

## STRUCTURE-DEPENDENCY IN ACTION

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In a book which can be considered a 20th century classic, Chomsky (1972, 61) claims that the rules of language are universally "*structure-dependent* in the sense that they apply to a string of words [or 'to a string of minimal linguistic units that may or may not be words', as Chomsky says in a footnote] by virtue of the organization of these words into phrases". This observation is surely correct, and no doubt accepted by linguists of every persuasion. On the next page, however, Chomsky argues that this structure-dependency is *a priori* unexpected, since it cannot be shown that structure-independent operations (such as ones applying to, say, the third morpheme in the sentence) would somehow be harmful or more complex or otherwise more unpleasant than structure-dependent ones (this is echoed more recently by e.g. Matthews 1989, 69; Chomsky also concludes that structure-dependency must be innate, since there is no way a child could learn it; cf. also Chomsky 1988, 45–46). My purpose here is to show that this isn't exactly right. I would argue that we could well expect linguistic operations to be structure-dependent, since much of our non-linguistic thinking is structure-dependent as well. For the most part, I will leave aside the question of innateness, although it should be noted that structure-dependency in language is quite obviously motivated by functional considerations (see Itkonen 1991 for discussion).

In what sense, then, could non-linguistic thinking be structure-dependent? This is, in fact, quite trivial; all we need is a more general version of structure-dependency, one in which operations apply to a set of units by virtue of the organization of these units into larger wholes. This version of structure-dependency permeates much of our ordinary everyday thinking. Let me illustrate this with a story from my ordinary everyday life.

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Once upon a time, I woke up feeling hungry. A raid to my kitchen closets made me realize two things: there wasn't any food around, and I desperately needed a shower. This created a puzzle: Should I put up with my empty tummy for a moment longer and wash myself, or should I neglect my personal hygiene for the time being and just dash to the nearest grocery store?

As far as the present discussion is concerned, my solution to this problem is irrelevant, suffice it to say that I did both go to the store and shower in a normal fashion. It only struck me afterwards that something remarkable had in fact happened. The remarkable thing is this: When planning my actions, I was always operating on these two action patterns as integral wholes. In other words, I had thought of only two alternative timetables, namely one in which all the various parts or subprocedures of the whole procedure of showering (taking off my clothes, splashing water in my armpits etc.) would take place before my trip to the store, and one in which they all would take place after the trip (which, of course, also consists of a series of subprocedures). It had never occurred to me to operate on these subprocedures as an unstructured set of more elementary actions (or "action units"); I hadn't thought of, say, taking off my clothes and splashing water all over my body, racing to the store, toweling, putting on my clothes, and then paying for the eggs and bacon. To put it succinctly, my pattern of thought was clearly structure-dependent. Elementary observations suggest that my behavior was, in this respect, completely normal.

Structure-dependency is, to be sure, operative in language, and this certainly results in some way from our being the way we are. But as we saw, it is not restricted to language; so, it seems that by regarding structure-dependency a purely linguistic phenomenon, we miss a generalization<sup>1</sup>; it seems, instead, to be a fairly general feature of human thought. As such, it may well have an innate counterpart (although it should not be too difficult to see how structure-dependency in language and in our conscious thinking could originate from our preconscious

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<sup>1</sup>Generalizations are, of course, usually highly valued. To take an example, Jackendoff (1990, 4) sees it as a special merit of his theory that his "functions and features prove to run through broad swaths of the language, precisely as one would want in an explanatory theory." The generalization proposed here runs through broad swaths of the mind. Wouldn't that be even better?

conception of reality; cf. Itkonen 1991).

There is a more general lesson to be learned from this little story: The fact that languages and language-learners favor certain structural properties does not *in itself* prove that these properties are determined by something specific to language (e.g. a "Universal Grammar" in the Chomskian sense). Only after we have demonstrated that these structural properties are absent from other cognitive domains, have we taken our first step toward finding a feature of an innate "universal grammar" of some sort. Even this is not enough; we would also need proof that our language-specific feature is not a result of something human infants are notoriously good at — learning.

## REFERENCES

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