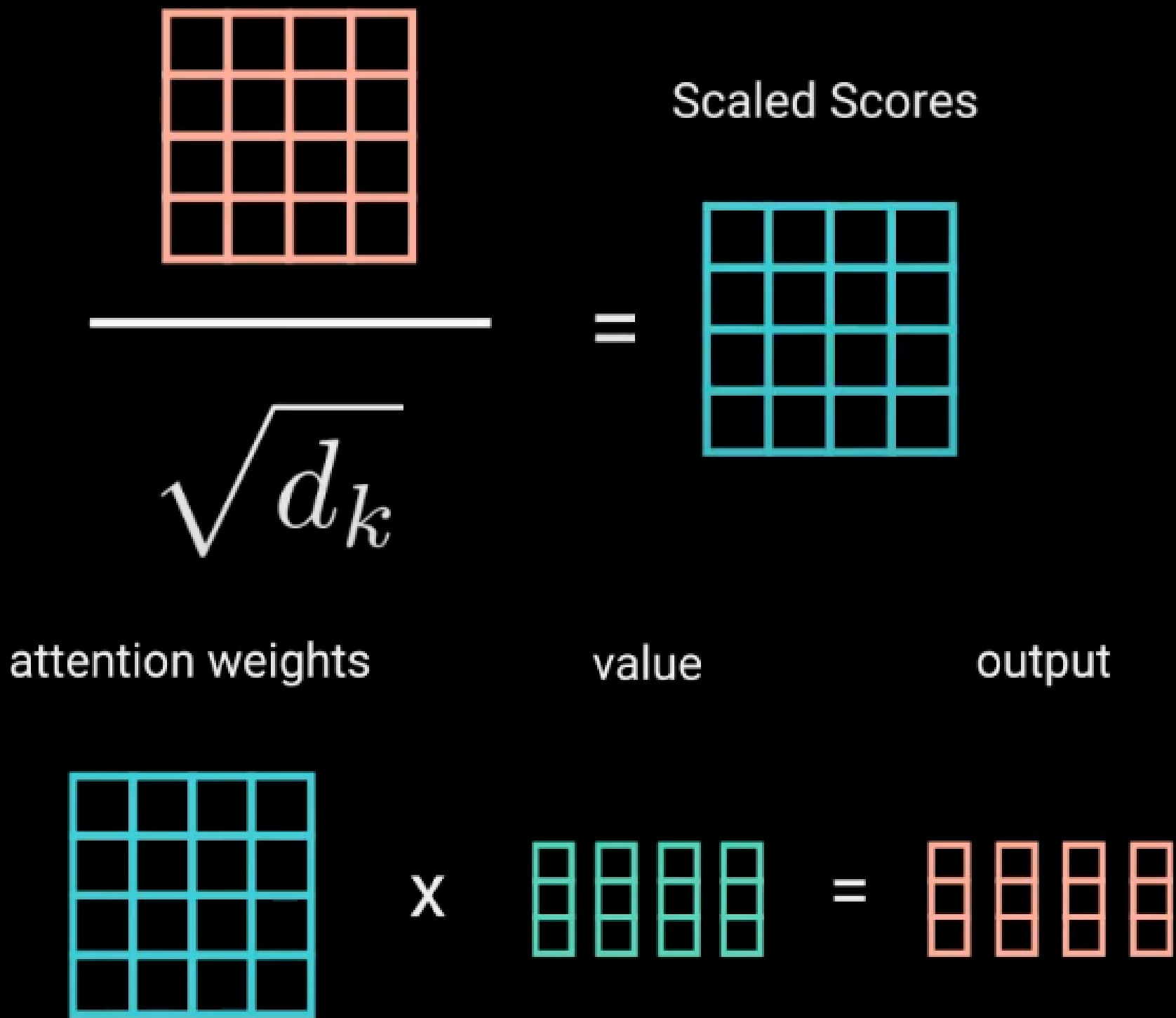
SELF- ATTENTION

	Hi	how	are	you
Hi	98	27	10	12
how	27	89	31	67
are	10	31	91	54
you	12	67	54	92

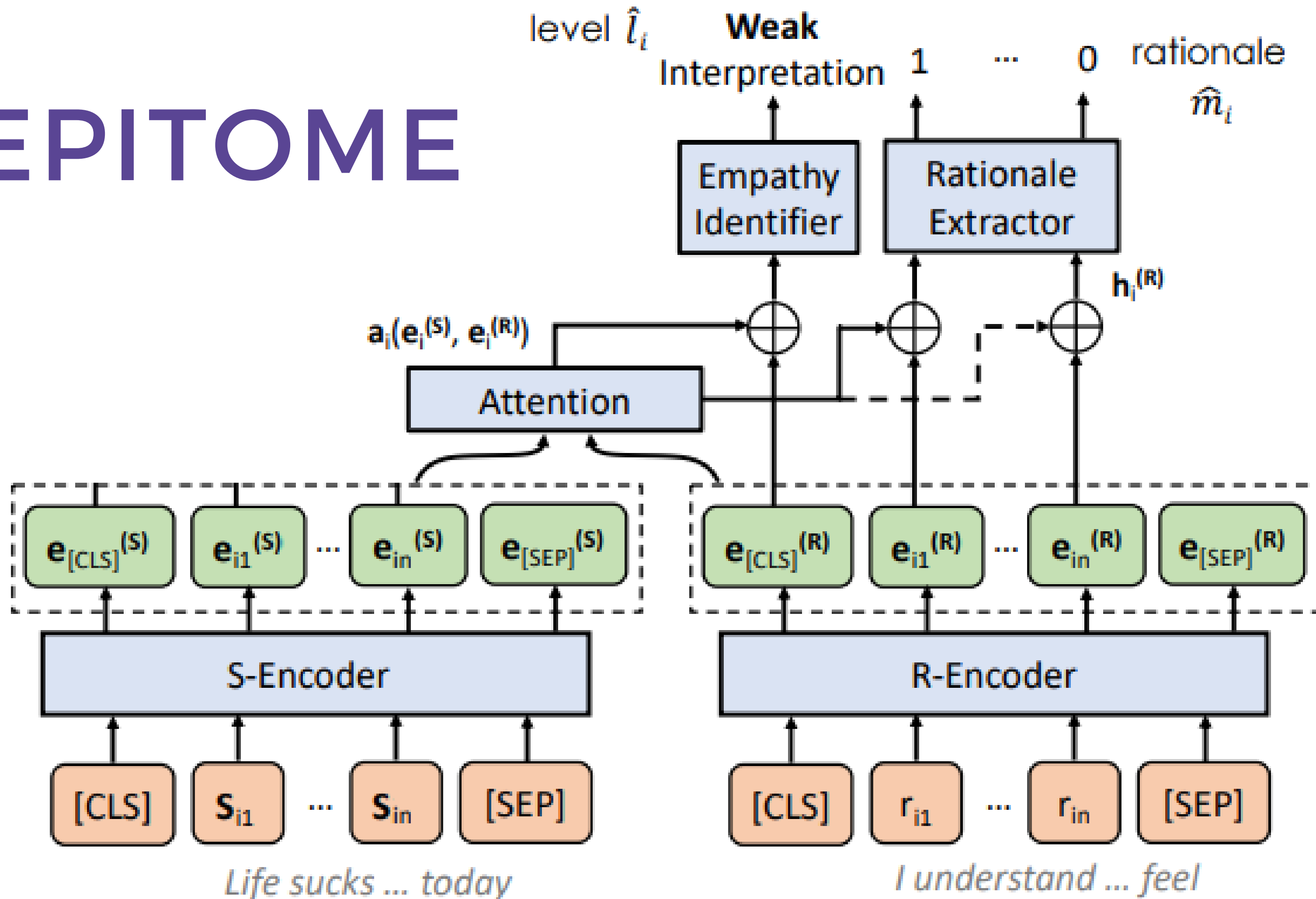
Softmax(

) =

	Hi	how	are	you
Hi	0.7	0.1	0.1	0.1
how	0.1	0.6	0.2	0.1
are	0.1	0.3	0.6	0.1
you	0.1	0.3	0.3	0.3



EPITOME



OUTPUT EXAMPLE OF ER

EXAMPLE EMOTIONAL REACTION

RESPONSE:

I don't want you to jump. I don't want you to die,
in either one. I don't know exactly what you're going
through but from the sounds of it, I'd suggest focusing
on the parts in your life that you enjoy.

LEVEL ON EMOTIONAL REACTION: 1

RATIONALE:

don't 1
want 1
you 1
to 1
jump. 1
I 1
don't 1
want 1
you 1
to 1
die, 1
in 1
either 1
one. 1



¡GRACIAS!