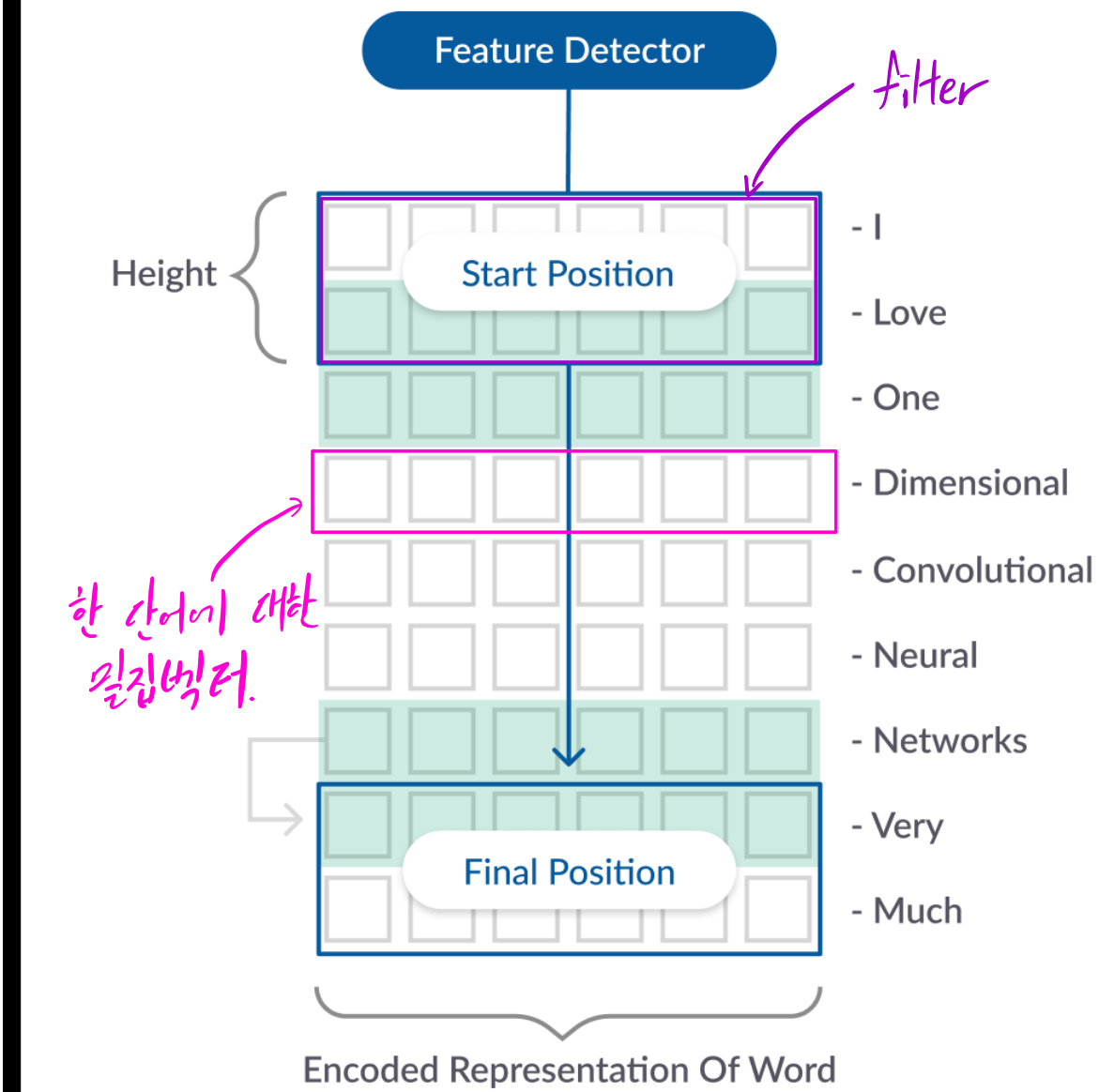
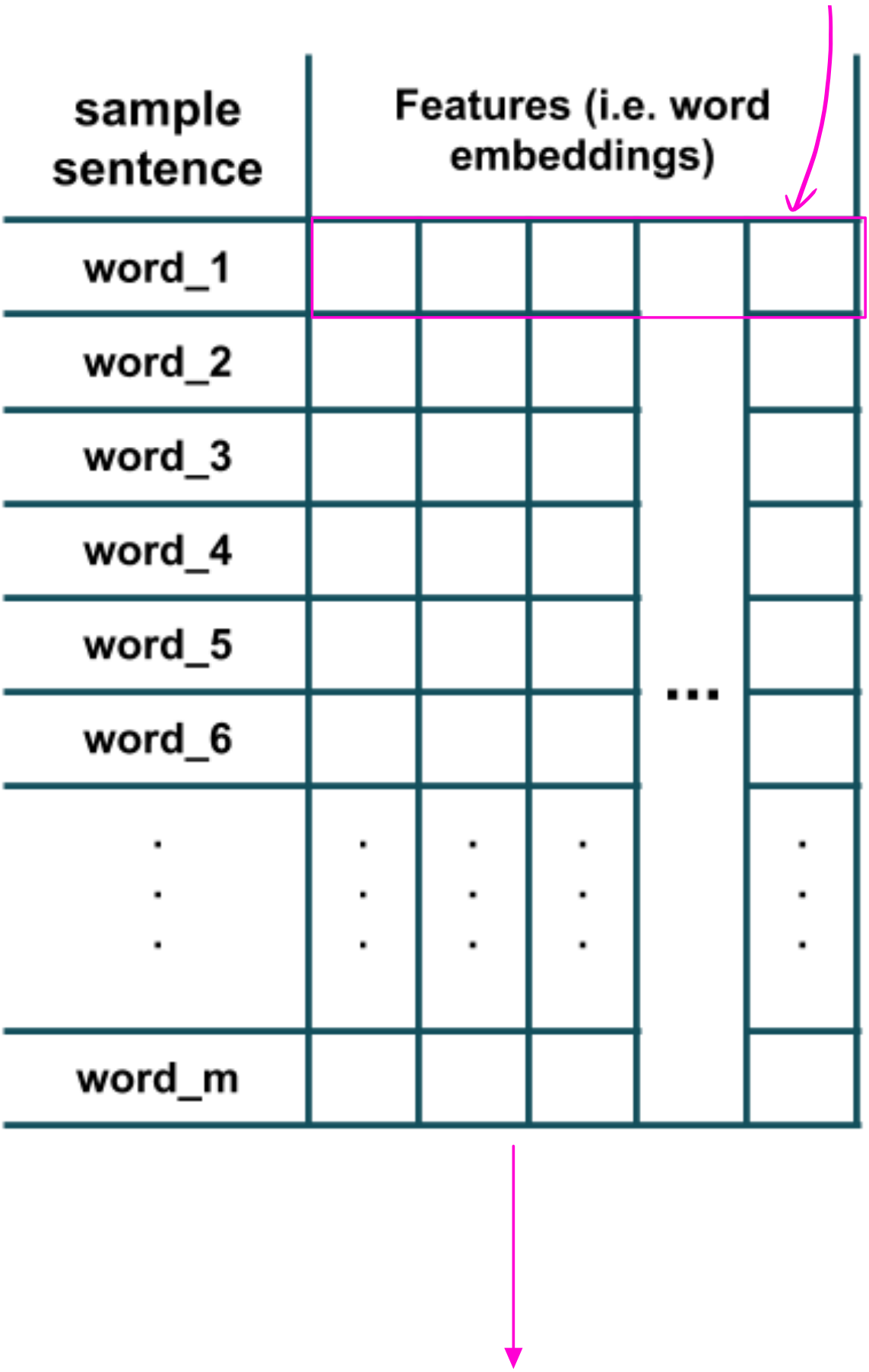
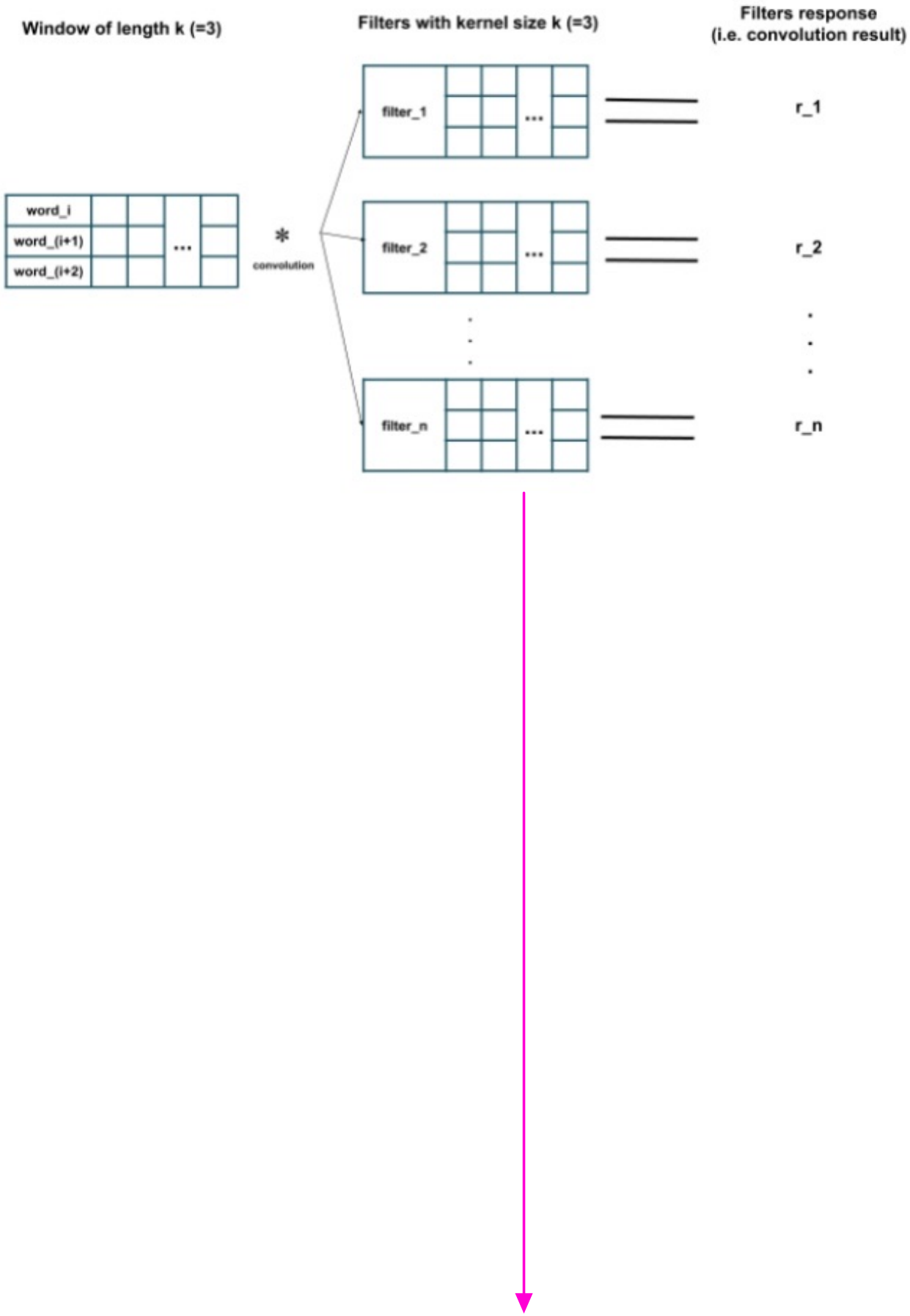
1D CONVOLUTIONAL - EXAMPLE



한 단어에 대한 필터벡터.


sample sentence
Features (i.e. word embeddings)
word_1
word_2
word_3
word_4
word_5
word_6
word_m
...


Window of length k (=3)
Filters with kernel size k (=3)
Filters response
(i.e. convolution result)
word_i
word_(i+1)
word_(i+2)
convolution
filter_1
filter_2
filter_n
r_1
r_2
r_n

Filters response	filter_1	filter_2	filter_3		filter_n
window_1					
window_2					
window_3					
window_4					
window_5					
window_6				...	
. . .	. . .	. . .	. . .		. . .
window_(m-k+1)					

As you can see in the figure above, the response of each filter is equivalent to the result of its convolution (i.e. element-wise multiplication and then summing all the results) with the extracted window of length `k` (i.e. `i`-th to `(i+k-1)`-th words in the given sentence). Further, note that each filter has the same number of channels as the number of features (i.e. word-embeddings dimension) of the training sample (hence performing convolution, i.e. element-wise multiplication, is possible). Essentially, each filter is detecting the presence of a particular feature of pattern in a **local** window of training data (e.g. whether a couple of specific words exist in this window or not). After all the filters have been applied on all the windows of length `k` we would have an output of like this which is the result of convolution: