

# *In memoriam* Maurice Gross

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## Abstract

Maurice Gross was both a great linguist and a pioneer in natural language processing. In this talk in homage to his memory, I will take a scientific point of view and try to outline his contribution to linguistics and to natural language processing. It is difficult to compare these two contributions and even to separate them; however, in this assembly, I will put more emphasis on the latter subject.

## Linguistics

Maurice Gross contributed to the renewal of formal linguistics in the 60s. His most widely known idea is that the description of idiosyncratic properties of lexical elements, i.e. the description of the lexicon, is an essential part of the description of the syntax and semantics of a language. He undertook to implement Zellig Harris' theory of syntax, which in fact includes a good deal of semantics too, into an effective description.<sup>1</sup> As a matter of fact, his work comprises not only books and articles — among them the most significant are 1975 and 1981 — but also a large dataset: tables of syntactic properties of thousands of lexical entries in French.

The analysis of sentences with predicative noun and support verb is a well-known aspect of this theory. Maurice Gross directed studies on predicative nouns in French and other languages, and the results validated largely the theory, which gained a larger acceptance during the last 10 years, at least in Europe, though it had been felt iconoclastic for long.

He also launched a series of studies on compound lexical units, and the results showed that languages have a large set of compound predicates, in contradiction with a long tradition that holds that such phrases are exceptions, worth only of anecdotal remarks.

He contributed decisively to the construction of rigorous empirical methods for syntactic description, borrowing most of the fundamental notions from experimental sciences.

## Natural language processing

Maurice Gross designed and implemented a set of methods and tools for the manual elaboration of language resources of quality for natural language processing. These methods and tools were designed so as to ensure that the resulting data are readable and cumulative, thus allowing for the progressive, collaborative construction of large resources. The level of formalization was carefully tuned so that a computational exploitation in natural language processing would be possible. He pioneered the concept of linguistic-based natural

language processing. It is important to notice that he had this insight in the 60s, long before the present international interest for language resources. His other objectives of accuracy, large coverage, systematicity of the resources were also largely attained. These resources are used by many laboratories and companies, some of them founded by his followers, and their exploitation still offers a huge potential for future research and applications.

Maurice Gross' approach to the finite automaton model was pragmatic and constructive. At a time when this model was practically banned, he perceived that it would be a convenient, invaluable tool for syntactic description. During the last fifteen years, it came to be one of the most popular models. Empirical study in the framework of Lexicon-Grammar led to the design of an actual model of the syntax of natural languages in the form of... a large network of finite automata.

His approach to natural language processing was often perceived as 'pessimistic', in that he struggled against the natural tendency of many of us to over-estimate the predictive power of rules whenever language is concerned (e.g. nouns ending in -s are plural, and plural nouns end in -s). His linguistic work had shown him early that chaotic behaviour and exceptions are everywhere in language, and that a set of idiosyncratic data in conformity with observable reality is better than a wrong rule. Over-optimism as regards rules is also one of the reasons presented by language engineers and linguists to discard the perspective of manually constructing lexical resources, a task which requires skill and effort. Another of these reasons was the parallel perspective of deriving lexical resources from conventional dictionaries, a programme that he denounced as an illusion as soon as 1989, and whose output was disappointing.

## Conclusion

Even more than by his renown, Maurice Gross is impressive by the originality of his legacy and by his long-term vision. Most of his innovations are now more and more accepted by the scientific community around the world. It is all the more interesting to notice how much and how long they aroused resistance when he first expressed them.

## References

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<sup>1</sup> It is often difficult to discriminate what came from Zellig Harris and what came from Maurice Gross.