presented with an Arabic sentence ***a***, we imagine that the writer had in mind an English sentence ***e***, but that ***e*** was somehow distorted in translation so that it came out as ***a***. The task of MT is just to produce ***e*** when presented with ***a***. Translation is seen as an instance of transmission down a *noisy channel* (like a telephone line), and there should be a way to extract the original input (the English sentence ***e***). It is obvious then that ***a*** is likely to occur depending on which sentence the writer had in mind. The probability theory is in need at this stage as we want the sentences that give ***a*** the highest probability among the English sentences. In examining the following example, 1(b) has a higher probability and it is of course the right choice.

4 a. كم الساعه

b. *what time is it?*

c. *what hour is it?*

In this respect, Manning and Shutze (2002:486) states that the SMT system in reference to the above explanation should consist of:

1. Language model: the language model assigns a probability to ***a*** for each sentence of English.
2. Translation model: which assigns a probability to every sentence in English.
3. Decoder: in this step, the best candidate for ***e*** is sought for according to the above model.
4. Translation probabilities: such probabilities are estimated using EM (Expectation Maximization) algorithm. The basic idea of the mentioned algorithm is that it solves the credit assignment problem. i.e., if a word in the source is strongly aligned with a word in the target, then it is not available anymore to be aligned with other words in the target.