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The Romance Inter-Views: Cartography

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The Romance Inter-Views

The Romance Inter-Views are short, multiple Q&A pairs that address key issues, definitions and ideas regarding Romance linguistics. Prominent exponents of different approaches to the study of Romance linguistics are asked to answer some general questions from their viewpoint. The answers are then assembled so that readers can get a comparative picture of what's going on in the field.

After the first Inter-Views focused on (morpho)syntax more generally, the second Inter-Views focus more narrowly on Cartography. We invited six syntacticians, working on this topic from a variety of perspectives, to answer our questions.

Keywords: Syntax; Romance linguistics; Cartography; Minimalism; Selection; Features

1. What is cartography?

Aboh: Cinque and Rizzi (2009: 1) define cartography as an “attempt to draw maps as precise and detailed as possible of syntactic configurations”. Thanks to the level of granularity that it requires, cartography has led to the detailed description of syntactic structure in an unprecedented range of typologically and genetically different languages, thus advancing the minimalist enterprise. Just as one example, several recent cartographic studies have identified which specific features and structures are involved in discourse-related doubling constructions across Niger-Congo and beyond (e.g., Koopman 1997, Aboh 2004a, Aboh and Dyakonova 2009, Kandibowicz 2008, Torrence 2013, Biloa 2013).

Cinque: Cartography is not a theory, but rather a research program aiming to uncover the universal functional structure of the clause and its major phrases in their finest details. Nonetheless most work done within this program adopts a certain number of theoretical tenets which are neither obvious nor innocent: in particular, Chomsky’s (2001: 2) “Uniformity Principle” (“In the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances.”), and Kayne’s (2005: Appendix) ‘Principle of Decompositionality’ (“UG imposes a maximum of one interpretable syntactic feature per lexical or functional element.”), the strongest positions possible.

Corr: Cartography is a research programme and subfield of formal syntax which pursues empirically focused investigation into the nature of language, informed by the foundational premise that syntactic structures are uniform. More specifically, the cartographic enterprise, as it is also known, is concerned with the relationship between syntactic representation and interpretation, a concern which manifests itself in the pursuit of an idealised one-to-one mapping between form and function in a universal grammatical architecture. Whether or not this notion of cross-linguistic uniformity corresponds to a substantive claim or (as is the case in my own work) a methodological heuristic is another question.

Gutiérrez-Bravo: I think this is a question that is best answered by researchers working with this theory, and not by those of us who are critical of it. I would rather focus on certain very specific theoretical aspects of cartography in the remaining questions of this interview.

Ramchand: Under the assumption that syntactic representations for natural language are hierarchically organized and labelled structures, cartography is the process by which the working syntactician uncovers those labels and levels that best describe the representations in the language they are investigating. A common, though not necessary, belief that goes along with this descriptive enterprise is that the labels and levels so uncovered have some universal properties. In practice, universalist assumptions lead to a proliferation of levels and labels, but again, I think this is a common though not necessary feature of cartography.

Samek-Lodovici: Cartography is often identified with specific analyses, such as the existence of a left-peripheral focus projection. But cartography would live on even if these analyses failed. I think that cartography is better conceived as a research programme. At its simplest, it aims to provide a map of Syntax by identifying all the projections necessary for building syntactic structure, as well as the ordered layers they arrange themselves in. In its most ambitious form,

cartography aims to understand the deeper principles responsible for the existence of those projections and not others, and those ordered layers and not others.

2. How could the cartographic approach be falsified?

Aboh: Cartography is a research topic focused on describing syntactic configurations and the conditions imposed on their combinations and distributions. It can't be evaluated on the principle of falsifiability. We can make a useful analogy between theories of black holes and how they emerge (e.g., Einstein's theory of general relativity), as opposed to a research topic that sets out to establish the presence of black holes, that is, to infer their presence from their impact on the matter around them. While one may want to ask how Einstein's theory can be falsified, one cannot ask the same question of the research question that tries to answer how to characterize the presence of these invisible objects. Note, however, that the latter research question is not wholly isolated from a specific theory of black holes.

Cinque: As a program rather than a theory the cartographic approach cannot per se be falsified although particular assumptions that are associated with it, and specific cartographic analyses, of course can. For example, it might turn out that there is no unique structural hierarchy for the clause and its major phrases common to all languages, and that languages only pick some of the options made available by Universal Grammar (what is clearly a weaker position). Only time and detailed cross-linguistic empirical study will tell.

Corr: The question of falsifiability is a thorny one and raises larger questions regarding the science of language as an epistemic project than can be done justice to here. Caveats aside, the real boon of the cartographic approach is that its strongest thesis (i.e., the idea that each feature corresponds to a functional head mapped within a universal functional hierarchy) provides a straightforward yardstick against which to test (and thus confirm or disconfirm) one's empirical or theoretical predictions. It allows people to conduct empirically oriented work in a principled way which facilitates comparison across languages.

Gutiérrez-Bravo: Sooner or later different theories will make different predictions about the same empirical facts, no matter how simple and flexible the theory. For the case of cartography and minimalism specifically, this is the central point addressed in Abels (2012). However, not everything hinges on whether a theory can be falsified or not. For instance, in Zubizarreta (1998) and Gutierrez-Bravo (2007) it is argued that preverbal subjects, fronted *wh*-operators, topics and other elements can occupy one and the same position in Spanish. An alternative cartographic analysis of the distribution of these elements can most certainly be constructed, but with such an analysis we lose the insights and generalizations of the single position analysis.

Ramchand: Cartography is a descriptive enterprise, and as such cannot be falsified in the broad sense. All language theorists need to establish the nature of the syntactic representations that underlie the competence a human has in their language. Some of the beliefs and assumptions that standardly go along with individual cartographic proposals, in so far as they constitute a theoretical stance as

added assumptions, could indeed be falsified in principle. It is up to individual researchers to state these added assumptions transparently and testably.

Samek-Lodovici: Cartographic analyses are falsifiable. For example, the existence of a left-peripheral, unique, focus projection can be tested by examining whether the associated foci exist and move where they should (e.g., do verbal heads move to spec,FocusP when contrastively focused? Are multiple foci possible?). Similarly, claims about the universal ordered layout of specific projections are testable by examining different languages. Testing whether every proposed projection is present in every syntactic structure of every language, even where they lack overt heads, is more complex, but it remains testable, at least in some languages, through the associated effects.

3. What is the function of features in cartographic approaches?

Aboh: Most current descriptions in minimalism operate with feature bundles associated with functional heads. Cartography, instead, makes the heuristic hypothesis that each morphosyntactic feature heads a distinct functional projection in a specific syntactic position. Accordingly, feature bundles are understood as clusters of functional heads. The “one feature one head” hypothesis has often been criticised. Yet, lessons from other natural sciences suggest this is a reasonable working hypothesis, the only one by which we can understand the typology of features and how they are internally structured. A further criticism often raised against cartography is that it introduces discourse features into formal syntax. This criticism is unjustified because it ignores those languages in which discourse features are expressed by lexical items (e.g., Niger-Congo, Sinitic) and require syntactic operations (e.g., movement, generalized pied-piping, ellipsis, etc.).

Cinque: Under one possible interpretation, which follows Kayne’s (2005: Appendix) ‘Principle of Decompositionality’ mentioned above, each functional head contains at most one functional feature, and vice versa each feature is taken to head a separate functional projection. Morphosyntactic features play a central role in triggering syntactic movement, and other syntactic actions, and may encode parameters of syntactic variation within the functional heads.

Corr: Features are the keystone of cartographic approaches insofar as the whole cartographic project is organized around establishing an inventory of (semantic) features which have structural correlates in the functional architecture, and plotting those features as dedicated functional heads along the hypothesised universal hierarchy. Thus, features are crucially implicated within cartography in the mapping of conceptual structure, both from an interface perspective (i.e., by providing a bridge between the conceptual system and autonomous structure-building), and – arguably more fundamentally – in terms of organizing the very architecture of conceptual structure, constraining the possibilities of what meanings can be expressed grammatically, and how.

Gutiérrez-Bravo: Features in cartography are not inherently different from features in other generative theories. However, one of the driving principles of cartography is that functional heads can have only one feature. In a sense, this is a radical extrapolation of the seminal work of Pollock (1989) on the split INFL hypothesis. Pollock’s proposal was developed on the basis of very concrete empirical evidence from French which is not found in its entirety in English or even

in other Romance languages like Spanish, though. In the absence of this evidence, I am convinced that the most simple and empirically adequate analysis is one in which functional heads are most commonly bundles of different features, very much like lexical heads.

Ramchand: Features are not a necessary or integral part of cartographic approaches. Taken most generally, and most theory neutrally, cartography is that part of syntactic investigation that concerns itself with the structure of representations, as opposed to relations, or processes, or translations to the interfaces of sound and meaning. Features tend to be tools to implement those ‘other things’. Having said that, cartography needs to be combined with theories of those ‘other things’. You could marry yourself to your favourite theory of features, or try to do without them altogether. Cartography itself does not tell you what to do here, under my definition.

Samek-Lodovici: Criterial features associated with syntactic heads attract phrases with matching features and, where necessary, activate their sound and meaning interpretation. For example, the Focus projection attracts corrective foci and activates their interpretation. I would welcome a deeper scrutiny of the predictions made by the current set of criterial features and projections. Do we have the right features to account for non-phrasal foci (e.g., focused verbs), focus non-uniqueness (multiple foci, or foci and *wh*-phrases co-occurring in the same clause), or phrases associated with multiple features (focused topics), to mention a few issues? Investigating less well-behaved phenomena would strengthen the cartographic program.

4. What is the role of selection in cartographic approaches?

Aboh: As noted above, the aim of cartography is to understand the sequencing of syntactic features which project, and how these features can combine into more complex functional heads. A key notion here is selection: the principle underlying combinatorial properties of features. In this regard, cartography adopts the traditional idea that features do not cluster randomly. For Rizzi (2004), this reduces to *s*-selection fulfilled by first merge via the interpretive properties that license the insertion of syntactic elements. Accordingly, Tense, Mood, and Aspect (TMA) sequencing and the mapping of the clausal left periphery result from the selectional properties of features. Ramchand and Svenenious (2014) offer an interesting account of how such rich rigid hierarchies emerge which exhorts us to being more sensitive to interactions between the Faculty of Language in the narrow sense and broader cognitive factors.

Cinque: The role of selection in cartographic approaches is not fundamentally different from that of the standard theory. Should it turn out that traditional ‘complements’ are merged in specifier positions (as nothing is merged below/to the right of a lexical head - Cinque 2022), like external arguments and the modifier (adjective and adverb) phrases associated with particular functional projections, then the role of selection would acquire a more general role within UG.

Corr: Selection, per its classic formulation in cartography, serves to organize the above-mentioned features by relating one functional projection to another as the unique complement of the selecting functional head (i.e. head α can only select as

its complement βP , β can only select γP , and so on), thereby deriving the functional hierarchy (i.e. $\alpha P > \beta P > \gamma P$), which is necessarily invariant in terms of the ordering of FPs (since, e.g., α cannot directly select γP) and the presence of those FPs in the structure. That said, plenty of work conducted under the cartography framework deviates from this tenet (e.g., by assuming that features can be bundled on a single head).

Gutiérrez-Bravo: Selection plays a much more important role in cartography than in other generative theories. This is because the primary mechanism used in cartography to account for the distribution of phrasal constituents are structural hierarchies, and these hierarchies are built via selection: a functional head selects the functional projection that is its sister and this process is repeated as much as necessary. To the extent that there is evidence that numerous linear order effects in the peripheries are not only the result of specific hierarchies or configurations, but also of adjunction and more general restrictions such as locality and island effects (or even purely prosodic effects), then relying so heavily on selection is problematic for cartography.

Ramchand: Selection is an integral part of the cartographic enterprise and needs to be made explicit in any version. Selection needs to be stated independently whenever there are predictive relationships between one position in the syntactic representation and another part of the syntactic representation it directly combines with. In the limit, in radical maximalist universalist of cartography, selection is eliminated in favour of templates. But this is still being explicit about selection, albeit in the sense of explicitly eliminating it as a separate mechanism.

Samek-Lodovici: Cartographic research has meritoriously exploded the set of projections forming what were thought of as single projections (e.g., CP, IP, DP). These projections frequently display fixed orders. Selection provides a way to determine these orders, although, ultimately, we want to understand why we observe these orders and not others. The inner working of selection is also a research issue, as in some instances selection is claimed to act on projections not immediately dominated by the selecting category (e.g., introducing separate interrogative and focus projections in subordinates). General principles, like relativized minimality, also force linear orders independently from selection (Abels 2012).

5. Are cartography and minimalism compatible? If yes, how?

Aboh: Ramchand and Svenonius (2014: 153) remark that: “minimalists ignore the cartographic enterprise at their peril”. Recall from my answer to question 1 and subsequent that cartography is not a competing framework to minimalism. It is a descriptive model that is firmly grounded in the generative enterprise. Yet, we may wonder whether cartographic heuristic working hypotheses and descriptive findings can be accommodated by minimalism. I think they can, if we, generativists, learn to engage more in collaborative work, and further develop interdisciplinary research with other subfields including psycho- and neuro-linguistics.

Cinque: Despite appearances there is no real contradiction between cartography and minimalism. Cartographic studies typically assume the elements of syntactic computations of the minimalist program, such as the fundamental structure-

building operation Merge. On the other hand, such labels as C, T, and v are considered abbreviations of richer cartographic structures (e.g., Chomsky 2001, footnote 8). One possible divergence may have to do with evolutionary concerns: “the cascades of projections postulated for various areas of clause structure cannot possibly be learned... But attributing complex functional hierarchies to UG raises an evolutionary puzzle: it seems virtually unimaginable that the complex cartographic templates could have evolved as irreducible properties of UG.” (Chomsky et al. 2019: 251). A possibility of reconciling these two positions may come from a better understanding of the functional lexicon of UG.

Corr: Yes, inasmuch as they can be taken as programmes of research with similar goals whose priorities diverge in how they go about pursuing answers to their shared concerns. The paradox is that these approaches appear antithetical in that minimalism minimalizes the modelling of language-as-grammar, whereas cartography does the opposite by decomposing previously unitary functional categories (e.g., C) into their subatomic parts (Force, Fin etc.). Cartography receives criticism from an explanatory point-of-view, but much depends on whether you take its claims to be substantive or not. My shorter answer, though, is that the record shows that cartography has contributed amply to, and decisively informed, minimalist inquiry.

Gutiérrez-Bravo: It is often claimed that cartography and minimalism are compatible, but I do not share this view. An excellent summary of why cartography and minimalism are not compatible can be found in Chomsky et al. (2019). This much being said, I don't see why different theories should be compatible and in fact it is a lot healthier for the scientific endeavour if they are not. For instance, while I personally do not think that cartography can be correct as a theory of syntax, it has unquestionably provided us with an understanding of the complexity of what happens in the peripheries that is very superior to the view generally held in minimalism.

Ramchand: Yes. The minimalist thesis says that very little (perhaps only explicit symbolic recursion) is specific to language. One can believe this and still propose highly articulated syntactic representations for a particular language, quite rich in syntax specific labels and relations, which emerges as a result of an acquisition process. In other words, the way the human mind works from third factor considerations can reliably (and even universally) force a certain kind of rich syntactic system to emerge, even if the only language specific cognitive ingredients are very minimal. So, yes. You need to see syntactic representations as emergent, and the minimalist thesis as a statement about necessary cognitive precursors.

Samek-Lodovici: Chomsky (2000:41) describes minimalism as a research program. We are thus considering the compatibility of two research programs. Research programs identify larger research questions worth pursuing because likely to lead to a deeper understanding. Put in these terms, I don't see substantial reasons making cartography and minimalism incompatible. Some of the assumptions typically associated with the analyses proposed under each programme might be inconsistent, but that does not necessarily translate into the incompatibility of the goals pursued through these two programs. Ideally, these inconsistencies should lead to refinements of the proposed analyses, rather than rejection of either program.

6. How can we accommodate notions such as phases and anti-locality in a cartographic approach?

Aboh: The question should rather be what insight cartography offers regarding notions such as (anti)locality and phases. Let me spend the following few lines on the notion of phase. In terms of Chomsky (2005: 10) phases are C, v, (and possibly D), “where C is shorthand for the region that Rizzi (1997) calls the left periphery”. Work by Belletti (2002), Ritter (1995), Bernstein (1997) and Aboh (2004b) indicates that the vP edge and D are also shorthand labels for complex zones encoding information structure. This rich literature indicates that we can’t satisfy ourselves with such shorthand labels. The insight from cartography is that functional heads commonly postulated in minimalism are too crude. The question about phases should be reformulated as what specific feature, or what combination of features, make(s) a head a phase. There is currently not much understanding of this fundamental question.

Cinque: The notion of phase (the structural chunk that is directly mapped to the two interfaces) and that of anti-locality (the ban on movements which are too local, e.g., from complement to specifier of the same projection) find, I think, a natural place in the cartographic approach (to the extent that they can be theoretically and empirically justified). This is because cartography, with its focus on the fine-grained hierarchical structure of the clause and its major phrases promises to contribute a more precise structural definition of both.

Corr: As I’m sympathetic to the cartographic approach largely for empirical reasons, I have less to say on these matters. I’d point out, though, that there is a fundamental commonality between the notion of phases as structurally-computed units of interpretation and the cartographic proposal to map out configurational representations of interpretative content. In my own work, I’ve capitalized on this commonality and combined the two by appealing to the ‘un-Cartesian’ hypothesis (an extension of Longobardi’s topological mapping theory) that the phasal architecture maps fine-grained distinctions in reference (such that phases yield formal-ontological categories, e.g., objects, propositions), ultimately collapsing semantics into syntax.

Gutiérrez-Bravo: Maybe this is not the best way to ask this question. Ultimately, different theories compete with one another with respect to how well they account for and explain different empirical phenomena, not with respect to how well they accommodate each other's theoretical notions. A phase is a theoretical notion which in minimalism is used to account for certain locality phenomena, primarily. So, I think that what is most important is to ask how the accounts of locality phenomena of cartography and minimalism compare with one another. If both theories are successful in accounting for the same set of empirical facts, then we might prefer one over the other on the basis of simplicity, or theoretical elegance, or other factors, but I don't think any theory should be expected to accommodate the theoretical constructs of another one.

Ramchand: Cartography is the description of representations. Locality is a property of linguistic systems that becomes apparent when you try to establish relationships across different parts of those representations. Discussions of locality require a robust theory of representations to make any sense. Locality domains need

to be stated over explicit representations. It is an open question, and entirely open to cartographers to classify their representations in terms of higher level zones, or make generalizations about intervention, in order to underwrite generalizations about locality.

Samek-Lodovici: These are the questions that most fruitfully address the above question concerning compatibility. The issue is whether phases, or anti-locality, or other minimalist tenets, can function within cartographic analyses, and vice versa. The most interesting outcome would involve finding theoretical tenets in either minimalism or cartography that create serious inconsistencies once added to the other program. If the discovered inconsistencies are not an accident addressable through some tweaking, they would highlight a genuine clash between at least some of the goals pursued by the two programs, revealing that human grammar is not designed to simultaneously serve all of them.

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