V = 5
M = 3 (embedding size)

0
0
1
0
0

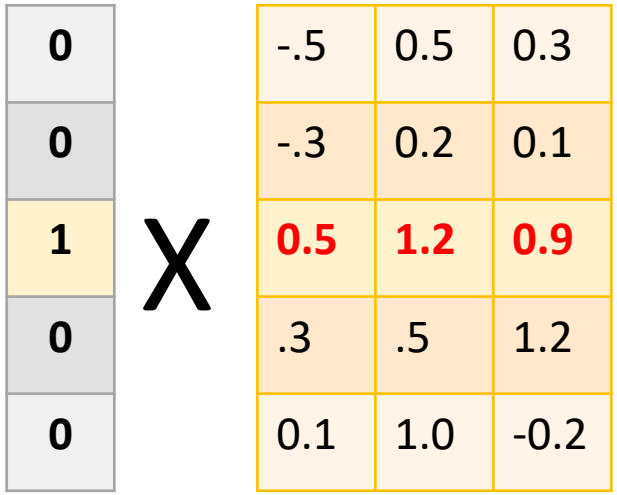
One-hot encoding of study (1 x 5) → target word

trying to predict context word like

If Sentence = 'I like to study' and m = 2
then i/p target
Study like
Study to
Study tonight
Study END
} below process reported for each of these.

word matrix keeps getting updated.

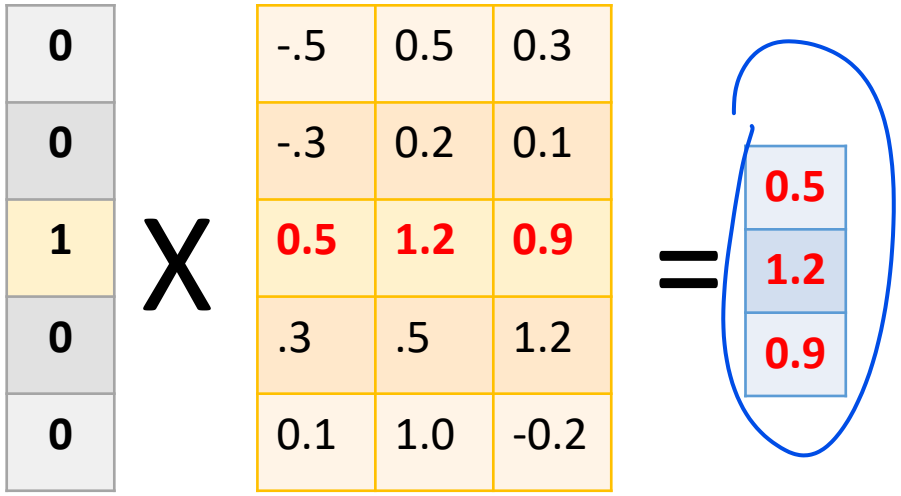
V = 5
M = 3 (embedding size)



One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

V = 5
M = 3 (embedding size)

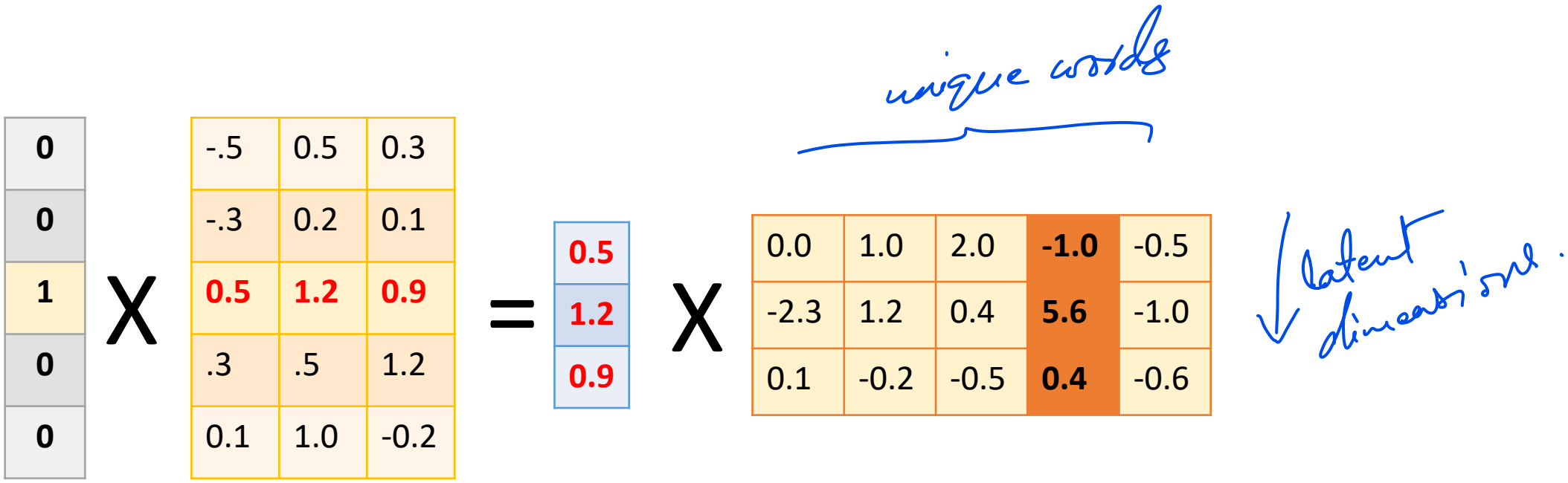


One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

V = 5
M = 3 (embedding size)



0			
0			
1	X	-.5	0.5	0.3
0		-.3	0.2	0.1
0		**0.5**	**1.2**	**0.9**
		.3	.5	1.2
		0.1	1.0	-0.2

=

0.5
1.2
0.9

X

0.0	1.0	2.0	**-1.0**	-0.5
-2.3	1.2	0.4	**5.6**	-1.0
0.1	-0.2	-0.5	**0.4**	-0.6

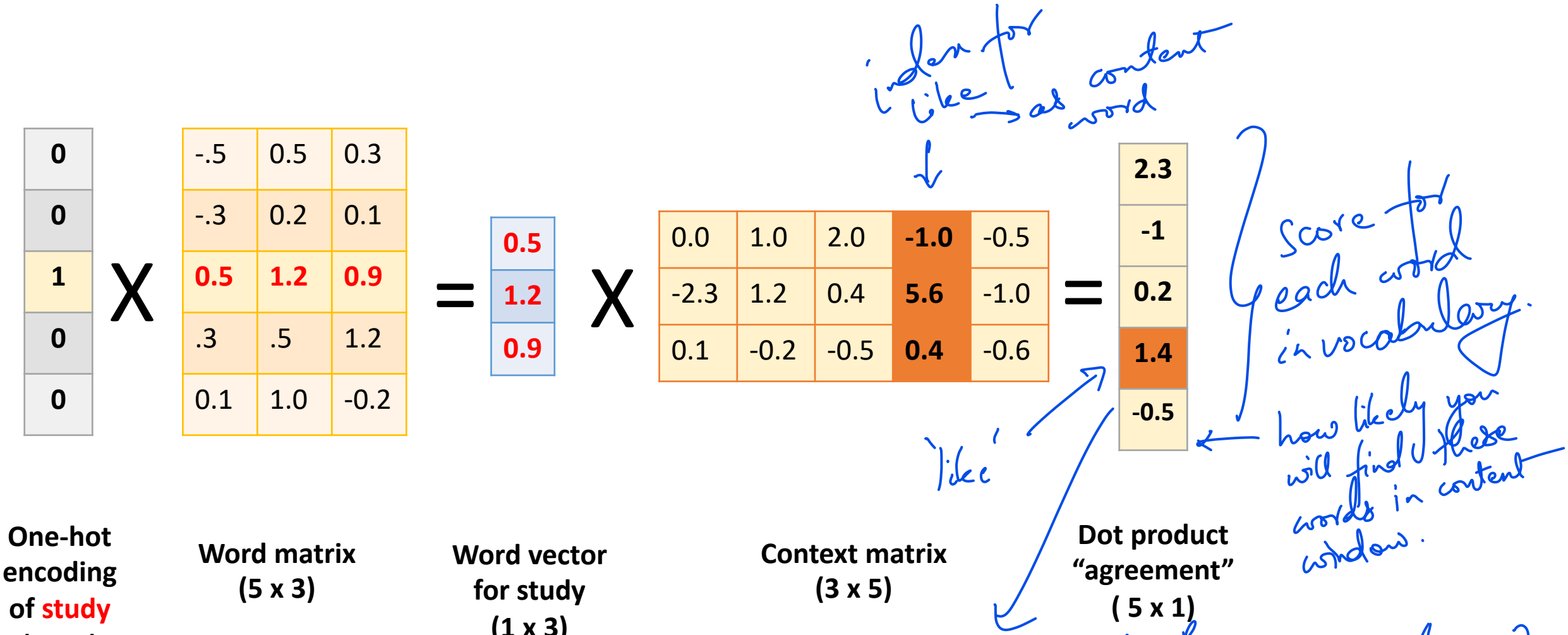
One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

V = 5
M = 3 (embedding size)



One-hot encoding of study (1 x 5)

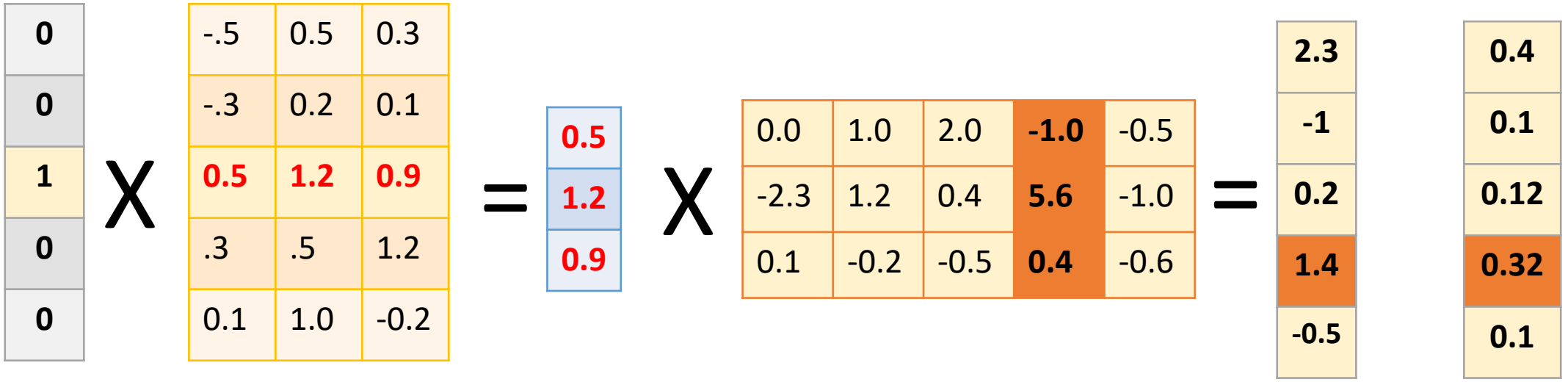
Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

Dot product "agreement" (5 x 1)

V = 5
M = 3 (embedding size)



One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

Dot product "agreement" (5 x 1)

Softmax (5 x 1)

V = 5
M = 3 (embedding size)

1st epoch of training

prediction

ground-truth

One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

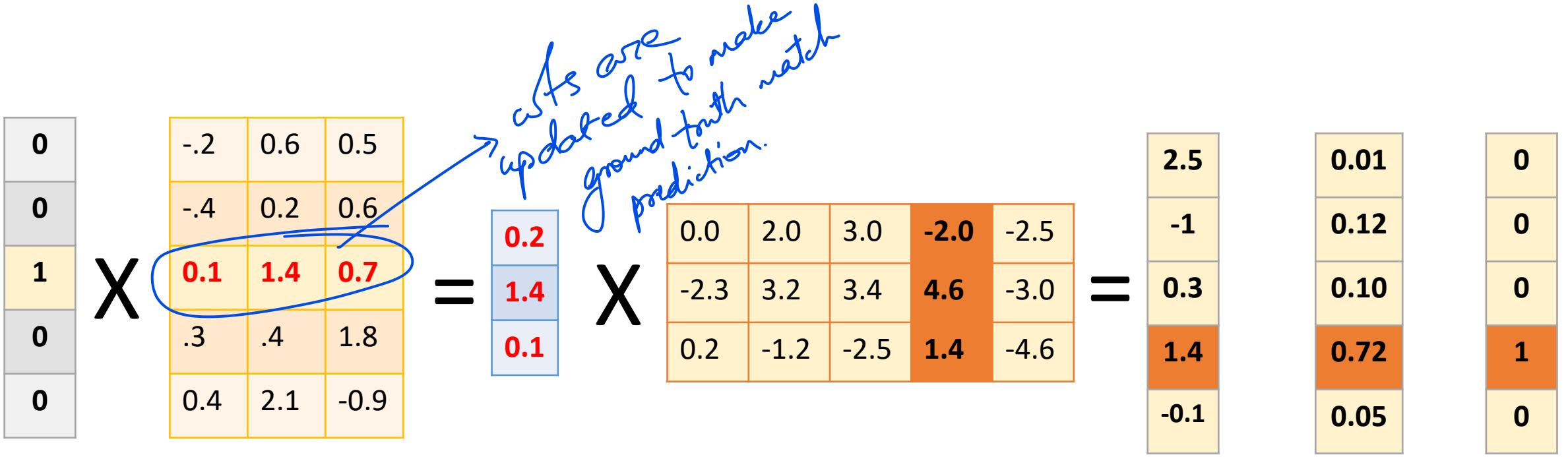
Dot product "agreement" (5 x 1)

Softmax (5 x 1)

1-Hot Encoding of like (5 x 1)

V = 5
M = 3 (embedding size)

2nd epoch of training



One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

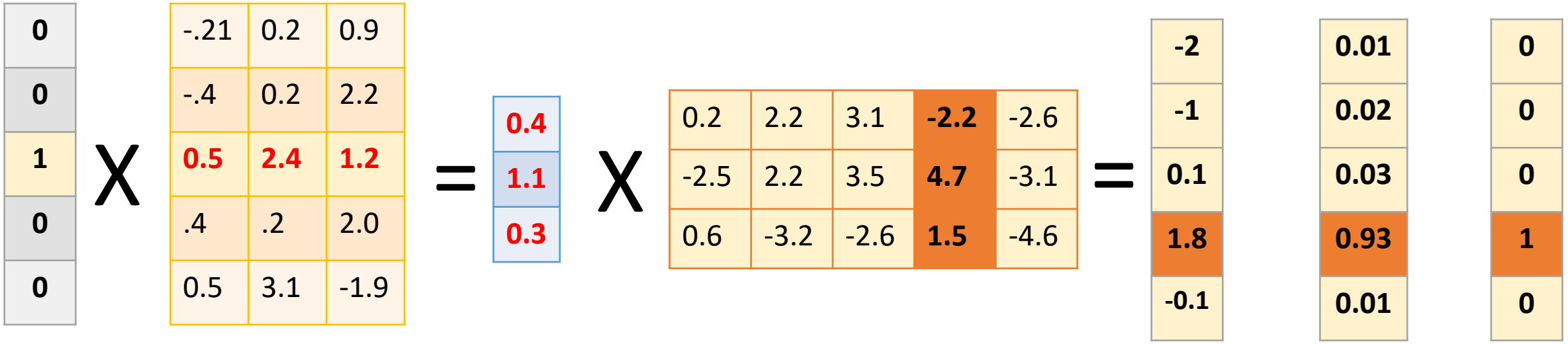
Dot product "agreement" (5 x 1)

Softmax (5 x 1)

1-Hot Encoding of like (5 x 1)

V = 5
M = 3 (embedding size)

3rd epoch of training (convergence)



One-hot encoding of study (1 x 5)

Word matrix (5 x 3)

Word vector for study (1 x 3)

Context matrix (3 x 5)

Dot product "agreement" (5 x 1)

Softmax (5 x 1)

1-Hot Encoding of like (5 x 1)

V = 5
M = 3 (embedding size)

cat	-.21	0.2	0.9
dog	-.4	0.2	2.2
study	**0.5**	**2.4**	**1.2**
like	.4	.2	2.0
tonight	0.5	3.1	-1.9

vocab size

representation of word for future models.

Word matrix
(5 x 3)

latent dimensions

This matrix now becomes our “word embeddings”. Each word in our vocabulary is now represented as a vector of numbers!