ENTREVISTA | *ENTREVISTA* | INTERVIEW

CARTOGRAPHY: vP PERIPHERY, LANGUAGE ACQUISITION AND BEYOND

INTERVIEW WITH ADRIANA BELLETTI *

* **About the interviewee: Adriana Belletti** is professor of Linguistics at the University of Geneva and at the University of Siena. She has been a student and then a researcher at the Scuola Normale Superiore, Pisa, a visiting scholar and research affiliate at the Department of Linguistics of MIT. She has taught in various linguistics departments and research institutes – e.g. UCLA-USA; UFSC-Florianopolis, Universidade Federal do Rio Grande do Norte, Brazil; Brisbane, Australia; University of Paris-7; DEC-Ecole Normale Supérieure, Paris – and in various international summer institutes - e.g LSA/USA; GLOW/Girona, Barcelona, Spain; Ealing, ENS-Paris. She has been in several national and international PhD committees. In 1987 she was awarded the Prix Latsis of the University of Geneva. She has participated in a number of research projects - both at the national and international level - and is currently the Principal Investigator of the project Theory, experimentation, applications: long distance dependencies in forms of linguistic diversity, funded by the Italian Ministry for Higher Education. She is a member of the ERC-SynCart project at the University of Geneva. She has been a member of the International Consortium for Linguistics Cambridge - Connecticut - Hyderabad - Nanzan - Siena - Tsing Hua; of the European Action COST/A33, Cross-linguistically robust stages

Simone Guesser (S.G.) and Núbia Ferreira Rech (N.F.R.): What is the importance of Cartographic Syntax for the future of Generative Linguistics?

Adriana Belletti (A.B.): With the Principles & Parameters approach within the so-called GB framework in the eighties and early nineties, the field of formal generative linguistics has experienced a real empirical explosion, so to speak, with innumerable discoveries of similarities and differences manifested by very diverse languages and language families (from Romance to Germanic to East-Asian, Amerindian, Austronesian, Bantu, Ugro-Finnic….). My feeling is that something similar can happen again through the studies in syntactic cartography: the offering of fine-grained analytical tools by the cartographic approach, which design precise and rich maps of different areas of the clause, all built through the simple recursive Merge operation, as made explicit in the minimalist program. Thus, the available maps of the left periphery of the clause (from Rizzi's 1997 seminal paper on, probably the area of the clause analyzed in most details), of the internal morphosyntactic functional spine of the clause (inspired mostly by Cinque's 1999 highly innovative analysis of adverbial classes), of the clause internal discourse related area at the periphery of the verb phrase (see below) – all these available maps open several new questions as to the status and the behavior of different languages with respect to given positions in the maps. We can already see this empirical explosion in the amount of work that is being developed in the frame of syntactic cartography in different language families (RIZZI; CINQUE, 2016; BOCCI; RIZZI, 2017 for overviews).

The new discoveries enrich the empirical domain of the available database in different areas of syntax, morphology, morphosyntax (also with the contribution of work in nano-syntax (STARKE; 2010; PAVEL, 2009…) and in domains at the interface of syntax with discourse-pragmatics and prosody (BIANCHI; BOCCI; CRUSCHINA, 2016). Through their empirical discoveries, studies in cartographic syntax have generated new research questions that challenge theoretical assumptions and call for constant refinements, in particular due to the innovative work on the interfaces. It is a good feeling to see that not everything has already been discovered and that a lot is still in need of suitable explanations. Syntactic cartography also inspires work and new research trends in language acquisition, suggesting new perspectives (see also below) and a constant dialog between (i) the aim to reach large empirical coverage - thus integrating in the database also acquisition data - and (ii) the search for theoretically sensible and constrained explanations (the latter is indeed the central issue of a large research project run in Europe over the last five years, funded by the European

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S.G. and N.F.R. Among your contributions to linguistic studies is the identification of the vP periphery, based on data from post-verbal subjects interpreted as new information focus in Italian. In your opinion, after 14 years of publication of the article *Aspects of the Low IP Area*, what are the main advances that have occurred in studies about the vP periphery?

A.B. It seems that the low part of the clause is indeed implicated in various discourse related processes across languages. Somehow, the identification of its presence and position is less straightforward than in the case of the left periphery of the clause as explicit morphemes are rarely available in this area (recent work on some Arabic dialects may turn out to be relevant in this respect). Nevertheless, a variety of phenomena have found an interesting and principled account by assuming the presence of this discourse-related area of the clause containing positions of focus and topic across languages as diverse as, among others, Malayalam (JAYASEELAN, 2001), Chinese (Tsai, 2015), Italian (also in different constructions such as most notably cleft structures and doubling type phenomena, Belletti 2009, 2015), Brazilian Portuguese (in clefts, GUESSER, 2007, and also in the related wh-*in situ* phenomenology (Kato 2003)), Old Italian (POLETTO ,2006), Sicilian and other dialects (CRUSCHINA ,2012, and ongoing work on the analysis of the wh-*in situ* phenomenon in some Italian dialects exploiting the low vP periphery, as in BONAN, 2018, for example). I think that there is still much to be discovered in this area, also in the perspective of disentangling the aspects that it shares with the clause external one and those that it does not. Principled reasons are most likely to be involved in both possibilities (such as elements that require sentential scope should characteristically only concern the left peripheral area and not low clause internal positions). Among the new questions to ask, one can list the following: does the low area of the clause also contain positions where types of adverbial modifiers can be found, much as it happens in the left periphery? That is, are there also Mod-like positions in this area? Should we expect the same types of elements in these positions? How are the nature and the information content of the focus positions – the clause internal and the clause external one – parametrized across languages? To what extent does the interpretation associated with the focus positions in the clause correlate with a dedicated prosody? To what extent does the prosodic interpretation correlate with presence/absence of a dedicated marker of the relevant interpretation? These are among the numerous questions in the research agenda, some of which are guiding ongoing work, and there are others to come. These new lines of research will, in turn, undoubtedly raise new questions. I consider the fact that new questions have been and are being raised as a positive feature of the proposal and a sign that it continues to be a lively one.

S.G. and N.F.R. What is your opinion towards the introduction of experimental studies in research in theoretical linguistics?

A.B. When I teach an introductory class, one of the first things I tell my students is that (formal, generative) linguists typically make use of 'grammaticality judgments' to arrive at their descriptions of properties of the language(s) they work on; from such descriptions, they may start the attempt to look for explicit theoretical explanations. Since without a good and precise description we can hardly even attempt to start looking for explanatory accounts, the stage of getting grammaticality judgments is a rather crucial one. The ultimate goal of the research in theoretical generative linguistics is to provide an appropriate characterization of our language capacity as human beings (CHOMSKY, 2016 for recent non-technical (re)discussion) in its various manifestations on different levels (syntactic, semantic, phonological, morphological, at the discourse level…); grammaticality judgments are privileged lenses through which an otherwise hardly accessible cognitive capacity can become more accessible.

Given this general background, in order to achieve reliable conclusions, the (formal, generative) linguist must be very careful in asking the speakers the right questions. The questions must not be collected at random but always in a controlled way. In order to make relevant properties of the speaker's internal grammar come out, one should always first have a precise research question in mind, (i.e. a theoretical guiding hypothesis to test), and then one should be extremely careful in formulating the grammaticality question(s) in such a way that the judgments be preferably comparative (i.e. giving pairs of sentences, not sentences in isolation). In this way, the sentences put to test should minimally differ from each other. Ideally, the only variable property should be the one under testing. This, to me, looks a lot like the experimental approach, as we have learned from the scientific method, whose origin

dates back to Galileo. Indeed, I always also tell my students that the task of obtaining grammaticality judgments from speakers is in fact like performing an experiment: no need of a lab with this type of experiment, but clear hypotheses to put to test and controlled experimental material, as in any experiment. Research in generative grammar is thus experimental in nature from its origin, from Chomsky's Syntactic Structures up to now. To quote one example, the so-called 'new comparative syntax' (HAEGEMAN, 1997) - through the micro-comparisons that it makes possible - is also a classical implementation of the experimental approach (Kayne's seminal work is a leading example in this respect, KAYNE, 2000, 2005 and much related work).

From all perspectives, the more controlled, the material to test is, the better. Thus, I could not be more positive and welcoming about the use of explicit experimental methods and the studies they generate in theoretical linguistics. To the extent that these studies ask precise and explicit research questions, as in the proper application of the scientific method, and are precise as to the controlled variables they are putting into test as well as in the analysis of their results, to be performed also through use of precise statistical quantitative measures, to me, this is all more than welcome. It is in fact an enrichment of the classical experimental method, which is at the core of theoretical linguistics as I have tried to characterize above. Within the tradition of generative grammar, linguistics is an empirical science, so the methods of empirical sciences naturally suit it.

S.G. and N.F.R. Do you believe that in the future there may be some kind of integration between different theoretical perspectives of current Linguistics?

A.B. If the shared aim is that of providing a characterization which is close enough to our language capacity as human beings, integrations are always possible and welcome. However, this aim has to be clear at the outset. If one has different aims (e.g. ultimately taxonomic ones, possibly extremely performing ones as in some statistical methods using big data), integrations may be hard. Nevertheless, it would be extremely interesting and potentially rich of consequences if some statistical factors were spelled out properly in the aim of factoring out and disentangling the respective role of the speaker's internal grammar and external conditions. As for the so-called usage-based approaches, integrations seem hard, as it seems to me that they cannot face the most striking property of our human language capacity, which is our linguistic creativity. The probably most amazing manifestation of it is provided by the innumerable examples of the grammatical creativity that young children manifest in the course of acquisition. As is in the experience of anybody working on language acquisition, children often manifest a linguistic behavior that differs from that found in the target language, ultimately from the input that they have most likely been exposed to. Looking at other languages, however, we typically find that children's non-target expressions are in fact possible there. This, to me, is always such an astounding discovery. It is as if children had a search space of grammatical possibilities – the parameters of the P&P approach – and during the course of acquisition they try out some of the available options, most likely under some pressure (possibly grammatical, computational, due to immature memory resources, etc…). The integration of experimental methods, in particular those coming from the psycholinguistic tradition that make use of both online and offline techniques, is already a fact, and a most welcome one, as it is also clear from the answer to the preceding question. Therefore, I think that dealing with grammatical creativity – in general and with children's grammatical creativity in particular – is a crucial challenge. Grammatical creativity should be and it certainly is at the core of the theoretical linguistic research in the tradition I have assumed over the years; it may not be equally central in other current approaches. To me, though, this is what makes theoretical linguistic worthwhile, and a lot so.

If the question had a narrower perspective, and referred to more local integrations, such as aspects of minimalism and aspects of syntactic cartography, my impression is that there is no need of talking about integrations in these cases, as these are just partly different ways to address the same fundamental questions. It is just a matter of different emphasis. On the one hand, there is more emphasis on the heuristic ability to enrich the empirical basis of the general endeavor in aspects of syntactic cartography. On the other hand, there is more emphasis on the reduction of language-specific general assumptions and on their formal simplicity in aspects of minimalism. Both are crucial issues that can perfectly integrate each other and should do so.

S.G. and N.F.R. In what aspects does Brazilian Portuguese present or might present evidence, for the studies that you have developed or have been developing?

A.B. Brazilian Portuguese has been extremely inspiring for my work in theoretical syntax. My work of clefts and 'answering strategies' has been nourished by evidence from Brazilian Portuguese and by Simone Guesser's work in both her MA and her Doctoral dissertation at the University of Siena. Mary Kato has made an original use in her insightful work of some previous proposals of mine about the cartography of the low area of the clause containing dedicated discourse related positions, among which a focus type position (see question 2). According to Kato's approach, this low area of the clause, sometimes referred to as a vP-periphery, may be exploited to host wh-words in the so-called wh-*in situ* construction, including the way wh-*in situ* is instantiated in Brazilian Portuguese. This idea has been very inspiring for me as it has made visible a far-reaching potential consequence of the approach that I myself had not foreseen, but which fits very well with its general spirit as well as, more specifically, with the analysis of clefts mentioned above, also exploiting the same low area of the clause. Carlos Mioto's work on the parallelism between the clause external Left periphery as proposed in Rizzi's (1997) and the clause internal vP-periphery has also contributed to clarify the respective roles of the two areas of the clause, much as Sandra Quarezemin's work did on the focalization strategies active in Brazilian Portuguese. Maria Cristina Figueiredo Silva's work on the syntax of subjects in Brazilian Portuguese has been an important source of inspiration for me in refining my understanding of the syntax of postverbal subjects – a central empirical domain of investigation in my work over many years –, its relation with the full vs partial null-subject nature of a language (e.g. Italian vs Brazilian Portuguese) and the special status of unaccusative verbs, in a comparative perspective. As this non-exhaustive list clearly indicates, Brazilian Portuguese and the work by Brazilian Portuguese generative linguists has been quite central and insightful for me, often bringing crucial evidence in support of general ideas and in inspiring important refinements and further developments, and it continues to do so (also in the domain of language acquisition).

S.G. and N.F.R. In your perspective, how can cartographic and L1 and L2 acquisition studies contribute to teaching process in basic education?

A.B. This is a complex question as it affects different plans and dimensions: L1 and L2 acquisition, language teaching, and teaching in a broader sense. Maybe, the latter is what is mainly meant with reference to 'basic education' in the last part of the question. Let me try to articulate my answer taking into consideration the different plans.

L1 acquisition studies (including multilingual acquisition where more than one L1 is simultaneously acquired) are the best source of evidence of the fundamental observation that acquiring a native language(s) is not like learning different kinds of abilities or academic subjects. Rather, it is a natural developmental process, to which any child is biologically predisposed. Widespread pre-concepts about language acquisition as mainly an imitation process, based on analogy and frequency factors, are misleading simplifications that overlook the fundamental property of natural languages, namely the fact that they manifest the operation of the Faculty of Language (FL), a core human cognitive capacity. This is the fundamental insight of Chomsky's cognitive revolution, still a central insight. In this perspective, as I mentioned in one of the previous answers, acquisition studies in the generative tradition systematically show that children are "grammatically creative" in their L1(/multilingual) acquisition: they often end up making use of grammatical constructions that are overall absent or that are infrequent in their target language(s). Interestingly, however, these constructions turn out to be possible in other languages, thus defining a space of possible grammatical options, which is at the core of the parametric approach to language variation.

From a more general perspective, also considering the teaching activity, results from acquisition studies in both L1 and L2 offer the opportunity to teach the practice of the scientific method: any scientific research is grounded on precise research questions, formulated within the frame of explicit theoretical assumptions. Such assumptions make predictions that can be put to test through the conception of well-controlled experimental designs, a point that I have already touched upon in some of my previous answers. Much work on acquisition framed within the guidelines of generative grammar have precisely those properties. Therefore, not only can one inform students about empirical findings on the acquisition of different languages in a comparative perspective, but also

one ends up teaching the fundamental scientific method, which is the only guarantee of serious scientific research, reliable results and progresses. This, to me, is a potentially major contribution.

Cartographic studies offer rich and fine-grained descriptive tools that, on the one hand, allow for subtle cross-linguistic comparisons, and, on the other, invite the formulation of precise descriptive research questions (e.g.: does language x make use of the same cartographically defined positions as language y? to what extent is the left periphery active at age x in language y and, comparatively, in language w? …). In addition to enhancing our knowledge and understanding of different linguistic systems, cartographic studies also looks to me as a potentially effective starting point for teaching in L2 (L3 etc.) contexts, through well-controlled minimal comparisons. Moreover, the minimal comparisons made possible by crosslinguistic acquisition studies offer special angles through which one can perform the comparative descriptive work, most notably by introducing the time of acquisition dimension (children vs adults, child L2 vs adult L2, multilingual simultaneous acquisition…). The time of acquisition dimension may turn out to be quite relevant in revealing special areas of complexity in linguistic computations and may, in like manner, be able to magnify similarities and differences of linguistic systems. More and more work is currently being produced in L1/L2 acquisition, which is theoretically well-informed and asks precise research questions similarly inspired by the refined descriptive tools and results offered by cartographic studies.

S.G. and N.F.R. What, in your perspective, are the essential ingredients of a work in applied linguistics?

A.B. I would first single out the experimental approach in the way described in the answer to question two and reconsidered in the preceding answer, which crucially requires a precise theoretical and descriptive awareness. In my view, any applied activity requires an in-depth knowledge of the object we want to deal with, more specifically in our case language, human languages, sometimes referred to as natural languages. Applied purposes may be very diverse, they can go from (both L1 and L2) language teaching, to the creation of rehabilitation techniques in forms of language disabilities, to the creation of some application making use of a natural language for computers or smartphones. Let me answer with a metaphor: if you have a physical problem with your heart, you go to see a doctor, preferably a cardiologist. You do so because you know that the cardiologist knows a lot about hearts. If she/he is a good cardiologist, she/he knows about the state of the art in the domain, what is known about the heart and possibly, she/he also carries out some research in the domain her/him-self. The cardiologist will make some proposal (diagnosis, treatment), applying her/his knowledge to your case. Similarly, I think, if you want to implement some forms of application concerning or using a natural language, you should consult a linguist or be yourself a linguist, someone who studies natural languages as the manifestation of a human cognitive capacity. And especially so when your application wants to touch at some deep aspect of the human linguistic capacity, as in the case of teaching, rehabilitating, creatively using a natural language (not just repeating chunks) with a machine.

S.G. and N.F.R. In Brazil, when we speak with expert linguists we use to ask what kind of advice they would give to those who are starting their research trajectory in the area of Linguistics. What kind of advice would you give them?

A.B. I would certainly encourage and channel their interest and the curiosity that their choice reveals into gaining knowledge and understanding of such a central feature of our human nature. Then, I would tell them that, through the study of formal linguistics, both theoretical and experimental, they can access serious research and learn the scientific method, and that these are important acquisitions, no matter what they will like to do next. They may like to pursue graduate studies in theoretical linguistics, but they may also like to do some more applied type of work. In both cases, a good basic knowledge in formal linguistics will be an important enrichment, as they will know something about the complexity of the human language capacity, a capacity that is often just taken for granted and not even noticed. Applied type of work may require their contribution and support as informed linguists in domains such as language teaching and language rehabilitation. Moreover, this type of work can more generally involve activities in which communication in natural language is crucial, as is more and more the case in digital communication, including the development of applications using natural languages. If they want to pursue their studies doing more theoretically oriented work on language(s) I would mostly welcome the idea. On the one side, there is still a lot of empirical discoveries to make cross-linguistically and, on the

other side, there will always be some need of fundamental research in view of potential applications, since, as mentioned earlier, any potentially applied type of work requires as a prerequisite: competence in good fundamental research.

S.G. and N.F.R. Grazie mille! Muito obrigada!

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