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From Comparative Languistics to Comparative (Bio)linguistics: Reflections on Variation

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1. Introduction

In *Me and Chomsky: Remarks from Someone Who Quit*, Sascha Felix writes about the nature and the orientation of current work in the field of (comparative) linguistics:

> In some sense I feel that much (but obviously not all) of current linguistic work displays a relapse to the spirit prevailing in pre-Chomskyan times. *Linguistics is about describing language data. Period. Beyond this there is no deeper epistemological goal. Of course, those who became linguists because they like to play around with language data could not care less, because they can pursue their interests under any development of the field, nowadays possibly with less pressure and stress.* Personally I felt that much of what I was offered to read in recent years was intolerably boring and that the field of linguistics was becoming increasingly uninteresting and trivialized". (Felix 2010: 71, emphasis added)

On the surface, many linguists claim their work to be driven by an interest to understand and describe the biological underpinnings of the faculty of language (henceforth, FL). However, a more careful look at the literature shows that this interest is not always reflected in the bulk of their work. Despite the fact that linguists are often quick to acknowledge an interest in core properties of FL, it seems that this interest fades away and the focus shifts from FL to particularities of grammar—described in highly technical detail—that would not mean much if the real focus was on FL, in the sense that the specific realizations of a grammatical phenomenon across languages might have a place in the grammar books dedicated to these languages, but not in a book about FL and human cognition. In other words, it seems that there is a divide between *linguistics* (or biolinguistics, with focus on FL) and *languistics* (with focus on detailed descriptions of grammars or what Felix calls 'language data')—a state of affairs reminiscent of the distinction between biolinguistics in the strong and biolinguistics in the weak sense (Boeckx & Grohmann 2007).

The biolinguistic enterprise, in its current state of development, aims to address five key issues, each of which can be formulated as a question. Boeckx & Grohmann (2007: 1), following Chomsky (1986) and in effect going back to Tinbergen (1963), reproduce the questions as follows:

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(1) What is knowledge of language?
(2) How is that knowledge acquired?
(3) How is that knowledge put to use?
(4) How is that knowledge implemented in the brain?
(5) How did that knowledge emerge in the species?

Despite the frequently acknowledged interest in these questions, it seems to be the case that this conception of the discipline is not really depicted in discussions that deal exclusively with particular grammatical phenomena, and this comes at a cost for the discipline itself. The existence of this linguistics/languistics divide is at times problematic when one seeks to establish truly interdisciplinary bridges between linguistics and neurobiology, due to a granularity mismatch between the primitives on which each discipline operates (Poeppel & Embick 2005). In Hornstein's (2013) words, it seems that "[t]here really is a linguistics/languistics divide that is quite deep, with a very large part of the field focused on the proper description of language data in all of its vast complexity as the central object of study. Though, there is no *a priori* reason why this endeavor should clash with the biolinguistic one, in practice it does".

The observed clash could be the result of linguists employing folk biology of language when discussing FL as a component of the human mind/brain. For example, linguists (at least those within the generative enterprise) have often followed Chomsky (2005) in assuming the three factors identified there as crucial components of language design. They also followed Chomsky in calling the first factor in language design 'Universal Grammar' (UG) and further describing it as the genetic endowment for language, again following Chomsky (2005).[1] It is highly likely that this narrow, genocentric vision of UG will prove problematic, particularly so when it comes to the integration and assimilation of results from linguistics into biology, which has progressively moved away from its genocentrism (Pigliucci & Müller 2010). Another reason for the clash Hornstein talks about could be the diversity of interdisciplinary insights that the two fields (comparative languistics and comparative biolinguistics) encompass: There are considerations about FL that are dealt with in a narrower way within the former than within the latter. For example, comparative languistics tends to favor a more narrow and restricted view of variation; what Benítez-Burraco & Boeckx (in press) refer to as "deal[ing] with variation 'at the surface' (dialects, languages, sociolects)". However, as they point out, a novel, comparative approach within the realm of (bio)linguistics should ask questions that aim to uncover the locus of variation (and its constraints) across genotypes, pathologies, or across species. This comparative biolinguistic approach entails the integration of various insights from the literature on evolutionary biology, genetics, paleoanthropology, clinical linguistics, and studies on externalization and variation across species.

More concretely, this novel approach seeks to bring the study of language within the fold of an Extended Synthesis in biology (Pigliucci & Müller 2010) and

[1] See Lorenzo & Longa (2009) for a list of studies that make reference to UG as 'blueprint', 'genetic endowment', or 'genetic equipment'.

to answer key questions about the nature of variation and its constraints across languages, pathologies, and species. This was the motivation behind organizing a two-day event (*Comparative Biolinguistics: An Exploratory Workshop*; henceforth, CBL) held in November 2013, at the University of Barcelona's Department of General Linguistics. The goal of CBL was to make progress with respect to establishing interdisciplinary linking hypotheses within a perspective of extended synthesis for FL. As the description of the talks below suggests, evolutionary biology, brain imaging, and clinical linguistics were the main points of departure for the presenters in this workshop.

2. Comparative Biolinguistics: An Exploratory Workshop

The goals of CBL were articulated in detail in the two talks that opened the event, delivered by *Antonio Benítez-Burraco* (Universidad de Huelva) and *Cedric Boeckx* (ICREA/Universitat de Barcelona).

The first talk was oriented towards providing the reasons for developing a new research program such as the one described above. The notion of variation was the main theme of Benítez-Burraco's presentation. He discussed the amount (and kind) of variation that we find in language and how we need to properly come to grips with it if we want to contribute to a real characterization of the biological foundations of language. In line with what is argued in Benítez-Burraco & Boeckx (in press), Benítez-Burraco suggested that a direct link between language features and the genome and a conflation of geneticism with nativism (i.e. first factor in language design = UG = linguistic genotype) are not likely to represent any progress in understanding the biological underpinnings of FL, because genes do not work this way. In his words, a direct link between the genotype and the phenotype is not only simplistic, but biologically untenable, given the way in which genes contribute to developmental processes and how development actually takes place. Genes are not blueprints and developmental processes also depend on non-genetic factors.

Under these assumptions, variation was argued to be constrained, with only some of the possible pathological phenotypes being actually realized. In other words, some aspects of language processing seem to be vulnerable in all related pathological conditions, while others seem to be preserved across pathological conditions. For instance, inflectional morphology is problematic across different pathologies, whereas operations of narrow syntax are never shown to be problematic (see Benítez-Burraco & Boeckx, in press, for discussion and references). The take-home message was that it is evident that those interested in discussing the notion of variation from a comparative biolinguistics perspective should rely on certain key Evo-Devo concepts (e.g., canalization, development plasticity, robustness, evolvability, adaptive landscapes, etc.).

In the second talk, Boeckx discussed possible tools for comparative biolinguistics. He argued that in order to advance the new research program, attention has to be paid to the tools one uses when establishing the relevant comparisons and pinpointing the limits of variation. Focusing on the Chomsky hierarchy, the three main conclusions drawn in his talk were: (i) choosing to use this tool entails ignoring the fact that the Chomsky hierarchy does uniquely

characterize FL since no region of the hierarchy can be identified as unique to FL; (ii) most comparative biolinguistic experiments using the Chomsky hierarchy are artificial language experiments that target the learning of purely syntactic patterns, stripped off semantic consequences. However, natural languages do not work this way, since there are no syntactic patterns without semantic patterns, (iii) there are inherent limitations of the Chomsky hierarchy in capturing the constraints of variation. Boeckx's point here is that even if we discovered that other species were capable of mastering a mildly context-sensitive language, by running an artificial language experiment, this would not be very informative, because it would not provide any information about the algorithm that was used when learning the patterns in question. All in all, this talk highlighted the fact that linguists have some translation work to do before they are able to use the right linguistic tools into a broader comparative framework.

The next set of talks, by *Aritz Irurtzun* (IKER/CNRS) and *Maia Duguine* (University of the Basque Country), combined different linguistic perspectives in an effort to understand the locus and limits of variation in language. Irurtzun focused on prosodic constraints in linguistic theory. Having reviewed a great number of linguistic representations from a variety of languages, he argued that cross-linguistic prosodic variability escapes any surface-based generalization and that this amounts to a constraint on the (bio)linguistic theories we construe. He also stressed the fact that a potential problem of going abstract (i.e. substance-free)[2] is that we may lose the external plausibility for the restrictions we may pose; a fact that should not be taken as a problem if the goal is to describe FL. Duguine talked about the nature of parametric variation, and her discussion targeted a specific parameter: *pro*-drop. In the field of theoretical linguistics, the locus of variation has been frequently described in the form of syntactic or lexical variants that are encoded in the initial state of FL (i.e. a parametric UG, following Chomsky 1965 *et seq*.). Since Rizzi's (1986) work on null subjects, languages are usually classified either as allowing null subjects (*pro*-drop languages such as Italian) or not (non-*pro*-drop languages such as English). Duguine, however, showed how the *pro*-drop phenomenon cannot be reconstructed as a lexical parameter. Going through data from different languages, she suggested that there is no set of formal features that forms a class which would effectively identify and group the relevant items together. In her words, lexical parameters are defined by the formal features of functional categories, subject to cross-linguistic variation, but when one asks what is the property (i.e. formal feature) that sets apart Italian, Catalan, Japanese, etc., from French, English, German, etc., the answer that surfaces is that there is no such property. The reasonable conclusion to draw would be that likewise there is no such parameter as *pro*-drop. Based on Duguine's arguments about *pro*-drop, one might wonder whether the point she makes can be valid for other parameters as well; and it probably is. Put differently, *pro*-drop being one of the few standard textbook examples of a (lexical) parameter, one wonders whether there really exists in the literature a single

[2] Substance-free approaches (e.g., Hale & Reiss 2000) in phonology argue for a light, simple phonological component of UG, plausibly deprived of phonetic biases, consisting of a core computational system that is ready to naively receive input and manipulate it.

example of a lexical parameter that can be accurately classified as such. The answer seems to be negative. This paves the way for a unified approach to the *pro*-drop phenomenon in phonological terms based on a PF-deletion analysis of dropping (Duguine 2013), and then for extending an analysis along these lines to other 'lexical' or 'syntactic' parameters identified as such in the literature.

The next four talks of the first day of CBL aimed to contribute different insights to the research agenda of comparative biolinguistics by sharing different, yet related, points of departure. *Lluís Barceló-Coblijn* (Universidad de Murcia) talked about hominins through communication and language. This was related to how language emerged in the species (question (5) above), more than to what language consists of in linguistic terms (as in the two previous talks), what are the sources of variation within FL and how the issue of variation should be dealt with in the new research agenda. Barceló-Coblijn brought up an important aspect of CBL (i.e. the difference between us and extinct hominins) and discussed the possibility of figuring out if extinct hominins had aspects of our language faculty.

In the evolution literature, admixture between other hominins and anatomically modern humans has recently been confirmed (e.g., modern humans and late Neanderthals, as in the case of a child from Lagar Velho; Duarte *et al*. 1999). However, there is no direct link between genotype and phenotype; development is influenced by factors other than the genes (Oyama 2000), and the observed developmental trajectories (and plausibly the cognitive abilities they finally support) are modeled by other factors (as mentioned above, canalization, development plasticity, robustness, evolvability, adaptive landscapes, etc.). Eventually, it can be claimed that "other hominins could have had a 'linguistic system' […], [h]owever, the available data suggests that the 'languages' they plausibly spoke would have lacked some defining properties of human languages, particularly, complex syntax" (Benítez-Burraco & Barceló-Coblijn 2013: 241).

Tobias Scheer (Université de Nice), in perhaps the most interactive talk of the event, engaged in an extensive commentary on the outline of the comparative biolinguistics program as sketched in Benítez-Burraco & Boeckx (in press) and in the first two talks of CBL. He dealt with a variety of topics such as the mind–brain relation, the variability of FL, modularity, language universals, language pathologies, and different arguments for or against scenarios on the adaptive emergence of language. Lastly, he addressed one of the most important topics on the current (bio)linguistic agenda: third factor patterns. Given the exploratory character of CBL and also the at times different perspectives held by the participants, his direct engagement with the material presented by Antonio Benítez-Burraco and Cedric Boeckx provided the means for sharpening the understanding of the linking hypotheses that are to be established between the different disciplines that are to be integrated into the new research program. His basic departure from Benítez-Burraco & Boeckx (in press) was his dualist position; his emphasis was on us being able to focus on the mind, without however having a clear definition on what the mind is.

Rie Asano (University of Cologne) and *Uwe Seifert* (University of Cologne) brought into the discussion yet another perspective in addressing the relation between biolinguistics and (bio)musicology. Asano focused on theoretical and neuroscientific considerations that are relevant when comparing syntax in music

and language as well as the implications that this comparative approach carries for the evolution of language. Seifert's talk was oriented towards offering an evolutionary framework for comparative research on the functional architecture of the musical mind. Both talks can be related first to biolinguistic concerns about the uniqueness of language or, better, about identifying the uniquely human core mechanisms (say, syntactic mechanisms) and second to understanding whether these mechanisms are indeed unique to FL (see Hauser *et al*. 2002 and Fitch *et al*. 2005 on the potential candidates for this uniqueness) or whether they can exhibit parallels to music or other domains of human cognition. This issue is a frequently addressed topic in linguistics, particularly so ever since Hauser *et al*. (2002) introduced the distinction of FL in the narrow and in the broad sense, and argued that syntactic recursion (i.e. Merge) is a potential candidate for FLN(arrow). It is important to highlight here the points of commonality between language and music. Both are innate and universal, they constitute part of the great leap forward, they seem to have parallels in other species, there seems to be structure and hierarchy in both, etc.

On the second day, CBL had a focus on pathologies. Most of the talks presented experimental results from studies on typical or atypical language acquisition/performance in child and adult populations. Aiming to provide robust comparisons across a variety of pathological conditions, the idea was to solicit contributions that discuss impairments in speakers of the same language, so as to keep the reported predictions and/or results as comparable as possible. Coming from the Cyprus Acquisition Team, *Kleanthes K. Grohmann* (University of Cyprus), *Maria Kambanaros* (Cyprus University of Technology), *Eleni Theodorou* (University of Cyprus), and *Elena Papadopoulou* (University of Cyprus) started the second day of CBL with specifying aspects of Specific Language Impairment (SLI) in Cypriot Greek. In their talk, they highlighted four areas in the domain of syntax: clitic placement, comprehension and production of relative clauses, sentence repetition performance, and *wh*-questions. The main focus of their investigations were atypically developing children, in particular the identification of SLI; however, the discussion was not restricted to that. Instead, their findings were put in perspective by comparing SLI with other syndromes and by administering similar experimental tools to patients with Broca's aphasia, traumatic brain injury, and dementia of the Alzheimer's type.

In the next three talks of that day, different studies were presented, each of them focusing on different atypical populations and/or experimental tasks. First, *Christiana Christodoulou* (University of Cyprus & MIT) and *Kleanthes K. Grohmann* discussed the grammar of Down Syndrome. In line with Christodoulou (2011), the aim was to see whether the differences in Down Syndrome grammars and typical grammars are (i) syntactically, (ii) morphologically, or (iii) phonologically and phonetically conditioned. The reported results are based on a broad variety of tasks (i.e. combinations of visual and audio stimuli with guided production, elicited imitation, and storytelling) and touch upon all aspects of the grammar under investigation. Findings point out phonetically conditioned differences between the groups, with a small residue of morphologically and phonologically conditioned differences. These findings seem to grant experimental support to the view of variation that is entertained in Benítez-Burraco & Boeckx (in press): It

seems to be the case that variation is constrained, with only some of the possible pathological phenotypes actually realized. In fact, the conclusion to be drawn based on the experimental work presented at CBL, but also from a broader literature review across pathologies, is that morphophonology might be impaired, but syntax is preserved. Put differently, we do not know of an atypical population that is unable to syntactically combine different elements or that manipulates syntactic objects in an atypical way that is not a licit option in unimpaired syntax (e.g., to add negation by moving the third element of the clause to the sentence-initial position), whereas we repeatedly find atypical patterns of various aspects of morphophonology across disorders.

Maria Kambanaros and *Kleanthes K. Grohmann* talked next about verb–noun dissociations across language-impaired populations. They presented the results obtained from administering the Greek Object and Action Naming task (Kambanaros 2003) to three different populations: (i) adults with aphasia, (ii) adults with schizophrenia, and (iii) children with SLI. This task assesses lexical retrieval of object and action names, and the results showed a verb–noun dissociation across the populations under study (see Kambanaros *et al*. 2010, 2014 for detailed presentations of the results). It is interesting to note here that the reported errors are similar: Different populations produced similar results in the sense that they employed circumlocutions (light verbs, e.g., 'make a house' instead of the target 'build') or superordinate terms ('tool' for 'hammer').

Crucially, the types of substitutions that were generated by this research clearly indicate a by now recognizable pattern: preserved syntactic abilities (as suggested by the overt realization of the phase head when a light verb construction is produced instead of a single verb) and preserved semantic abilities (as suggested by the ability to activate semantically relevant lemmas that might not, however, correspond to the target word). Kambanaros and Grohmann interpreted their findings by proposing difficulties in accessing the target phonological representations. In their words, children with SLI do not have a strong enough phonological representation or strong enough links between the semantic and phonological representations in the output lexicon to support correct retrieval, whereas aphasic patients were argued to have greater difficulty accessing the morphophonological representation or lexemes of verbs.

In this context, the next talk by *Maria Kambanaros* on instrumentality and the neurological underpinnings of verb processing fit nicely into the already reported pattern. The research objective was to see whether semantically complex verbs are easier or more difficult to retrieve across language-impaired populations. The naming task was administered to four populations: (i) adults with aphasia, (ii) adults with schizophrenia, (iii) adults with multiple sclerosis, and (iv) children with SLI. Results in adult populations suggest a negative effect of instrumentality on verb retrieval in Broca's aphasics and a positive effect in bilingual anomic aphasics (in both languages) as well as in patients with multiple sclerosis, and no effect of instrumentality on verb retrieval in schizophrenics. With respect to child populations, non-instrumental verbs were significantly better retrieved than instrumental verbs for all children (SLI and controls with typical language development). Children with SLI were found to perform better in instrumental verbs with a name relation compared to instrumental verbs

without a name relation. These findings are compatible with a theory that would want different populations to be unable to resolve the competition at the phonological level.

The next talk by *Valantis Fyndanis* (University of Athens, University of Potsdam & Technological Educational Institute of Patras) dealt with evidence from Standard Modern Greek on the morphosyntactic production in agrammatic aphasia and probable Alzheimer's disease. This talk added a flavor of variation in the landscape that emerges from the literature on pathologies, as the different status of the functional heads Asp(ect), T(ense), and Agr(eement) in terms of impairment/preservation (e.g., in Fyndanis *et al*. 2012, Asp was found significantly more impaired than T, and T significantly more impaired than Agr in Greek-speaking agrammatic patients) was explained in the talk as the result of differential demands: Agr is easier than T/Asp, because Agr requires implementation of only grammatical knowledge, whereas T/Asp require integration of extralinguistic/conceptual information as well. T further requires reference to temporal entities (e.g., event time, speech time; see Wenzlaff & Clahsen 2005) which makes them more costly in pragmatic terms. With respect to the group with probable Alzheimer's disease, the Asp < T < Agr pattern of impairment was retained and Fyndanis argued that the impairment in T is due to participants' difficulty in retrieving the verbal morphology matching the sentence-initial T adverbials. Overall, in this case too, it seems that variation is either extralinguistic (i.e. integration of pragmatic/contextual resources) or, if within grammar, it amounts to morphophonology, but never to syntax.

This was the idea pursued in the last talk of CBL (*Evelina Leivada*, Universitat de Barcelona). I sketched out a state of affairs that deals with the notion of variation across languages and pathologies in a way that brings forward a strong parallel between what is reported in the literature that comes from the study of specific languages and the literature that deals with clinical findings from work on various pathologies. More specifically, I suggested that (i) the same loci of variation can be identified across the two research programs (comparative languistics/variation across languages and comparative biolinguistics/variation across pathologies) and (ii) certain pathologies can inform our understanding of variation in the comparative biolinguistics domain through administering a specific linguistic task on the semantics–pragmatics of quantification to specific populations, such as schizophrenics. With respect to the first point, all syntactic or lexical ('parametric') variation can be reconstructed in non-syntactic terms by viewing parameters as externalization-related epiphenomena that amount to morphophonological variants rather than as UG primitives. In other words, variation is constrained to one domain of grammar, because syntax is invariant (cf. Boeckx's 2011 Strong Uniformity Thesis according to which principles of narrow syntax are not parametrizable) and lexical semantics of course varies—but following Ramchand & Svenonius (2008), these differences were taken to be arbitrary and not reducing to any obvious discrete parametric system.

The same picture emerges from the literature on pathologies, as already suggested above for a variety of atypical populations that were discussed at the workshop. The only difference is that in this literature it is unclear what happens

with respect to the semantics–pragmatics interface in some cases, which is where the need of administering specific linguistic tasks that disentangle particular aspects of impaired patterns arises. For example, literature on language comprehension and/or production in schizophrenics makes reference to a variety of language-related impairments: (i) failure to segregate phonological engrams due to the lack of the typical left hemisphere advantage for language (Angrilli *et al*. 2009), (ii) failure to use words in a semantically acceptable way (Oh *et al*. 2002), (iii) impaired referential and lexical cohesion (Ragin & Oltmanns 1986, McKenna & Oh 2005), and (iv) impaired pragmatics and inability to interpret things by making use of linguistic context (Chapman & Chapman 1973, Kuperberg *et al*. 1998). With the exception of (i), all the other deficits listed above seem to pertain to the semantics-pragmatics interface. At the same time, though, it is not clear whether some of these impairments really boil down to semantics *per se*: For example, the inability to use words in a semantically acceptable way might not be a semantic deficit that reflects a problem in conceptual-semantic stores, but instead a matter of impaired word retrieval abilities. In the talk by Kambanaros and Grohmann on verb–noun dissociations across impaired populations, the results of Kambanaros *et al*. (2010) on object and action naming in schizophrenia were presented. These authors suggested a retrieval issue when discussing their findings. More specifically, the absence of dissociation in comprehension of action and object names coupled with semantic errors in naming for both these two classes is taken by them to suggest intact conceptual-semantic stores, but difficulties with mapping semantics onto the lexicon, that is, access/retrieval problems.

Fine (1999: 85) describes this state of affairs by arguing that "to assess language use and its relationship to a psychiatric entity such as schizophrenia requires that the context be carefully taken into account and that the semantic resources related to contexts be considered". This view that makes reference to both semantic resources and contextual variables (i.e. pragmatics) suggests a need to disentangle the semantics-pragmatics interface in schizophrenic language in order to understand which aspects of language are impaired in these patients. Doing so requires a testing tool that involves both semantically felicitous/infelicitous and pragmatically felicitous/infelicitous test items, such as the 'Cave-girl Task' used to test the semantics and pragmatics of quantifiers in child and adult populations across 25 languages (COST Action A33, 2006–10; Katsos *et al*. 2012). As I suggested in my talk, if schizophrenics have intact semantic stores but show impaired use of pragmatic/contextual variables, the prediction is that they would perform more accurately in identifying the semantically infelicitous utterances than the pragmatically infelicitous ones. Testing this prediction will shed further light first on the nature of variation across pathologies and second on the grammar of schizophrenia (Leivada, in progress).

All the cases of pathological conditions discussed in CBL are particularly telling when the aim is to delimit variation and to determine which aspects of grammar show up as impaired more often than not.[3] The case of schizophrenia is

[3] Of course pinpointing these aspects is also subject to the theory of FL one endorses, but in line with mainstream generativist assumptions that accept Merge as the operation that lies

of particular interest to such inquires: Although it has been argued that "at the level of syntactic processing, schizophrenic patients' speech is usually normal" (Marini *et al*. 2008: 145, referring to Andreasen 1979 and Covington *et al*. 2005), a case for reduced syntactic complexity can also be made (Morice & McNicol 1986, Fraser *et al*. 1986, Thomas *et al*. 1990, discussed in Marini *et al*. 2008). One possible way to go about describing the relevant findings is to suggest "a disruption of executive function and pragmatics, perhaps with impairment of the syntax-semantics interface" (Covington *et al*. 2005: 85). However, if we are able to observe reduced syntactic complexity, we are also able to observe some syntactic complexity. When this is the case, it entails that the (syntactic) operation responsible for recursion is preserved. Once more, we do not find an inability to syntactically combine different elements or a manipulation of syntactic objects in a way that is not licit in unimpaired syntax (e.g., to add negation by moving the third element of the clause to the sentence-initial position). Therefore, another way to describe reduced syntactic complexity has to be found. For example, it is possible that grammatically unacceptable utterances and reduced syntactic complexity are the cumulative result of the existence of a number of features typical of schizophrenic production (see Andreasen 1979 and more recently McKenna & Oh 2002 for a list of such features) such as clanging, derailment, and semantic paraphasias which arise due to the nature of the schizophrenic semantic network where "loose associations are caused by an unrestrained associations-chain in semantic memory" (Lerner *et al*. 2012: 5).

The roundtable discussion that closed the event revolved around concerns that relate to the tools to be used in the new research program of comparative biolinguistics, to testing concerns when it comes to informing our theories of FL on the basis of atypical populations, to the steps that need to be taken next in order to provide a more solid agenda for comparative biolinguistics and, above all, to the issue of variation, which was arguably the notion that figured more prominently throughout most of the discussion periods that followed the talks. Moreover, some problems regarding the feasibility of biolinguistics were brought up, and some of the more foundational issues of the divide between linguistics and other sciences were discussed, such as whether the mind can be studied separately from the brain, and whether it is acceptable for linguistics to evolve independently from allied disciplines and to not be solidly grounded in biology.

3. Outlook: The Beginnings of a New Research Agenda

All in all, CBL managed to bring together different aspects of the five key questions in biolinguistics that were given in (1)–(5). The fact that all the talks were followed by lively discussion periods, despite the diversity of perspectives (and perhaps even theoretical persuasions) of the participants, can only suggest that dialogue is possible and that building the right type of bridges between linguistics and interfacing disciplines is doable.

In Paris of 1866, all discussion on the origins of human language (an issue

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in the core of syntax, it is a rather straightforward claim that observing non-typical use of lexical items (i.e. impaired semantics), retrieval issues, or missing morphological markers cannot qualify as impaired syntax.

related to question (5) above) was famously banned by the Linguistic Society of Paris. Almost one and a half centuries later, it seems to be the case that adequate progress has been made and that we have accumulated enough knowledge from the various disciplines mentioned above to make an attempt to provide linking hypotheses across these different disciplines through a novel, comparative biolinguistics perspective.

Crucially, this novel perspective does not intend to dismiss or neglect the progress made over the last decades within the comparative languistics approach (i.e. variation across languages); instead it can benefit from this progress and make use of the relevant findings. However, it does require that the findings, tools, and primitives that survive the passage from one discipline to the other are able to inform on the somewhat larger frame of the new enterprise. I believe that it also requires that they are linked more robustly with the five key questions of the biolinguistic agenda. Put differently, linguistic representations, when used, have to go hand in hand with interdisciplinary linking hypotheses that say something novel about FL, rather than being followed by highly technical discussions that provide no explanatory adequacy at all because they exhaust themselves on describing how construction A is realized in language B. In Felix's (2010: 68) words, once more, "[i]f you, like Chomsky, are primarily interested in cognitive psychology, your specific perspective on the entire generative enterprise might be somewhat different from the one of someone who is just interested in language and language data".

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