While most people agree that natural languages are compositional – roughly speaking, that the meaning of a complex expression is composed out of the meanings of its constituent parts –, they often disagree on exactly how and to what extent, which is why compositionality comes in various versions. Which version is the most plausible one? In this paper, I will precisely address this question and suggest an answer.

Any plausible version of compositionality should be consistent with how complex expressions are actually formed and interpreted in natural languages; in particular, it should meet the following two criteria: (i) consistence with the flexibility of natural languages and (ii) consistence with their productivity. When interpreting the meaning of a complex expression (or an expression made of complex expressions), we may have to take account of various types of semantic dependences: not only bottom-up dependences (the meaning of a complex expression depending on the meanings of its constituents), but also top-down dependences, lateral dependences, and context dependences. [For lack of space, I will not give examples for each case here; but I will do it in my presentation, insisting on the most important ones.] What I call "flexibility" in this paper is precisely the fact that you can find all these kinds of semantic dependence in natural languages. Let us turn now to our second criterion: consistence with what I call "productivity", namely the fact that, in natural languages, speakers can understand an infinite number of expressions while only knowing a finite number of expressions and syntactic rules. Given that, according to me and to many others, the best (and maybe the only) explanation for this fact is that language is to a certain extent compositional, I think that any plausible version of compositionality should indeed be strong enough to account for it.

I will now consider four versions of compositionality, ranging from the strongest to the weakest, and see whether they meet these two criteria.

Let us define *zero compositionality* as follows: the meaning of a complex expression is determined by the linguistic meanings of its parts (i.e. their semantic value out of any context), its syntactic structure and the context (i.e. extra-contextual context). This version of compositionality (trivially) meets criterion (i): obviously, the meaning of a complex expression somehow comes from all these elements of information – where else could it come from? However, *zero compositionality* does not meet (ii). Indeed, it says nothing about *how*; the process is left totally undetermined. In particular, nothing is said about meanings composing into a more complex meaning (linguistic meanings are not determinate meanings yet). This kind of compositionality is clearly not strong enough to meet (ii).

The other extreme version of compositionality is *total compositionality*: the meaning of a complex expression is determined by the linguistic meanings of its parts and its syntactic structure in a strictly bottom-up manner. The interpretive process here can be reduced to the work of a composition function which takes the (context-independent) meanings of the basic constituents as arguments and, working in a strictly bottom-up manner and taking account of syntactic rules, delivers one and only one result for the meaning of the whole expression. Of course, this version would satisfy (ii). However, it obviously fails to meet (ii).

Let us now consider *strong compositionality* (which corresponds to the "standard" version of compositionality): the meaning of a complex expression is determined by the meanings of its parts and by its syntactic structure. This version allows for the meanings of basic constituents to be dependent on the context. And if we want to interpret this version in a charitable way, we can also say that the meanings of the constituents can be influenced by top-down and lateral dependences; the constituents can stand in relations of (mutual) dependence with any other element and with the context, but, in the end, this complex process ends with the meanings of the constituents stabilising; at this point, a proper compositional process can take place. To sum up, the interpretation process corresponding to *strong compositionality* includes not only a composition process (from the stabilised meanings of the constituents and the syntactic structure to the meaning of the complex expression), but also a complex process which determines the meanings of the constituents in the first place. As this whole process contains a compositional process, *strong compositionality* can be considered as meeting (ii). However, it does not completely meet (i). Indeed, whereas it does allow the meanings of the constituents to depend on anything else, it does not allow the meaning of the complex expression itself to be directly dependent on anything else than the meanings of its constituents and its syntax; and, as we have seen, the meaning of a complex expression *can* depend directly (i.e. not through its constituents) on the context or on the meanings of other complex expressions. [I will not discuss all my examples here, but here are some ideas: "It's raining" directly depends, semantically, on the context (the place where it is uttered); the complex expression "cab driver" can be semantically dependent as a whole; the meaning of a sentence used in a metaphorical, ironical or fictional sense in a certain context can depend on that context directly (not through its parts).]

Finally, let us consider *weak compositionality*: the meaning of a complex expression is determined by the meanings of its constituents, its syntactic structure, *and the context (linguistic as well as extra-linguistic)*. This version satisfies (i), because it allows the meanings of simple as well as complex expressions to be directly dependent. Moreover, it satisfies (ii). Indeed, in addition to the two processes mentioned for strong compositionality (determination of the meanings of the constituents

and composition), there is a third process: the meaning of the whole can be depend directly on the (linguistic) context. However, the whole interpretative process still contains a compositional process, which is sufficient to account for the productivity of natural languages – which, after all, do not exhibit perfect productivity (think about ambiguities, for instance).