

Durham E-Theses

The essentialist construction of Tense and the format of a universal grammar

XIE, WEI

How to cite:

XIE, WEI (2024) *The essentialist construction of Tense and the format of a universal grammar*, Durham theses, Durham University. Available at Durham E-Theses Online:
<http://etheses.dur.ac.uk/15391/>

Use policy

The full-text may be used and/or reproduced, and given to third parties in any format or medium, without prior permission or charge, for personal research or study, educational, or not-for-profit purposes provided that:

- a full bibliographic reference is made to the original source
- a [link](#) is made to the metadata record in Durham E-Theses
- the full-text is not changed in any way

The full-text must not be sold in any format or medium without the formal permission of the copyright holders.

Please consult the [full Durham E-Theses policy](#) for further details.

**The essentialist construction of Tense and the format of a universal
grammar**

Wei Xie

**For PhD in Arabic linguistics
School of Modern Languages and Cultures
Durham University
2023**

Content

1. Introduction	1
1.1. Main theoretical goals and outline of Chapter One	1
1.2. Critique of generative grammar	2
1.2.1. A functional perspective.....	2
1.2.2. What syntax signifies?	4
1.2.3. Comparative or not?	6
1.2.4. Innateness and a theory of language acquisition	10
1.2.5. Combined theoretical orientations of generative grammar	12
1.2.6. Too much freedom	14
1.2.6.1. A sufficient reason for grammaticality?	14
1.2.6.2. Subject to experience but to what extent?	16
1.2.6.3. Free cross-linguistic connections	17
1.3. Categorization in generative grammar	18
1.3.1. Lexicon and innateness	18
1.3.2. Ideal: completeness and systematicness	19
1.3.3. Categorization that matches up to innateness	20
1.3.4. Reality: opportunism	24
1.3.5. Cartography: neither complete nor systematic	25
1.4. Stating the problem: innateness but how?	27
1.5. Organization of the remaining of the thesis	30
2. Chomsky's philosophy of language	33
2.1. Rationalism vs. empiricism	34
2.2. Formalization: the unchanged theme of generative grammar	38
2.3. "How seriously should we take Minimalist syntax?"	41
2.3.1. The ongoing reform	41
2.3.2. Nothing but MERGE	43
2.3.3. Chomsky and categories	45
2.4. Formal is not mental or natural	46
2.4.1. Sharpening the boundary of mental	46
2.4.2. Definite foundation and rigid expansion	49
2.5. Conclusion	51
3. Mental reality or 'self-healing tautology'	52
3.1. Tiredness from both sides	52
3.2. Haspelmath's conception about language universals	53
3.2.1. Objection to the natural-kinds program	53
3.2.2. Linguisticity vs. Language Faculty	54
3.2.3. Comparative concepts vs. descriptive categories	55
3.2.3.1. General Category Fallacy	55
3.2.3.2. Natural kinds and Haspelmath's comparative categories ...	57
3.3. The attack	59
3.3.1. General linguistics, particular linguistics, and theoretical linguistics	59
3.3.2. Describing languages vs. describing the metalanguage	60
3.3.3. General linguistic paradox	61
3.4. The defense	63
3.4.1. Adger: a mathematical/logical grammar	63
3.4.2. D'Alessandro: a grammar that predicts	66

3.4.3. Tautology	71
3.4.4. Rigidity: An analogy of triangle	71
3.4.5. Mendívil-Giró: a mental grammar	72
3.5. Conclusion	75
4. Tense: an essential entity without an essence	77
4.1. The unknown innateness about Tense	77
4.2. The rise of Tense in English: adjustments to the theoretical models	79
4.3. Freedom in accounting for Tense	81
4.4. The non-existence of Tenseness in English	83
4.5. The theoretical transition of Tense	87
4.5.1. English: the template	87
4.5.2. Arabic	91
4.5.3. Chinese	94
4.6. A 'relaxed' tense and a (supposedly) 'tense' Tense	97
4.6.1. Descriptive tradition or mental necessity?	97
4.6.2. Some problems with interpretation	102
4.6.2.1. A causal relation between syntax and semantics	102
4.6.2.2. How does syntax 'know'?	104
4.6.2.3. Structure collapse	107
4.6.2.4. Unverifiable tense valuing	110
4.7. Conclusion	111
5. Studying language as a natural object	112
5.1. The goal for a rigid logic entity	112
5.2. Stating the obviousness	114
5.2.1. Fullness of sentence	115
5.2.2. The importance of sentence	116
5.2.3. Hierarchical structure as set operations	119
5.3. Categorization	120
5.4. Conclusion	124
6. Conclusion	125
Bibliography	127

Abbreviation

1, 2, 3	1 st /2 nd /3 rd person
AGR	Agreement
ANT	Anterior
CL	Classifier
DEF	Definite
EPISTEM	Epistemic
EVID	Evidential
IMP	Imperfective
INDEF	Indefinite
F	Feminine
M	Masculine
NOM	Nominative
PASS	Passive
PRF	Perfective
Q	Question
RES	Resultant
t	Trace

1. Introduction

1.1. Main theoretical goal and outline of chapter one

In short, the current thesis is centered on building up a universal grammar, which, in connection with the notion of innateness, can be deemed as something naturally present in human's mind. With this said, what lies at the core of a universal grammar, I argue, is the linguistic construal about how the term *natural* imposes constraint on the construction of a universal grammar. For this thesis, importantly, the criterion for the success of that is primarily epistemological, since there can only be one uniquely correct account of an innate grammar. In that, there should be some 'undeniable facts' clarified about innateness. It means that an innate grammar should be based on some necessary truths, so that the entire theoretical expansion of it can be carried out along rigid lines, whereby the unique correctness can be verified. In this connection, an innate grammar must be a metaphysical commitment at the same time. Analogously, in mathematics, the undeniable facts can be all the axioms that the entire theoretical edifice is derived from¹, or in chemistry, the undeniable facts can be the atomic structures of the elements, including their proton numbers that uniquely identify them and their electron distributions, etc. In a nutshell, innateness must substantially frame the theory of a universal grammar, to guarantee necessity in its basis and rigidity in its expansion. For that, the notion of innateness must be analyzable.

Undoubtedly, a discussion about an innate (thus universal) grammar will be incomplete without commenting on generative grammar, which began with Chomsky's *Syntactic Structures* (1957) and has been considered as a formal/mental revolution in the field of linguistics ever since (see Newmeyer 1995; Hinzen and Sheehan 2013). However, the current thesis will adopt a critical perspective in doing that, which revolves around one doubt: how is generative grammar innate? In view of what is said above, it is argued that innateness is not in fact analyzable in generative grammar, thus incapable of constraining it. Specifically, generative linguists, who can be called *Essentialists* (see Scholz et al. 2023), aims at spelling out the formal conditions that constitute grammaticality. Crucially, for them, innateness lies in the belief that such formal conditions are intrinsic properties of language, that is, true to the mental process that generates language. Note that the term *generate* has two senses: it refers to both when an adult speaker utters a sentence and when a child learns one (see Cowie 2017). In line with Chomsky's orientation, generative grammar is the ideal computational system that is pre-equipped (as opposed to extracted from linguistic data) with us to know a language. Yet a formal grammar is not automatically an innate grammar, which must be accessed separately. There is no point of view introduced in generative grammar to enable us to inspect inside of the notion of innateness and consequently to confirm it as, to borrow the expression from Pesetsky (1999: 476), 'the genetically prespecified body of knowledge about human language'. Thus, the current thesis is expected to demonstrate that due to the non-analyzability of innateness, it is not reliable to equate the formalizations that are proposed to fill up the so-called deep structure of a sentence (which can be a free domain) with our linguistic intuition. It is hoped that the current thesis can provide some useful perspectives for articulating a methodology of constructing a universal grammar, in that, language is treated as a natural object. As this will be closely tied to the critique of generative grammar, familiarity with its unique technical terms involved in a typical syntactic account is assumed in the current thesis.

¹ For example, we cannot make a triangle on one plane with all its internal angles yet not adding up to 180 degrees. It is something that shows how language is allowed to be part of our world, and this will be invariant for all languages. Apart from that, innateness also contains freedom that stems from the basis of being a language, either derived by it or just not contradictory with it (clearly, there are numerous possibilities of making a triangle in terms of the realization of its internal angles, insofar as the principle mentioned above is not violated).

The rest of **Chapter One** is a discussion of the overall methodology of generative grammar, which first involves the review of the critiques from functionalists in Section 1.2.1 (by contrast, generative linguists are called *formalists*). Specifically, Section 1.2.2 and Section 1.2.3 lay out the opposing understandings of functionalists and formalists about, respectively, what syntax signifies² and what a truly comparative approach is in composing a universal grammar. Section 1.2.4 and Section 1.2.5 deal with the critiques and responses regarding generative grammar as a theory of language acquisition. In that, a functionalist may insist that generative grammar does not shed light on language's learnability as much of it does not need to be learnt (but pre-equipped), whereas a formalist maintains that it is exactly the unlearned part of language that shapes our language in principle (Section 1.2.4). This can afford some ground for suspecting the trivial involvement of innateness³ in the theorization of generative grammar (Section 1.2.5). Section 1.2.6 thus discusses the freedom because of the trivial involvement of innateness in generative grammar. That can include the use of highly technical terms which seem to be only theory-internally driven (Section 1.2.6.1), the indeterminate division between principles and parameters (i.e., what can/cannot be subject to experience) in linguistic forms (Section 1.2.6.2), and the arbitrary treatment of similarities between languages as cross-linguistic inspirations for solving language-particular problems (Section 1.2.6.3). Section 1.3 discusses the manifestation of the freedom in an important facet of generative grammar, that is, categorization. It is pointed out in Section 1.3.1 that *lexicon* is indispensable in generative grammar's syntactic component (derivation assumes a ready-to-use lexicon), and the practice of categorization should result in products that have the proper epistemological and metaphysical significance. That is, when a linguistic element is registered in the so-called deep structure, the identity assigned to it must be shown to be the only possibility that it can be (Section 1.3.2 and Section 1.3.3). Nonetheless, in practice, categorization is *opportunistic* in generative grammar, without an overall guidance about what can or cannot be proposed for the deep structure (Section 1.3.4 and Section 1.3.5). Finally, Section 1.4 will restate what the current thesis takes issue with: since innateness is never a self-evident property and never independently analyzable in generative grammar, how could one be convinced that the content of generative grammar should be a linguistic presentation of innateness? It is stressed that innateness must be a real factor in the theorization of an innate grammar, otherwise syntax of it is a free domain.

1.2. Critique of generative grammar

1.2.1. A Functionalist perspective

On one hand, generative grammar still maintains its strong vitality as one of the most influential linguistic schools⁴, if not arguably the single one, which is attested by the number of research articles still incessantly devoted to it. But on the other hand, critiques of generative grammar are accumulating, seemingly well-matched and vocal. It is fair to say that *functionalist* linguists

² For instance, whether syntax can be integrated into a more basic layer of explanation (and what that can be).

³ As a theory of formalizing language, generative grammar is expected to spell out the intrinsic properties that underlie our expressions, in that, not being a self-evident property, innateness must be justified. But when generative grammar is treated as a theory of language acquisition, innateness is just assumed. Since *merge*, for instance, is thought to be pre-equipped, a child would not need to learn about it, which would otherwise be a mysterious process (see also Newmeyer [2005: Chapter Three]). Combining the two orientations must be primarily warranted by the justification of innateness as the frame of the content of generative grammar. Otherwise, there is a hazard that innateness might not be explained at all.

⁴ What I admire about generative grammar is that it seeks to explain how languages are described the way they are, as the equation between a and b shown in Figure 3 (shown in Section 1.5). Ideally, description and explanation of language need to be united, with both necessarily being true to the essence of language, i.e., innateness. This is why generative linguists lay stress on the mental reality of the sentence derivation that they portray (ironically, though, it is argued herein that generative linguists fail to demonstrate that). This prompts linguists to think about what language is and convert that into a constraint on the description of language. A deep epistemological basis is thus added to linguistics.

are the main force for criticizing generative grammar whose supporters are called *formalists*. Langacker (1999) explains the distinction (with himself being a functionalist) in relation to the source of a theory's explaining power, saying:

Most basically, cognitive and functional linguists believe that language is shaped and constrained by the functions it serves and by a variety of related factors: environmental, biological, psychological, developmental, historical, sociocultural. This alone, of course, does not necessarily distinguish them from formalists. The crucial difference appears to be the following: functionalists tend to believe that an understanding of these factors is prerequisite and foundational to a revealing characterization of linguistic structure, whereas formalists tend to regard them as subsequent or ancillary to such a characterization. (Langacker 1999: 14)

From the other side, Newmeyer (2005) notes some major differences between functionalist and formalists in doing language typology:

Functionalists have been most likely to take the generalization at face value and to put forward some user-based explanation of why more languages would be likely to work in some particular way than in some other way. Formalists, on the other hand, have tended to focus on developing some principle of UG from which the majority tendency among the world's languages is predicted to follow. In general, this UG principle is arrived at by an intensive analysis of one or two languages instantiating the typological generalization, rather than by comparative work. As far as the minority of languages that seem not to instantiate the UG principle are concerned, typically either some grammar-complicating rule or principle is attributed to them or they are ignored entirely. (Newmeyer 2005: 19)

In what follows, I will understand the contrast between functionalists and formalists as broadly as that between *Emergentists* and *Essentialists* (see Scholz et al. 2023). Accordingly, each side has distinctive aims:

- Emergentists: to explain structural properties of languages in terms of general cognitive mechanisms and communicative functions;
- Essentialists: to articulate universal principles and provide explanations for deep and cross-linguistically constant linguistic properties. (Scholz et al. 2023: Section 1)

In addition, language acquisition is also one important battlefield between them, for language acquisition means different things for them:

- Emergentists: a series of stages in an ontogenetic process of developing adult communicative competence;
- Essentialists: very similar to adult linguistic competence though obscured by cognitive, articulatory, and lexical limits. (Scholz et al. 2023: Section 1)

The fierceness of the exchanges might reach a peak on the publication of Evans' (2014a) book *The Language Myth*, as well as Evans' (2014b) article *There is no language instinct*. Evans encapsulates the generative pursuit of a universal grammar as the *language-as-instinct* thesis (the term *instinct* is taken from Pinker's (1994) book *The Language Instinct*, but Adger [2015a, b] stresses that the term *instinct* is not a *scientific* term used by generative linguists⁵; see also Allot and Rey 2017), and accordingly language occurs 'effortlessly and automatically' due to what is 'pre-equipped' in us for language acquisition. Evans' attitude toward what he calls a

⁵ Adger (2015a: 76-77) says:

Linguists talk rather of an innate capacity triggered by, and partly shaped by, experience. Instincts, in contrast, are innate, fixed patterns of behaviour in animals, triggered by certain stimuli and emerging without training. But generative linguists do not think that language is a pattern of behaviour at all, and certainly do not believe that it is fixed in its response to stimuli - indeed that point was part of Chomsky's famous attack on behaviourist approaches to language (Chomsky 1959).

language-as-instinct thesis is an utterly dismissive one, in that, he indicates that the ‘wrongness’ of the Chomskyan Universal Grammar ought to be obvious (as though it should be surprising that one would stick to the Chomskyan Universal Grammar once knowing the clear ‘facts’). In that, he says:

The myth of Universal Grammar was proposed by Chomsky as early as the 1950s, and formalised in the 1960s before the study of cross-linguistic diversity was well established. And so, one would have expected, once the facts had become known, the myth would have disappeared. But the thesis of Universal Grammar has proved difficult to eradicate. One reason is that the language-as-instinct thesis provides a complex and self-supporting worldview consisting of a number of sub-theses: all the elements providing inter-dependent planks, supporting the others regardless of the facts. Another is that advocates of this view have found it difficult to let go of the underlying rationalist impulse that underpins the entire system of beliefs: human language is unique, and its genetic endowment is bequeathed by nature. This view, in certain respects, is very appealing. In a single move, it explains the hard questions of language, and the mind.

The spectre of Universal Grammar has cast a long shadow; the shadow falls not just over the scientific study of language, but also over related areas including cognitive science, and psychology... (Evans 2014a: 64-65)

As is remarked by Allott and Rey (2017), Evans’ book was intended to be ‘popular’, as it indeed triggered many discussions between the two sides back and forth. Some generative linguists responded strongly towards Evans and his book (Behme and Evans 2015), including Hornstein (2014, 2015) and Adger (2015a, b). Especially, in his blogposts, Hornstein even suggested that criticizing Evans’ book counts as a linguistic public service for Evans (Hornstein 2014), and he blamed the publisher for even agreeing to publish Evans’ book (Hornstein 2015). Likewise, though in a more academic tone, Adger (2015a) ‘repays’ the dismissiveness to Evans, saying:

Vyvyan Evans in a recent book (Evans, 2014a), and an article in *Aeon* (Evans, 2014b), has argued that generative linguistics is bunkum: it is based on myths and needs to be replaced. Reading the book, or the article, one might think that a compelling case has been made, and that a sea-change is underway in the sciences of language. But that is not true. Evans misunderstands much of what he writes about, misrepresents the ideas of modern linguistics, and makes mistake after mistake. This means that the book and the article are useless for anyone coming from outside the field who wants to understand the issues.

There are more exchanges between Evans (Christina Behme joined him in the reply to Adger, see Behme and Evans [2015]) and Adger following that. I will not thoroughly go through them, as they focus on ‘secondary verbal issues’ (Allott and Rey [2017: 2], i.e., arguing about what Chomsky has said and what it means). Instead, I centre the following discussion on the major methodological differences between functionalists and generativists, in that, Evans’ (or Behme and Evans’) and Adger’s opinions will be mentioned as appropriate. That mainly includes, from a functionalist perspective, generativists’ placement of syntax as the center (the basic level of explanation) of their theory, and their adoption of a non-comparative approach for a so-called universal grammar.

1.2.2. What syntax signifies?

Roughly, the fundamental difference between a generative and a functional linguist, regarding the explanatory adequacy of a linguistic theory, concerns whether language can be theorized in **isolation** (see Chapter Three). To be clear, what I mean by *isolation* is that generative grammar does not need to be integrated into other facts but itself stands for fundamental (mental) facts. Thus, for generative linguists, syntax is the first cause of language (explanation of language will not go any deeper than that), and due to that, their formalization of grammaticality must be signified with necessity. Clearly, for Chomsky and his adherents, the answer is yes, as syntax amounts to an abstract rule system whose description is driven by the purpose of formalizing

language. But if generative grammar cannot be proven to be based on necessary truth, the term *isolation* may suggest non-unification of language with the world that has allowed the presence of it. Hence the uniqueness (freedom) of it (see below). For example, it is unimaginable how the theoretical design of an interpretational value being attached to a feature, e.g. [tense: past] (see Adger 2002 Chapter Five), could be realized by drawing on any realistic model (that is, it serves a single purpose). By contrast, a functionalist will not tolerate the arbitrariness or meaninglessness of syntax, since s/he will insist, knowledge about language must boil down to non-linguistic facts. Naturally, a major objection raised by the functionalists to generative grammar is the autonomy of syntax (a syntactocentric view, see Chomsky 1965; Jackendoff 2002), i.e., syntax is the first cause of language, independent of our general cognitive functions but allowing the interface with them (see Chomsky 2000 for the Liability Conditions). As is put by Croft and Cruse (2004: 2; see also Tomlin 1990; Van Valin 1991):

The first hypothesis is that language is not an autonomous cognitive faculty. The basic corollaries of this hypothesis are that the representation of linguistic knowledge is essentially the same as the representation of other conceptual structures, and that the processes in which that knowledge is used are not fundamentally different from cognitive abilities that human beings use outside the domain of language.

The first corollary is essentially that linguistic knowledge – knowledge of meaning and form – is basically conceptual structure. It is probably not difficult to accept the hypothesis that semantic representation is basically conceptual (though what that entails is a matter of debate; see below). But cognitive linguists argue that syntactic, morphological and phonological representation is also basically conceptual. This might appear counterintuitive at first: sounds are physical entities, and ultimately so are utterances and their formal structure. But sounds and utterances must be comprehended and produced, and both of those processes involve the mind. Sounds and utterances are the input and output of cognitive processes that govern speaking and understanding.

However, it is also clarified by Croft and Cruse (2014) that integrating knowledge of language to conceptualization does not necessarily conflict with the notion of innateness:

This position is sometimes taken as a denial of an innate human capacity for language. This is not the case; it is only a denial of an autonomous, special-purpose innate human capacity for language. It is of course reasonable to assume that there is a significant innate component to general human cognitive abilities, and that some of those innate properties give rise to human linguistic abilities that no other species apparently has. However, innateness of cognitive abilities has not been a chief concern of cognitive linguists, who are more concerned with demonstrating the role of general cognitive abilities in language. (Croft and Cruse 2004: 2-3)

In this connection, functionalists are not against the idea that there are some biological grounds for us to be able to speak language. Unlike generative linguists, functionalists are not convinced that such biological grounds would only be evidenced ‘logically’ (meaning theory-internally needed), having a *sui generis* nature⁶. Thus, what functionalists are against is the ‘outstanding’ status of language as a non-generalizable function of our brain/mind. For instance, Haspelmath (2020) encapsulates our ability to speak language into *linguisticity*, which is parallel to other cognitive capacities, such as what he calls *musicality*, etc. This echoes Tomasello (2005):

⁶ Yet D’Alessandro (2019a: 19), a loyal generative linguist, prospectively notes that:

Comparative syntax is still the main occupation of most generativists, but this is perhaps seen as a “reductionist problem”: reducing one issue to a wider one, rather than an explanation. Going beyond explanatory adequacy means that we not only wish to understand how languages are acquired, but why language looks the way it looks.

Since she indicates that explanations about language should be broken down more deeply and widely within the whole picture of, presumably, mental reality, this might be seen as some sign of assimilating with, for example, cognitive linguistics. That is, explanations about language must also have explanations. In this sense, I believe that D’Alessandro can be calling for the explication of the epistemological constraint for the theory.

It should also be pointed out that, a priori, the proposal of innately prespecified parameters of variation in a cognitive skill is an extremely implausible biological mechanism. To my knowledge, no one has proposed anything remotely similar for any other cognitive or social skills that human beings possess. For example, such skills as music and mathematics are, like language, unique to humans and universal among human groups, with some variations. But no one has to date proposed anything like Universal Music or Universal Mathematics, and no one has as yet proposed any parameters of these abilities to explain cross-cultural diversity (e.g., +/-mathematical variables, which some but not all cultures use in such things as algebra – or certain tonal patterns in music).

On this basis, it is only logical that functionalists take issue with the overall architectural design of generative grammar. In that, functionalists place emphasis on the continuum that consists of all linguistic components. For that, Langacker (1990: 1) says:

Grammatical structures do not constitute an autonomous formal system or level of representation: they are claimed instead to be inherently symbolic, providing for the structuring and conventional symbolization of conceptual content. Lexicon, morphology, and syntax form a continuum of symbolic units, divided only arbitrarily into separate components; it is ultimately as pointless to analyze grammatical units without reference to their semantic value as to write a dictionary which omits the meanings of its lexical items.

Revolving around the point that grammatical structure is also symbolic, Evans and Green (2006) attack the modularity thesis of generative grammar, in which syntax is treated as manipulating abstract symbols and rules. That necessitates a purely mechanical underlying representation of sentence that involves unseen objects. By contrast, cognitive models will avoid non-symbolic abstraction. Especially, Evans and Green point out that well-formedness in generative grammar depends on categorization, and thus the analysis of it necessarily contains ready-made elements, such as articulatory features, morphemes, or grammatical categories. For that, Langacker (1987) calls those elements metaphorically as building blocks, a term that is recurring in Haspelmath's papers. According to Evans and Green, those elements may be useful but are epiphenomenal (a point credited to Langacker 1987):

In other words, they are a 'symptom' of the status of that linguistic expression within a complex network of meanings and forms, but are not themselves the foundations of either meaning or structure within linguistic expressions. (Evans and Green 2006: 756)

Regarding this, Evans (2014a, b) doubts the idea of a grammar organ that 'underpins our ability to develop and acquire language' (Evans 2014a: 2) for its biological (bodily) reality, since no one actually locates it in our brain (see Pinker 1994). For this, Adger (2015a) clarifies that the human capacity for language is not referred to as an anatomically separable organ (which must be illogical), but instead a computational function. Behme and Evans (2015) then rebut that it is not the spatial localization that is under attack but the functional unit of language that stands on its own in our brain. Consistently, for functionalists, knowledge obtained by taking language as a unique module is meaningless. To be clear, however, the central issue is still the lack of a warrant of generative grammar being based on necessary truth, which must be present no matter how it is conceived as part of our universe. That is because being a computational function does not automatically render generative grammar as mental facts (see Section 1.4 and Chapter Three). In addition, whether generative grammar is truly comparative is also one focal point of debates between functionalists and generativists.

1.2.3. Comparative or not?

Another frequent topic in functionalists' attack is the non-comparative approach of generative grammar in achieving a universal grammar. In doing typological study about languages, Evans

(2014a, b), like many other functionalists, stresses diversity in which conventionality must take a role, and which can be hardly unifiable in simpler (higher-level) forms. Thus, in Evans' view, Universal Grammar is not a reflection of reality. In that, Evans claims, the language-as-instinct thesis is merely 'a particular intellectual commitment' (2014a: 68), incapable of withstanding 'careful observation and description of countless languages' (*ibid.*). Evans (2014a, b) also cites counterexamples from different aspects of language, including sound system, parts of speech, morphology, and syntax (see also N. Evans and Levinson 2009). The main idea is that language facts always surprise us in unpredictable ways. For instance, concerning the 'big four' (basic) lexical classes, i.e., nouns, verbs, adjectives, and adverbs, Evans says that 'different languages adopt different linguistic strategies to express these ideas' (2014a: 72), and thus, it is surely observable that there are languages that lack such predetermined divisions. N. Evans and Levinson (2009) (E&L) agree with Evans on that language diversity should be foregrounded in cross-linguistic studies, and object to treating differences between languages as superficial (language uniformity):

The crucial fact for understanding the place of language in human cognition is its diversity. For example, languages may have less than a dozen distinctive sounds, or they may have 12 dozen, and sign languages do not use sounds at all. Languages may or may not have derivational morphology (to make words from other words, e.g., run > runner), or inflectional morphology for an obligatory set of syntactically consequential choices (e.g., plural the girls are vs. singular the girl is). They may or may not have constituent structure (building blocks of words that form phrases), may or may not have fixed orders of elements, and their semantic systems may carve the world at quite different joints. We detail all these dimensions of variation later, but the point here is this: We are the only known species whose communication system varies fundamentally in both form and content. Speculations about the evolution of language that do not take this properly into account thus overlook the criterial feature distinctive of the species. The diversity of language points to the general importance of cultural and technological adaptation in our species: language is a bio-cultural hybrid, a product of intensive gene: culture coevolution over perhaps the last 200,000 to 400,000 years (Boyd & Richerson 1985; Enfield & Levinson 2006; Laland et al. 2000; Levinson & Jaisson 2006). (N. Evans and Levinson 2009: 431)

One can predict that generative linguists' replies to E&L will adhere to one word: abstraction. On this, Baker (2009) expresses that diversity is what we can see on the surface and a deeper look into it suggests that 'human languages are all variations on the same theme' (p. 448). The key is that sentence derivation in generative grammar is comprised of multiple levels, and thus one should expect diversity on one level and uniformity on another. Likewise, Pesetsky (2009) says that linguistic diversity should not be taken at 'face value', which is harmful for language as a scientific object:

From a distance, the structures of the world's languages do look gloriously diverse and endlessly varied. But since when is it sound strategy to take diversity at "face value"? All other sciences have progressed precisely by taking *nothing* at face value – diversity included. Evans & Levinson (E&L) claim, in effect, that linguistics is different from all other fields. If they are right, the search for deeper laws behind linguistic structure is a fool's errand, and languages are just as inexplicably diverse as they seem at first glance. (Pesetsky 2009: 464)

When addressing the counterexamples ('surprising' properties of languages) which E&L pose as challenges for UG claims, Pesetsky accuses E&L of only offering capsule descriptions and making blanket assertions. A focal point is about whether languages with free word order would disprove syntactic constituency as globally applicable. E&L believe that syntactic constituency is deemed universal due to the prejudice of the English-speaking (or other European languages) linguists (in general, E&L attribute language uniformity partly to *ethnocentrism*). Pesetsky, on the other hand, claims that according to Cable (2007, 2008), Tlingit, a language of Alaska, does show signs that it has a *wh*-position, akin to English. On the same vein, Baker (2009) mentions the language Mohawk (with free word order), which, he says, has noun incorporation 'where an argument can combine with the verb to form a compound' (p. 449). I will not go into details

of their arguments, and because syntactic constituency is not part of the thesis, I will not take a side herein. But just as is put by Tomasello (1995: 138):

Many of the Generative Grammar structures that are found in English can be found in other languages-if it is generative grammarians who are doing the looking. But these structures may not be found by linguists of other theoretical persuasions because these structures are defined differently, or not recognised at all, in other linguistic theories.

In cross-linguistic studies, connections are not difficult to detect. Especially, linguists usually enjoy the freedom of framing the presentation of them (see also Tallman 2021). But what lies at the core of an analysis aimed at portraying the metalanguage (for generative grammar, it is the biologically embodied language faculty) is to set forth the sameness, not merely similarity. On the face of it, this concerns commensurability (see also Haspelmath 2016), that is, one needs to state the premise for the connection. But fundamentally that premise needs defense, which concerns the necessity of the connection, meaning the derivability of it from the metalanguage (see below). For instance, one cannot simply take linguistic elements involved in making an interrogative sentence to be the same thing across-linguistically, i.e., the *wh*-words, and regard the differences between them as unifiable (e.g., the *wh*-movement vs. *wh*-in-situ contrast, see Chomsky 2000). To be clear, the comparison between different languages in relation to the so-called *wh*-words' behaviors is merely based on a function similarity shared by them, but we do not know how significant that is. As is said, in generative grammar, there is no guideline about what can be deemed as the same thing and what cannot. Consequently, although abstractness is necessary in portraying the metalanguage, capable of directing empirical demonstrations to the metalanguage, it is not strictly constrained, only a convenient tool of arbitrarily (or even forcibly) unifying languages (see Section 1.3.4.).

Allott and Rey (2017) refute Evans' view of generative grammar not being comparative, in that, they say:

One of Evans' most egregious errors is the repeated suggestion that the only evidence adduced by generativists is from English (pp. 15, 68, 77, 93), or that they regard themselves as "absolved from studying other languages" (p. 68). Chomsky of course realizes that there are thousands of languages in the world, many of which don't display the superficial syntactic appearances of English, and neither he nor any generativist that we know of has ever claimed that "the study of a single language can reveal [the] design [of UG]" (p. 15).¹¹ It is obviously tendentious to say (as Evans does) that the UG proposal is that all languages are English-like (pp. 15, 64): one could say with just as much – or little – justification that they are all like Warlpiri or Korean.

In fact, the truth is just about the opposite to what Evans implies: comparative syntax has long been at the heart of the generative approach, particularly since the mid-seventies when Richard Kayne and Luigi Rizzi applied Chomsky's ideas to French and Italian. Generativists have studied and written extensively on not only many of the European Germanic, Romance, Slavic and Celtic languages, but also on many languages of Africa (from Amharic to Xhosa), the Americas (from Athabascan to Zoque), and Australia; on Asian languages from several families; on Uralic and Austronesian languages, language isolates, and a number of sign languages of the deaf (which, indeed, sometimes come "out of the blue," [pp. 91, 129–131] — but, significantly, respecting principles of UG!) This work led directly to one of the key developments in generative grammar, the "Principles and Parameters" approach which proposes that UG is a combination of fixed principles and variable parameters — e.g., whether verb precedes object or vice versa — which are set during language acquisition on the basis of what the child hears. (Allott and Rey 2017: 5)

It is emphasized in the citation above that the theorization of generative grammar has extensive sources (this is a typical response from supporters of generative grammar). Both Croft (2003) and Haspelmath (2016) underlines that categories used to provide the ground for comparison should be independently definable, rather than directly taken from particular languages (see Chapter Three). Haspelmath constantly takes issue with the way that generative linguists pick

out empirical observations ‘lightly’ from individual languages and put it forth as language universal to be tested cross-linguistically:

For example, Adger et al. (2009) mostly study Kiowa, and Pesetsky (2013) mostly studies Russian, but works like these of course make very general claims. The methodological background of this approach is not as naive as Antoine de Rivarol’s claims about the universality of French, but I will argue that many linguists have not considered all the implications when they claim that their study of one or a few languages can make a contribution to general linguistics. (Haspelmath 2019: 2)

As has been shown with Tense, this is not fair for languages that are subsequently studied to prove a proposal raised elsewhere, and the content of the proposal may not remain stable and unifiable as similarity is the only evidence of the connection between languages and it can be arbitrarily portrayed. Above, Haspelmath means that although language universals may only be extracted from empirical demonstrations of particular languages, these ‘raw materials’ must be discriminated and processed, to qualify for cross-linguistic reproduction. The line must be drawn between whatever is observable among languages and potential language universals. That demands a refined methodology, one that is more profound both epistemologically and metaphysically.

In general, functionalists endorse Greenberg’s approach for comparative studies of languages. For functionalists, Greenberg’s approach is truly comparative (Evans 2014; Haspelmath 2021c). That is, compared to Chomsky’s Universal Grammar⁷, Greenberg’s approach is empiricist and it encourages generalizations based on ‘a more systematic sampling of a substantial number of languages’ (Croft 2003: 5). These generalizations are implicational and explainable in terms of language function (see Croft 2003). E&L also emphasize that unlike generative grammar, there is no place for any involvement of *feature* (defined as universals beforehand) in Greenbergian universals. About the preference for Greenberg over Chomsky (as the intellectual ancestor of generative grammar) in seeking out language universals, Adger (2015) eloquently makes it clear that they are not in fact two options on a par:

Because he misunderstands the difference between a capacity and the behaviour that capacity produces, Evans’ article and book both confuse the distinction between typological similarities between languages (that is, how languages look alike on the surface) and proposals about the structure of the human capacity for language (that is, what the mathematical function is). The mistake is a bit like saying that because frogs look different from goats, they’re not both built of proteins. Evans’ mistake is perhaps because the technical literature uses the term ‘universal’ in two different ways. One is due to the great typological linguist Joseph Greenberg, who started a research programme that uncovered similarities in surface patterns across languages. These are called typological universals (or, sometimes, Greenberg Universals). Some of these are universal claims about what patterns are more frequent across human languages (for example, languages more commonly put subjects before objects than vice versa); a few seem to be about what is possible at all in surface patterns (for example, we know of no language which would translate those three green balls in the order green three those balls, Greenberg, 1966). But crucially Greenberg Universals are about surface patterns.

The other use of ‘universal’ is by Chomsky, who adopted the term “Universal Grammar” as a way of talking about the mathematical function we discussed above (Chomsky, 1965). Statements of Universal Grammar are about what characterizes this function: a classic example would be that grammatical rules care about how sentences are structured and not about their surface order. Chomsky (2013) gives examples like Instinctively birds that swim fly. In this example, the word Instinctively tells us something about the flying, not the swimming, even though it is closer to swim than to fly. There’s a structural break that separates the subject birds that swim from

⁷ Evans believes Chomsky’s mental switches (see Chomsky 2002), though allowing some flexibility in the individualization of grammatical categories, do not pass what Evans calls the ‘good science’ test, i.e., for Evans, there is no way of falsifying a claim about the presence or absence of a linguistic universal. Not to mention that there is no theoretical room for language change in this regard, as that is in nature contradictory with the presumed rigidity as a corollary to linguistic universality.

the rest of the sentence. Structure trumps surface order here, and it seems, almost everywhere else in grammar. (Adger 2015: 77)

Mainly, language universals in the generative sense can be epistemologically more profound than (thus underlying) the typological universals (and that profundity ought to be demonstrated by filling up the deep structure of a sentence). Certainly, language universals need to be explainable (i.e., not simply associations of empirical observations), and that indeed hinges on the construction of an innate grammar, an explicit goal of generative grammar. However, it is exactly the plausibility of achieving the goal that should be questioned. As far as the current thesis is concerned, all the issues involved in the debates between the two sides of linguists, i.e., functionalists and formalists, can be effects of a deeper cause. That has much to do with the establishment of a ‘logical’ entity with generative grammar, and what lies at its core is the notion of innateness. As is suggested by Adger (2015), universals produced by generative linguists should be epistemologically more profound as they are mental reality. But that is the case only if innateness is warranted. Then, how is innateness warranted in generative grammar? Fundamentally, the epistemological profundity is tied to the constraint that the theorization of generative grammar is subject to, which ought to be the analyzability of the notion of innateness (and meanwhile the deep structure is a free realm). In what follows, I will cast some doubts on the logical involvement of innateness in generative grammar through the examination of it as a theory of language acquisition.

1.2.4. Innateness and generative grammar as a theory of language acquisition

Ideally, innateness should be the theoretical goal of generative grammar, i.e., its content exactly spells out innateness. For this, innateness must constitute the frame which generative grammar cannot fall out of. An overview about what generative linguists do is nicely put by Scholz et al. (2023: Section 1.3):

For a huge majority of practitioners of this approach—researchers in the tradition of generative grammar associated with Chomsky—this means postulating universals of human linguistic structure, **unlearned but tacitly known**, that permit and assist children to acquire human languages. This generative Essentialism has a preference **for finding surprising characteristics of languages that cannot be inferred from the data of usage, and are not predictable from human cognition or the requirements of communication** [all emphases mine].

That generative linguists aim at theorizing the unlearned but tacit knowledge that we have has been repeatedly underlined in generative grammar. Chomsky (1965, 1986) famously brings up two contrasts that further delimit the subject matter or ontology of generative grammar. One is the contrast of competence vs. performance, and the other is I-Language vs. E-language. Roughly speaking, competence is what one tacitly knows about a language, and performance refers to the circumstance in which one makes actual utterances, thus involving factors not central to language. Based on his persistent objection to viewing language as merely existing in attested utterances (i.e., E-Language), Chomsky uses the label I-Language to point to the internalized and individualized mental reality that consists of abstract formal rules. Or simply, I-Language is the Language Faculty (Ludlow 2011: 46). In this connection, there is a third contrast, that is, language faculty in the narrow sense (FLN) vs. language faculty in the broad sense (FLB) (see Hauser et al 2002). According to Mendivil-Giró (2021: 92):

Hauser et al.’s (2002) distinction between FLB and FLN is an attempt to clarify the problem of linguistic specificity within human cognition, and to facilitate comparative studies with other species, mainly in the area of the study of the evolution of the FL. But it is not intended that the object of study of generative grammarians be reduced or limited to FLN (let alone to Merge).

In any event, innateness is closely tied to language acquisition, since it is the natural preparation that facilitates a child's extrapolation of abstract syntactic rules from what s/he hears or learns and that **allows** experience to play a role in that. It follows that the expression of innateness is by nature linguistic universality. This is (part of) Chomsky's overall conception of a universal grammar:

A theory of linguistic structure that aims for explanatory adequacy incorporates an account of linguistic universals, and it attributes tacit knowledge of these universals to the child. It proposes, then, that the child approaches the data with the presumption that they are drawn from a language of a certain antecedently well-defined type, his problem being to determine which of the (humanly) possible languages is that of the community in which he is placed. **Language learning would be impossible unless this were the case** [emphasis mine]. The important question is: What are the initial assumptions concerning the nature of language that the child brings to language learning, and how detailed and specific is the innate schema (the general definition of "grammar") that gradually becomes more explicit and differentiated as the child learns the language? For the present we cannot come at all close to making a hypothesis about innate schemata that is rich, detailed, and specific enough to account for the fact of language acquisition. Consequently, the main task of linguistic theory must be to develop an account of linguistic universals that, on the one hand, will not be falsified by the actual diversity of languages and, on the other, will be sufficiently rich and explicit to account for the rapidity and uniformity of language learning, and the remarkable complexity and range of the generative grammars that are the product of language learning. (Chomsky 1965: 27-28)

It seems straightforward when Chomsky says, as emboldened above, 'language learning would be impossible unless [children having tacit knowledge of linguistic universals] were the case'. But one point must be noted, that is, when taken as a theory of language acquisition, generative grammar is necessarily assumed as innate. However, if generative grammar contains, as Scholz et al. (2023) put, 'surprising characteristics of languages that cannot be inferred from the data of usage, and are not predictable from human cognition or the requirements of communication', and it is advanced under the assumption of its innateness, then what guarantees innateness in it eventually (see a detailed discussion in Chapter Three)? There does not appear to be a set of criteria laid out to assess generative grammar as an innate grammar (see Chapter Three), and in this case, is innateness truly a goal (explained) in generative grammar? The conflict of the theoretical positions of *innateness* may have resulted in the different understandings between functionalists and generative linguists about the nature of a theory language acquisition.

In this regard, Tomasello (1995) points out that it is paradoxical that generative linguists treat language as an instinct while claiming what they obtain as Learnability Theory:

Why, then, has Pinker chosen to apply the term instinct in such a clearly inappropriate manner? The answer is that what Pinker and his fellow Chomskyans mean by the term "language" is not what is normally meant by that term. They do not mean the communicative conventions of the speakers of particular languages such as English, Turkish, or Warlpiri. What they mean is something called Universal Grammar, which is the supposedly species-universal computational structure of language that is, in their view, wholly unlearnable (ironically, the central thesis of Learnability Theory). (Tomasello 1995: 133)

What Tomasello might mean by this is that it is unchallenging and unrevealing to just ascribe anything unobtainable (unlearnable) from linguistic data to the natural preparation, which will eventually be falsified by the vast linguistic diversity, and thus he would call Universal Grammar a completely empty concept (see Tomasello 2009). Evans (2014a) says⁸ that in generative grammar, there can be no room for learning languages since it is pre-equipped. (Evans is confident that had research that investigated how children actually learn language been available to Chomsky in the 1950s and 1960s, Chomsky would not have chosen to

⁸ Exactly, Evans says: 'But conceiving of language as a "learning organ" paradoxically leaves relatively little room for the role of learning in shaping a language'. (p. 99)

embrace innateness.) This point is rejected in various replies to Evans and to Behme and Evans (2014a), as is summed up in Allott and Rey (2017: 14; the first two page numbers shown in the citation refer to Evans 2014a):

It is simply not true that generativists think there is no such thing as learning (p. 99), much less have a “phobia” about it (p. 153): the original “Aspects” model of acquisition (Chomsky 1965: 30) was essentially a theory-confirmation model, and some more recent generativist models rely heavily on statistical and probabilistic estimates. What exactly is learned is obviously an empirical question, but it surely includes which specific phonological forms and grammars (e.g., parameter settings) are in use in the speaker’s immediate environment, which may well need to be determined statistically; as well, of course, as which strings of speech sounds stand for which concepts...

Overall, the key point maintained by generative linguists is that the Language Faculty limits the possible linguistic forms that one can learn. Obviously, what Tomasello⁹ thinks of as unlearnable is ‘the theoretical-specific linguistic structure of Universal Grammar’, which serves the purpose of fulfilling ‘mathematical elegance’ (Evans [2014: 97] calls it ‘purely logical’, i.e., theory-internal). For instance, the subadjacency constraint (see also Ludlow 2011 Chapter Two) or the empty category is not something that a child can simply extrapolate from what s/he receives. Rather, it is part of the model in which grammaticality is deconstructed, in other words, designed. On the other hand, for generative linguists, the unlearnability of such grammatical principles is expected to be explained exactly by the innateness of them, just as is put by Hornstein (2013: 395):

Given their evident complexity, how is it possible for humans to acquire these NL computational systems? The obvious answer is that native speakers come to the task of acquiring a language with biologically innate mental powers that facilitate this very complex task.

Do critics of generative grammar overlook such explicit theoretical suppositions of generative grammar purposefully? I believe that the issue lies in that *innateness* is empty in this sense, as it is reduced to a ‘last resort’ for generative linguists (see Chapter Two). In that, innateness is used by generative linguists to solve the problem that is caused by their theoretical model which is not subject to innateness in the first place. Thus, keep in mind that though having a lofty goal, generative grammar is still a grammar in the traditional sense, concerning how grammaticality can be accounted for. In that, innateness is trivially involved, as it is both a theoretical goal and an assumed solution. This is manifested in that as a theory of formalizing language, innateness must be a requirement to meet, and meanwhile as a theory of language acquisition, innateness must be taken for granted. In the next section, I will spell out that when the two orientations are combined, innateness is not actually explained.

1.2.5. Combined theoretical orientations of generative grammar

In the citation from Hornstein above, there exists a vital point. What is the ‘evident complexity’ and what has resulted in it? Hornstein mentions that one of the key results in answering what kinds of rules natural languages should include in their grammars is:

- Expressions in a sentence allow both for local dependencies between ‘adjacent’ items and non-local dependencies between non-adjacent items. Indeed, there are three kinds of ‘non’ adjacency; those mediated by ‘move’, those mediated by ‘binding/construal’ and those mediated by phrase structure dependencies.

⁹ Tomasello (1995: 134) says: “Consequently, in Generative Grammar new formalizations that increase the mathematical elegance of the theory are automatically assumed to be a part of the Generative Grammar Instinct, with no empirical verification necessary (Chomsky, 1986).”

To be clear, the complexity in the statement above is due to the need of generative grammar as a theory of modelling language, in which grammaticality is formally expressed. The notion of innateness is not necessary for generative grammar in this sense, because the complexity is not a hindrance of language learning if generative grammar as a theory of modelling language is not expected to coincide with a theory of language acquisition. N. Evans and Levinson (2009: 438) notes that ‘a property common to languages need not have its origins in a “language faculty”’. Similarly, Croft (2001: 9) notices that the content of a universal grammar does not necessarily bear the weight of innateness, saying:

However, one can characterize Universal Grammar more broadly, without necessarily assuming that it is innate: although innate properties are necessarily universal, universals of human language are not necessarily an innate genetic endowment. In the broad sense, Universal Grammar consists of those aspects or properties of grammatical structure which form the makeup of the grammars of all human languages. (Croft 2001: 9)

The thorny issue lies in the fact that the two facets of generative grammar are conflated. On one hand, innateness is a solution for the convergence of generative grammar’s formalization of grammaticality and the real mental activity shaping one’s language, where the complexity precedes (is not based on) innateness. Therefore, there is another explanation for Chomsky’s saying that ‘language learning would be impossible unless [children having tacit knowledge of linguistic universals] were the case’. That is, without assuming generative grammar is innate, it is impossible to deem it as a theory of language acquisition. On the other hand, at the same time, innateness is a theoretical goal for generative grammar that calls for justification (the complexity must be an entailment of innateness). It is vital for us to understand that a theory of modelling language and a theory of innateness must be accessed differently. A theory of modelling language is perhaps tied to its effectiveness, in that, it accurately lays out the observable facts in an abstract manner and, as a generative linguist would stress, makes predictions about possible/impossible linguistic patterns (see D’Alessandro 2021). By contrast, a theory of innateness must be borne out in its necessity. There has not been an independent criterion set out for the success of generative grammar as a theory of innateness. Again, that functionalist linguists are not satisfied with generative grammar’s being a theory of language acquisition can be due to the emptiness (thus non-substantialness) of the notion of innateness.

In practice, however, it seems that the success of generative grammar in modelling language is treated as evidence of it in revealing innateness. This is shown in the following passages from Hornstein (2013: 399-400).

This success paves the way for a further question: why do we have the UG we have and not another? Or: what are the possible FL/UGs? Why, for example, do grammatical relations exploit c-command? Is this an accident of our particular FL/UG or would any biologically available FL/UG exploit a c-command condition? Why is binding subject to locality conditions like the SSC (Specified Subject Condition) and the TSC (Tensed S Condition)? Is this unique to our FL/UG or a feature of any humans could have had? Why are principles A and B in complementary distribution? Why do islands exist? Etc., etc., etc. The situation is a familiar one in the history of science. Think Gas Laws and Statistical Mechanics! The program with respect to GB and minimalism is the same, though the analogy likely suggests inordinate self-promotion. This conceded, it highlights an important feature of the minimalist enterprise. It takes the results of GB as roughly empirically accurate and aims to deduce its properties from more general properties of cognitive computation. Physicists, bless their hearts, have some useful terminology for this. They distinguish between effective theories and fundamental ones. The former are (roughly) accurate descriptions of the empirical lay of the land. The latter are the general principles in terms of which the empirical successes of the former are to be explained. The Gas Laws are effective, statistical mechanics fundamental. Fundamental theory aims to derive effective theory. GB (and its cognates) are effective theories awaiting elucidation in more fundamental minimalist terms.

What kinds of projects does this perspective invite? One line of investigation puts a premium on standard scientific virtues like elegance, simplicity, naturalness etc., and proposes to find the simplest, least redundant, most ‘natural’ theory that matches the GB laws of grammar. Early Minimalism with its emphasis on the elimination of DS and SS levels, the reduction of case and agreement dependencies to movement and the ambition to eliminate theory internal formatives (e.g. copies replacing traces) is clearly moved in part by such methodological desiderata. Later minimalism in the guise of the Strong Minimalist Thesis includes these and also places a conception of computational efficiency at the heart of explanatory enterprise.

In a nutshell, Hornstein means, the innateness of generative grammar lies in the effectiveness, i.e., usefulness, of it, and the composition of it abides by standard scientific virtues, which are external of the notion of innateness. This only points to one fact about generative grammar: its content is barely based on the independent analysis of the meaning of innateness. Hornstein suggests that the success of generative grammar proves that it is an effective theory, analogous to The Gas Laws, ‘awaiting elucidation in more fundamental minimalist terms’. However, generative grammar’s ‘success’ is possible only because the notion of innateness is not analytically incorporated into the theory as a substantive constraint. Hence, generative grammar is a free realm. One would always be able to guarantee the success of a derivation as it has a known destiny (i.e., the correct surface form). What matters ought to be the route that it takes, in that, it must be a necessary truth, but in generative grammar, it is basically a free will. The following section will outline some aspects of the freedom in generative grammar’s theorization.

1.2.6. Too much freedom

1.2.6.1. A sufficient reason for grammaticality?

Many generative linguists have agreed that what is now in order is to compile a list of all the achievements that have been accredited to their fellows over these years (see D’Alessandro 2019). The following citation, from D’Alessandro (2019: 12), exemplifies what a generative linguist would regard as achievements (the generalizations listed below are entries put by the author under the topic of *movement*). Importantly, for a generative linguist, all the following achievements have twofold meaning. Each of them is a generalization obtained from tackling a particular problem in a particular language (or a few of them), and at the same time, it is automatically a language universal (perhaps subject to parameter-setting).

- Coordinate Structure Constraint [Extraction from a Coordinate Structure is not possible unless it is by Across-the-Board movement (the phenomenon of pseudocoordination has to be distinguished; e.g. “What did you go (to the store) and buy?”; pseudocoordination shows characteristic properties, for example a restricted class of possible left-hand categories (cf. *“(What did you walk and buy?”), extraction only from the open-class right-hand member (cf. *“(Which store did you go to and buy shrimp?”)]; Ross (1967).
- Head Movement Constraint [Head movement doesn’t cross heads. This cannot be escaped by excorporation: If X moves to Y by head-movement, then X cannot move on, stranding Y. (Clitic movement crosses heads and must be distinguished from head movement proper, i.e. head movement of complements in extended projections to their selecting projections, and of incorporees to their selecting predicates)]; Travis (1984).
- Second position [There are second position effects which are category-insensitive, i.e. not sensitive to the category of the element in first position, but no second to last effects which are similarly category-insensitive. (This allows for immediately pre-verbal positions in V-final structures)]; Kayne (1994).

We do not need to expound on these achievements listed above, but there is one characteristic of them: the use of highly technical terms, for instance, *Coordinate Structure*, *Across-the-Board movement*, and *pseudocoordination*, etc. Clearly, these terms are what Hornstein (as mentioned

above) has in mind as complexity. They come to the fore under the assumption that as long as they are involved in accounting for grammaticality, they should be innate. Not unlike many other ones in generative grammar, such terms are not well-defined. The use of those terms makes it difficult to appreciate those achievements for non-generative linguists. Haspelmath (2021a) comments that by using such highly technical terms, generative linguists are putting up walls between themselves and other linguists who are working in the Boasian/Greenbergian tradition (regarding language universals), saying:

It is quite common for research articles to consist of two parts: One part lays out the phenomena in a way that is generally comprehensible to any linguist, and another part (typically called “analysis”) describes the phenomena **a second time** [emphasis mine], using the highly technical metalanguage of current mainstream generative grammar (or more rarely, of some other generative approach, such as Distributed Morphology or Lexical Functional Grammar). (Haspelmath 2021a: 16)

Moreover, he suggests, the use of the highly technical terms is merely a repetition of what is observable on the surface structure, thus not in fact explaining anything. Haspelmath does not enlarge on this point, but it surely is worth so (see also Tallman 2019 and Chapter Three). From the onset, generative linguists are not engaged in demonstrating the reality of these technical terms independently. Rather, they advance their theory under the assumption that whatever is needed in modelling a language is automatically innate. Eventually, the notion of innateness is never a constraint of generative grammar. Thus, it is perplexing why an innate grammar must entail the use of these technical terms aforesaid. Guaranteed by the theoretical freedom in generative grammar, one should always be able to ‘make sense’ of a generative-style grammatical account. In generative grammar, grammaticality cannot but be narrowly equated with the ‘intuitive correctness’ of the surface structure. It means, grammaticality is not something that generative linguists reveal but take as a given condition in their grammatical accounts. Therefore, all generative linguists need to do is to configure the labels that they come up with in certain ways to arrive at the ‘correct surface form’. But they cannot show why such labels **must** be configured in those ways, except for the theory-internal motivation. Chomsky et al. (2019) reflect on the lack of independent analysis of grammaticality and admit that it renders the syntactic properties that generative linguists customarily resort to as completely *ad hoc*. One good example is the feature strength (details in Chapter Two). As it is unknown how a derivation fulfills the idea of grammaticality in a deductive manner, that it leads to the correct surface order cannot evidence the innateness of the terms involved in it. In this connection, another hazard in not setting out grammaticality independently (i.e., the analyticity of innateness) is that one tends to confuse unrealized (but possibly grammatical) forms for ungrammatical forms. As an example, consider the sentence in the first achievement cited from D’Alessandro (2019) above: **what did you walk and buy*. As shown, it is marked as ungrammatical, which we can agree on. In line with this, generative linguists suppose that this intuitive judgement must correspond to some necessary occurrence of operations in the deep domain, which principally prevents the possibility of generating this sentence. But grammatical intuition needs to be refined, because an ‘ungrammatical’ sentence might well be a possible but unrealized sentence. Plainly, we might have said this sentence just as normally as *what did you buy*, in which case it would be a possible sentence but not actually part of the convention. If so, there should not be a sufficient reason to exclude this sentence from grammaticality. Certainly, it might be the case that the sentence marked with * is indeed impossible. But the real significant line between possible and impossible sentences can only be drawn from the analyticity of innateness. For more concreteness, see the following contrast in grammaticality.

11. Jay **likes** Lily.
12. *Jay **like** Lily.

It is needless to state what is ‘wrong’ with (12). For generative linguists, the contrast is simple, and it means, there are unseen syntactic operations taking place in the deep structure so that (11) is generated but (12) is not (in the sense of I-Language). Those syntactic operations are real since their results conform to our grammatical intuition. More specifically, that (11) is grammatical is a footing that a generative linguist is initially on, and then s/he devises the deep structure of it that is taken as the formal analysis of grammaticality. Finally, as a generative linguist needs to verify the ‘authenticity’ of the deep structure account, all that s/he can say is that the derivation does lead to the ‘correct’ surface form. This is not an explanation of grammaticality. First, how (11) is an instance of the notion of innateness is not clear. Another important question to ask is whether the grammaticality of (11), especially the addition of -s to the verb, is tantamount to the fact that it is the necessary result of a series of formal procedures, or the fact that it just is the way how a speech community is accustomed, which is nothing but contingent. After all, to claim that (12) blocks the expression of meaning due to its flawed well-formedness seems far-reaching – this does not concern much about performance. Rather, this is a problem that grammaticality is not in fact explained. There are debates regarding the sources of grammar.

1.2.6.2. Subject to experience but to what extent?

Famously, with the case of the Pirahã language, Everett (2005) challenges Chomsky’s proposal of ‘a core grammar’ which largely shapes languages on its own (i.e., the linguistic determinism). Everett’s central idea is that in favor of a bidirectional language relativity, some phenomena in Pirahã (it does not have numbers, color terms, or embedding structures, etc.) are only culturally constrained (via what he calls immediacy of experience principle), a factor that appears to be fully excluded from the formal domain of the universal-grammar model (note that, as is pointed out by Nevins et al. (2009: 357), ‘there is no general universal-grammar model for which the claims of [Everett] could have consequences – only a wealth of diverse hypotheses ABOUT UG and its content’.). For that, Everett says:

For advocates of universal grammar the arguments here present a challenge—defending an autonomous linguistic module that can be affected in many of its core components by the culture in which it “grows.” If the form or absence of things such as recursion, sound structure, word structure, quantification, numerals, number, and so on is tightly constrained by a specific culture, as I have argued, then the case for an autonomous, biologically determined module of language is seriously weakened. (Everett 2005: 634)

An especially polemic point made by Everett is that the process of recursion (i.e., embedding structures, which according to Chomsky [1995, 2002] is one operation that fulfills the infinity of syntactic constructions in length) cannot be confidently said to be necessarily present, as predicted by ‘an autonomous, biologically determined module of language’ (Everett 2005: 634). Mainly, Nevins et al. (2009) deny that the case of the Pirahã language has ‘severe consequence’ for Chomsky’s proposed universal grammar. It is argued that what Everett calls ‘inexplicable gaps’ of Pirahã is ‘illusory, nonexistent, or not supported by adequate evidence’ (Nevins et al. 2009: 356). As for the culture constraint, it is said that some of the ‘surprising’ facts about Pirahã that Everett reports as rooted in the Pirahã culture are detectable in much less rare languages. This can in fact be used to support the conception of UG (because people in different locations can acquire the same linguistic pattern).

I will not go into details of the empirical demonstrations in Pirahã. Clearly, both Everett (2005) and Nevins et al. (2009) would agree that grammar needs to be molded by factors outside of a pure formal domain, and the debates between them concerns just the degree of that and exactly

what these non-formal factors are and how they function. Based on this, I find it more suitable to place the debates in connection with a ‘bigger’ problem. That is, the line between necessity and possibility in grammar is not reasonably drawn in generative grammar, i.e., when one poses a particular setting as subject to experience, one will not be able to account for what has made it open to alternations. Fundamentally, this calls for the clarification of the necessity that allows possibilities. But this cannot be simply an association (or a summarization of the surface level), but a causation. In the case of (11) and (12) above, it is not heuristic to just state that the parameter of adding -s to a verb (when subject is third-person singular) can be switched on or off; instead, one needs to explain what necessity the rule sticks to so that it leaves the adding of -s a choice of freedom. Moreover, there might exist a contradiction in the process of formalizing sentence generation, since what is externally learned and what is internally pre-equipped (something invariable) are not set apart in that. If something is externally learned, it is a possibility among others. But what generative linguists do in principle is that they ‘restore’ the derivation of sentence that necessarily leads to the ‘correct’ surface form.

Another manifestation of the theoretical freedom seems more crucial to generative grammar. That is, the arbitrary treatment of similarity between languages as sameness (in an essentialist sense). As has been shown with the case of Tense, this is a frequently used strategy to cross-linguistically evidence certain theoretical claims made for individual languages, and generative grammar is thus said to be able to predict.

1.2.6.3. Free cross-linguistic connections

Borsley and Müller (2021) notice the common strategy where similarity between languages is automatically taken as universality, and this strategy is often uncritically adopted in generative grammar when one particular derivation cannot be arrived at with regular, language-internally motivated arguments. As Borsley and Müller mention, such treatment is supposedly defended by the hypothesis of the innate language faculty:

It is common within Minimalism to assume that some phenomenon which cannot be readily observed in some languages must be part of their grammatical system because it is clearly present in other languages. Notable examples would be case (Li 2008) or (object) agreement (Meinunger 2000: Chapter 4), which are assumed to play a role even though there are no visible manifestations within some languages (e.g., Mandarin Chinese and German, respectively). This stems from the longstanding Chomskyan assumption that language is the realization of a complex innate language faculty. From this perspective, there is much in any grammatical system that is a reflection of the language faculty and not in any simple way a reflection of the observable phenomena of the language in question. If some phenomenon plays an important role in many languages, it is viewed as a reflection of the language faculty, and hence it must be a feature of all grammatical systems, even those in which any evidence for it is hard to see. (Borsley and Müller 2021: 8-9)

To illustrate the unreliability in that strategy, Borsley and Müller dwell on one good example taken from Hornstein et al. (2005: 124). It is an analysis of the derivation of the prepositions and their nominal dependents (i.e., Determiner Phrase, or DP) in English. In it, without going deep into details, the authors’ previous assumptions have led to the abnormal realization that the preposition would end up on the surface following the DP, instead of preceding it, e.g., *me with*. In order to reclaim ‘correctness’, the authors resort to, as is usually the case, empowering a movement that would purposefully result in the desired surface order. It follows that, to render the movement as ‘necessary’, the authors further propose the process of agreement between an English proposition and its nominal dependent. Remarkably, this is ‘inspired’ by Hungarian in which there exist postpositions that are said to somehow agree with their nominal dependents. Expectedly, the difference between English and Hungarian on the surface would be explained away by claiming that, conveniently, the **same** agreement would cause a movement in English

but not in Hungarian. There are two problems associated with such theoretical treatments about a sentence's derivation. One is that theoretical 'inspirations' would be unreasonably handy for a generative linguist to draw on. That is because similarity between languages can be randomly available, and we can also deliberately create connections between linguistic phenomena from different languages (see Chapter Two for actual examples of this kind). Nonetheless, legitimate 'inspirations', where empirical considerations of one language are permitted to be invoked as evidence for another language, must be grounded by strictly proven sameness, but not random similarity. This thus goes back to the lack of a methodology in which the sameness of linguistic entities or processes can be carefully borne out among languages (or even within one language). This echoes Haspelmath's (2019) view where he believes that it is a confusion between general linguistics and theoretical linguistics (cf. Dryer 2006; more details in Chapter Three), saying: "... in recent decades, there has been a strong tendency to base general claims on the study of particular languages, or on a small non-representative set of languages, rather than on language universals." Haspelmath points out, again, that such tendency seems to have been consolidated in the generative approach to the proposal of language universals and the outlining of them:

For example, Welch (2016) first describes various conditions for the use of copulas in Dogrib (a Dene language) in a generally accessible way, and then in his §6 ("Analysis") describes the same facts using technical generative vocabulary such as "merge", "AspP", and "φ-agreement". And Holmberg et al. (2019) describe a generalization about the interaction of question formation and passivization in ditransitives in some Germanic and some Bantu languages, and then in their §3 ("Analysis") describe the same facts again using technical vocabulary such as "phase", "specifier" and "ApplP". Anyone who has a certain amount of experience in this field will confirm that this is very typical: Studies of particular languages make use of highly specific concepts that are thought to be universally applicable. (Haspelmath 2019: 16)

Again, the unprincipled treatment is a symptom of the absence of an overall comprehension of linguistic universality. Consequently, language universals can only be posited in a disconnected, random manner, whereby it is hard to unite and organize them, and eventually, the universality of them, supposedly resulting from their innateness, cannot be borne out systematically. That is most obviously manifested in generative grammar's categorization.

1.3. Categorization in Universal Grammar

1.3.1. Lexicon and innateness

In general, categories are necessarily present in linguistic analyses to assume the generality of them, so that similarities and differences can be systematically sorted out (see Moravcsik 2016). That is, grammar/grammaticality can be viewed as predicated on categories. Clearly, generative grammar is not an exception. This is most saliently linked to its explicit goal of seeking out the innate universal grammar. In that, language universals are divided into two kinds: a substantive basis that is composed of grammatical categories and the formal devices proposed to configure them. This is clearly stated in Chomsky's *Aspects* (Chomsky 1965: 28 – 29):

It is useful to classify linguistic universals as formal or substantive. A theory of substantive universals claims that items of a particular kind in any language must be drawn from a fixed class of items. For example, Jakobson's theory of distinctive features can be interpreted as making an assertion about substantive universals with respect to the phonological component of a generative grammar. It asserts that each output of this component consists of elements that are characterized in terms of some small number of fixed, universal, phonetic features (perhaps on the order of fifteen or twenty), each of which has a substantive acoustic-articulatory characterization independent of any particular language. Traditional universal grammar was also a theory of substantive universals, in this sense. It not only put forth interesting views as to the nature of universal phonetics, but also advanced the position that certain fixed syntactic categories (Noun, Verb, etc.) can be found in the syntactic representations of the sentences of any language, and that these provide the general underlying syntactic structure of each language...

It must be noted that in a more basic sense, whether a generative linguist is explicitly pursuing substantive universals, her or his theorization will not dispense with the presentation of *lexicon*, which has always been signified as integral to the syntactic component (Chomsky 1957, 1964, 1986, 1995, 2000). For that, Adger (2019: 35) states: “Building a theory involves stating a set of propositions (hypotheses) in a language which has a basic vocabulary of entities, relations, etc. (the concepts of the theory)”. Vitaly, lexicon is constant while the availability of formal tools change, which drives the transitions of generative grammar from one theoretical phase to another, such as Government and Binding, X-bar theory, the minimalist program, or the latest proposal about (nothing but) Merge (see Chomsky et al. 2019; see also Chapter Two). It should be so because formal tools do not identify linguistic entities. The substantive basis in generative grammar is thus unsusceptible to the change of formal tools. Meanwhile, the well-formedness in generative grammar depends on lexicon because it contains the ‘correct’ (needed) syntactic information prior to derivation. Supposedly, it is the ‘correct’ behaviours of linguistic entities, as stored in the lexicon, that draw the lines grammaticality and ungrammaticality (formal tools apply as ‘instructed’ by lexicon). Clearly, categorization lies in the heart of the presentation of lexicon in generative grammar. Since generative grammar is thought as an ideal computational system that is mentally real, the linguistic entities that are operated in it must match up to that ideal. This means, while generative linguists categorize, they must guarantee that the products are defensible for their mental reality as well. Otherwise, there is an ontological incompatibility. In a nutshell, for generative grammar, lexicon should be the inventory of innate categories, and it cannot just reflect the analysts’ free will but be presented in completeness and systematicness. But due to the non-analysability of innateness, the use of lexical labels in generative grammar is usually prompted for the descriptive purpose, not their derivability from innateness. Hence, there is a discrepancy between ideal and reality.

1.3.2. Ideal: completeness and systematicness

Note that, importantly, the generative sense of universality is premised on that the hypothetical Language Faculty (LF) encompasses all the possible linguistic patterns in the world (Chomsky 1965, 1987; Huang and Roberts 2016; Radford 2004). Understandably, a UG practitioner may well be compared to a chemist in answering the question about what exists in our universe from their respective points of view (see Chomsky 2002). When Baker (2001) proposes an outlook of constructing a periodic table of languages (PTL) (see also Haspelmath 2020, 2021a, 2021b), the bottom line for the similarity, he thinks, is the equivalence between parameters in linguistics and atoms in chemistry. In accordance with that, the PTL is ideally a full list of basic parameters since linguistic mutability is presumed to boil down to the interplay between them. Note that Baker does not discriminate between substantive properties (categories) and formal properties (relations) as objects of parameterization. Baker’s conception of the PTL basically conforms to what has always been anticipated out of the theorization of UG. But, in comparison with the isolated, one-dimensional presentation of the entries in the PP model, it is likely that Baker has hope in finding the epistemological significance in presenting language primitives, because the PTL in itself signifies some deep logic that dictates the existence of basic parameters and their connection. On that ground, Baker (2001) is confident that the completion of PTL is capable of eliminating the randomness in cross-linguistic parametric settings, to finally render the PP model as **complete** and **systematic**. In that, he says:

The parametric theory of linguistics is built on the hypothesis that all grammatical differences among languages result from the interplay of a finite number of discrete factors. If this is correct, then those parameters should also be expressible in an exhaustive list. A periodic table of languages would be such a list, so that whatever exotic grammatical feature one might come across — a serial verb construction or an incorporated noun or an ergative case marker — it would be somewhere on the table of languages. (p. 158)

Ideally, the same [*the systematic arrangement of elements*] should be true of a periodic table of languages. Not only should each parameter be listed, but the parameters should be presented systematically, in a way that expresses truths about their inherent nature and the relationships among them. (p. 160)

Baker's outline of the ideal PTL provides a good perspective through which the innate grammar blueprint of UG can be assessed. Most importantly, the PTL is underlaid by the belief that there must exist some natural principle(s) of LF in organizing its built-in principles and parameters. In line with that, the PTL can be deemed as a call to add a deeper epistemological basis to UG. Meanwhile, nonetheless, the PTL exactly points to the unattainability of this ideal for UG since the success of the PTL, i.e., the PP model's being complete and systematic, must be based upon the genuine command of innateness, that is, an effective conversion of it to an overall guideline for categorization. This is manifested in chemistry. Simply, one cannot make up *ad hoc* bases to identify elements, and an element must be uniquely recognized by the number of proton(s) in its nucleus, which amounts to, as emphasized, the nature's way of presenting an element. In other words, an element's intrinsicity lies in that its identity reflects 'the structure of the natural world rather than the interests and actions of human beings' (Bird & Tobin 2024: the first paragraph), which is the premise of the scientific nature of the formulation of the periodic table of elements¹⁰. By virtue of the fact that elements are identified uniquely and uniformly, the periodic table of elements can be complete and systematic. By contrast, as long as innateness remains inexplicable in UG, the randomness will never be cleared up in the PTL. Baker (2001) himself notes that the neat pattern in the periodic table of elements is a result of the correlation between their relative atomic weights and their valence, but this is a point, he thinks, "irrelevant to the parameters" (p. 161). As such, Baker virtually dissociates the conception of the PTL with the pursuit of the epistemological significance for UG.

1.3.3. Categorization that matches up to innateness

By definition, an innate grammar indicates commonality that all human beings are subject to, with emphasis placed on its generality and necessity. Particularly, it is assumed in UG that we are born with the same initial state for language generation (Chomsky 2000), and in an abstract sense, the LF therefore must be uniquely and stably accountable, as it is supposed to undertake the non-arbitrariness (or falsifiability, see Evans and Levinson 2009; Tallman 2019; see also Chapter Three) of UG, so that it is a scientific drive with explanatory adequacy. In other words, language is explained in UG in terms of the LF's 'being as such'. Thus, one's commitment to UG should not be taken seriously if not articulating a methodology granting her/him the access to what constitutes innateness (**'intuition' does not throw light on the internal conceptual structure of it**¹¹). It means, the account of the LF must not amount to some arbitrary choices

¹⁰ As is said above, a UG practitioner may well be said to answer the question about what exists in our universe from a linguistic perspective. In linking a finite number of parameters to atoms, with the former responsible for linguistic diversity and the latter mutability of substances, Baker places emphasis on their equal 'intrinsicity'. With this said, there ought to be some constraints obtained from that.

¹¹ The following passage, from Allott and Rey (2017: 4), is a summary about how intuition plays its role in the theorization of generative grammar. Note that originally, this is a rebuttal of Evans' (2014a) critique of Chomsky's being a so-called 'armchair' linguist.

Evans takes Chomsky to be engaged in some kind of a priori, armchair project, akin to Hegel's purported speculations about the planets (pp. 19, 22, 59, 97, 132), a project "not based on actual findings" (p. 14), and for which there is "scant empirical evidence" (p. 21). We suspect that he and others may have been misled by the patent reliance of generativist theories of grammar upon intuitive verdicts of speakers about sentences such as the ones in (1)–(19) below, which can superficially seem like the reliance of traditional philosophers on intuitive "armchair" verdicts about non-mental domains, such as ethics or;

of random possibilities among alternative ones. Fundamentally, announcing anything to be innate is equivalent to picking out the only possibility of the ‘natural’ presence of the LF (again, ‘natural’ in the sense of being necessary truth; cf. Mendívil-Giró 2021), which must be defended with sufficient reason (see also Chapter Four).

From above, an implication is that an arbitrary category with an arbitrary definition cannot be accepted gratuitously as part of the necessary truth of the LF, and the only defence of a category belonging to the LF is UG proponents’ access to the analytic constitution of innateness, which is precisely the access to the natural principle(s) (linguistically analysable) of the LF in recognizing and organizing inherent categories. That is, a category, if it is indeed innate, can only be identified in accordance with the system that is inherently set up in the LF for syntactic configuration, and the system must be a stable one, in which a category is definitively positioned in relation to others. It follows that categories belonging to the LF must have rigid boundaries, and the rigidity is an important part of the necessity of the LF. Note that the rigidity of categories’ boundaries does not mean that a category cannot show cross-linguistic variation, but that a category’s variation (parameter) makes sense only when it has essence (principle). In a nutshell, once a linguistic item is posed in generative grammar, then it must be an **essentially** accountable one, because the LF needs to configure it according to its essence. That is, the LF (not the speakers!) must be able to identify the item uniquely. Therefore, a generative linguist must be responsible for pinpointing the property(ies) undeniably tied to the identity of an item. This must fulfil two requirements, one is stability, i.e., an essence is not randomly changeable, and the other is non-arbitrariness for linguists cannot stipulate an essence but only discover it (see also chapter Four).

To elaborate on this point, it is beneficial to compare an ordinary (contingent) category, such as *game*, and a natural category, such as hydrogen. Clearly, it is far less extraordinary to argue for the truth or falsity of something being in an ordinary category (see Moravcsik 2016) than a natural category. This is because the contingent category *game* is not set out with an inherent intension (it is invented, and nothing dictates that it must be present in the language of English), thus not bound by necessity but open to multiple possibilities with respect to its boundaries; by contrast, hydrogen must be bound by necessity, that is, it perfectly allows inductive inference (see Khalidi 2023: Section 2.1; Slater 2015: 376). Therefore, any atom that has one proton in its nucleus cannot be but hydrogen, and any atom that has more than one proton in its nucleus cannot be hydrogen. By defining hydrogen as atoms having one proton in their nuclei, we hope that it is a real effort of ‘carving the nature at its joints’ (see Bird 2018: 1398). In this sense, the definition of hydrogen represents the only possibility that we can experience, i.e., devoid of any conventional decisions. Note that here, *conventional* is synonymous with *arbitrary*, and both are opposed to the term *natural/scientific* (see Khalidi 2023: 2). To say that hydrogen has

perhaps, astronomy. But the role of the intuitions in the two cases is significantly different. Unlike traditional philosophers, generativists do not take intuitions to afford any special insight into any realm of fact; rather the intuitions are regarded as presumably spontaneous reactions of native speakers that often reflect facts about their linguistic competence, much as people’s reports of how things look often reflect facts about the structure of their visual system. The intuitive reactions are not themselves theoretical claims; rather they are evidence for such claims, evidence that is not the less legitimate for its relatively easy accessibility [emphasis mine]. One could of course apply for a grant to test whether these sentences and countless other examples really elicit the responses that generativists claim, but the data are for the most part so immediately obvious and uncontestable, that it would be largely a waste of time and money to do so. Either way, these intuitions would certainly seem to suffice as “concrete findings [that] support the Chomskyan framework” of the sort Behme and Evans (2015: 157) seek.

In line with what is said above, grammatical intuitions are both the primary phenomena which generative linguists pay attention to (because they reflect speakers’ competence) and evidence of their theoretical claims about speakers’ competence. In addition, grammatical intuitions are ‘spontaneous reactions’, that is, crucially, they can only be inspected as an impenetrable whole.

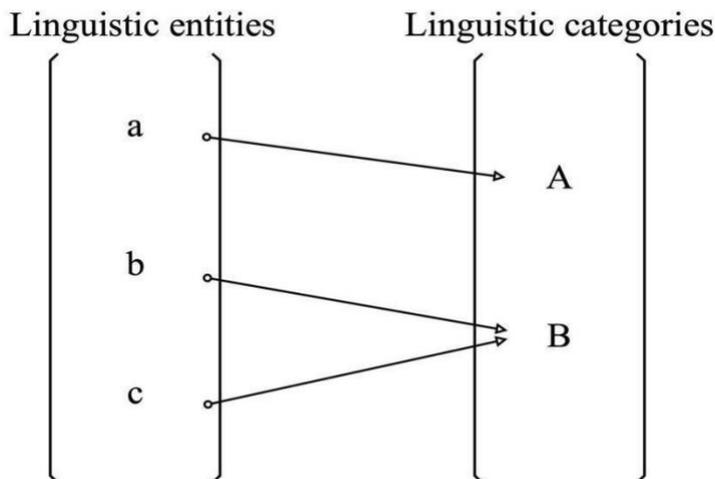
a non-conventional definition is to say that there is only one way to correctly define it, and that requires scientific efforts. Plainly, among the properties that can be attributed to hydrogen, scientists can discover or determine some of them as the essence of it and apply that strictly to identify it (as laid out above), which concerns its microstructure. That is, to know hydrogen is to find out how it is naturally as a limitation on us. Thus, in explaining an entity's membership in a contingent category, one simply needs to report the possible connection (i.e., similarity(ies)) to other members in this category, which is not confined by any predetermined definition. In explaining an entity's membership in a natural category, one needs to refer it to a rigid definition (see Chapter Four). Particularly, being a *game* does not have a right scope to be brought to light, i.e., we would never know beforehand what must be or must not be a *game*, meaning that *game* has changeable motivations. Thus, as is made well-known by Wittgenstein (1958), what holds together various *games* is not a common conceptual ground, but *family resemblance* (see also Taylor 1994; Evans and Green 2006). For instance, Chinese speakers tend to deny the *gameness* (the quality of being *youxi* 'game') of highly competitive activities such as sporting events in view of their seriousness, hence the term *Olympic Games* might be slightly strange to them at first blush. But ultimately it is penetrable if Chinese speakers can map out how the term *Olympic Games* is reached through a resemblance route: it is just a matter of choosing a cooperative perspective. Thus, to explain why *Olympic Games* are *games* is to explain in what way *Olympic Games* possibly connect to some other kinds of *games* (yet not all of them). The negotiability of the boundary between *gameness* and *non-gameness* is evidence of the non-essentialness of the term *game* in English or *youxi* 'game' in Chinese, in that, the two terms only happen to referentially overlap to some extent. But that cannot be the case with hydrogen: simply, any atom with only one proton must be a hydrogen atom and any atom with more than one proton must not be – no room for negotiation. To echo my argument, the rigidity in drawing the boundary for hydrogen is premised on knowing in what terms chemical elements are divided from *top down*, just as 'intended' by the nature, in the sense that this is not a matter that human beings decide on in any *ad hoc* way.

In this connection, a category that belongs to the LF, which UG proponents suppose themselves to be entitled to claim, must be obtained in parallel to a chemical category, as hydrogen, along with all other elements, can be said to be intrinsic of our world. (Again, as generative linguists discover the intrinsic properties of language that determine the possible forms of it, comparable to how chemists bring to light the intrinsic elements that compose our world, there ought to be some metaphysical/epistemological parallelism between what they reveal. That, in turn, should imply some constraints on generative grammar.) Vitality, an innate (i.e., intrinsic) category shows uniformity with its instantiations in the sense that it cannot be otherwise stated. That is, what constitutes the innateness of a category is its uniformity and its necessity at the same time. In other words, uniformity is a necessary, not a sufficient condition for innateness. In practice, UG proponents have difficulty in bringing out the uniformity of a category, as is shown above, let alone proving its necessity. That only emerges when UG proponents truly comprehend how categories belonging to the LF are naturally recognized and organized. Moreover, as a category cannot be bounded with necessity, its uniformity can be easily denied, for its formation is liable to family resemblance, which is a clear sign of its non-essentialness. Indeed, the categorization in UG dominantly give rise to categories analogous in nature to *game* other than to *hydrogen*, as family resemblance is often the only 'principle' that one can depend on in delineating a category for UG, both locally and globally.

To result in necessity and get rid of family resemblance, there should be general conditions laid out for the innate categorization. In accordance with the design of UG, however different, all individual languages must converge on the same 'initial state' (see Chomsky 2000). Note that

‘initial state’ is to be understood as not only the starting point of language acquisition, but also that of sentence derivation. Thus, UG’s theorization about the LF is ideally the reduction of all the kaleidoscopic empirical demonstrations to the singular truth of the LF. In terms of the innate categorization, UG must be equipped with a methodology able to map all linguistic elements to what the LF naturally possesses, i.e., a fixed inventory of categories. Clearly, to obtain the uniquely accountable initial state of LF (as is said, this is why the revelation of the LF can be a worthwhile scientific drive), the most essential requirement is that UG’s categorization be equivalent to a function, which associates linguistic elements to categorial identities. In that, it must satisfy the conditions of consistency and uniqueness. Specifically, all linguistic elements must be equal arguments of the function (this is to guarantee that the output products belong to one system, just as the identity of chemical elements is a function about the proton number of an atom), and via it, each one of them must uniquely correspond to only one categorial identity, as is shown in Figure 1. Specifically, when linguistic entities *a*, *b* and *c* undergo categorization, they must be put on a par and the mapping from the linguistic entity *a* to the linguistic category *A*, for instance, must be proven to be the only possibility. In that, the categorization function that UG must be equipped with is the formalization of LF’s natural principle(s) in recognizing and organizing innate categories.

Figure 1



As is stated, the objective of the theorization of UG is to input empirical demonstrations and output the necessary truth of the LF, where elements on the surface must be registered into the Deep Structure with their uniquely correct underlying identities. This must be accomplished to guarantee that the entire theoretical expansion of abstractness in UG is based on concreteness. An important reason why Haspelmath (2021c; see Chapter Four) assumes generative linguists of building up walls with their theorization (full of highly technical terms) is that it amounts to an accumulation of assumptions, which are hard for non-generative linguists to be sympathetic to. That is, for instance, if the identification of the modal *can* in ‘cars can run fast’ as a Tense head only turns out to be an arbitrary possibility, then anything following that can be nothing but arbitrary possibilities as well – the theorization of UG is thus from one possibility to another possibility. Ultimately, as suggested, how UG is set out is actually dependent on each arbitrary choice of possibilities. In this sense, UG is a contingent theory, in that imaginably, alternative

versions of it exist across different possible worlds that share the initiative for UG, and it is immaterial to tell which of them is better or worse than another.

1.3.4. Reality: opportunism

Baker's conception of the PTL seems to have become obsolete (see Baker 2008, 2010; Baker and McCloskey 2007), since nothing truly suggests that the PP model can be epistemologically comparable to the periodic table of elements. To repeat, that rests upon the uniformity and the necessity of the outcome of the categorization practiced in UG. In a more recent discussion about what he describes as 'Formal Generative Typology' (FGT), Baker (2010) admits that "[w]e [*generative linguists*] have usually not bothered to do the work we need to do to prove the genuine universality of our claims about Universal Grammar" (p. 299), but he defends the practicality of FGT in spite of that. Especially, Baker emphasizes that the most advantageous and most distinguishing theoretical tool of generative grammar is its abstractness, which, he believes, is the key to more profound findings about language (see also D'Alessandro 2019). Meanwhile, to earn the title of *comparative*, Baker puts forth an intermediate method (see also Baker and McCloskey 2007), which calls for generative linguists to enlarge their survey samples to an intermediate number of languages. But this does not solve much of the problem, because neither abstractness nor a large sample of languages is equivalent to an innate grammar. First, a language typologist can have the largest sample of languages without claiming anything to be innate. Secondly, doing an innate grammar is not the same as doing an abstract grammar, and abstractness is the effect of innateness. It must be realized that how much UG's abstractness can be tolerated is tied to how reliably generative linguists base it on innateness. In other words, innateness is the ground whereby UG's abstractness is allowed to arise at the outset. Therefore, not truly knowing innateness, generative linguists' excessive exploitation of abstractness is unwarranted, and for that, the constant emphasis on abstractness is a distraction from the fact that innateness is a mirage in UG, perhaps appealing but absolutely intangible.

In his overview about FGT, Baker (2010) says "[i]t is a relatively opportunistic approach" (p. 287). The word *opportunistic* is worth contemplating. In Baker's sense, it can be synonymous with the word *eclectic*, but undeniably, it runs counter to the ideal of completeness and systematicness because it indicates little chance in actively discovering and defining innateness. Remarkably, Croft (2001) uses the same word as he suggests that categorization in the UG is typical of what he calls cross-linguistic methodological opportunism¹². But Croft's use of the word is an utter criticism. In that, he concludes:

cross-linguistic methodological opportunism in identifying categories across languages is unprincipled and ad hoc. In other words, cross-linguistic methodological opportunism is not a rigorous scientific method for discovering the properties of Universal Grammar. (p. 31)

Specifically, echoing the current thesis, Croft points out the absence of an *a priori* way in the UG (i.e., sufficient reason for innateness) to ascertain in what criteria a particular universal category is constructed, hence a categorization unconstrained, and in that case, "analysts can use whatever constructions they wish in order to come to whatever conclusions they wish" (p. 31). Croft's rendering of the word *opportunistic* (or *opportunism*) is an authentic depiction of the layout of the Principles and Parameters model and the so-called cartographic projects in UG, both of which involve the description of innate linguistic entities. However, it is unknown what can be proposed for innateness, and as a result, neither is by what standard the inventory

¹² In that, Croft (2001: 31) says: "[b]ut cross-linguistic methodological opportunism is just that: opportunistic."

of innate categories reaches its fullest point. If categories are only thrown up *opportunistically*, it means that working categories will not form a knowable, meaningful whole and the number of them will not meet an upper limit. To repeat, Croft [2001: 31] ascribes what he calls cross-linguistic methodological opportunism to the unclear criteria (if any) ‘relevant to deciding that a particular category is an instantiation of a universal category’, that is, in terms of the current thesis, the unavailability of the meaning of *innateness*. Specifically, he says, one might propose inappropriate criteria that are not eventually unifiable across-linguistically, and in connection with this, often a linguistic construction cannot be deterministically mapped into a category as one might choose to view it in different perspectives. In short, there can be much freedom in the practice of categorization under cross-linguistic methodological opportunism. As a result, the uncontrollable expansion of the substantive base of UG profoundly obscures the prospect of it, which originally appeals to its advocates by simplicity. Moreover, it is impossible to arrange those putative universal categories in accordance with the conceptual structure of innateness, as they are proposed solely from bottom-up in an isolated manner. The so-called ‘cartography’ of generative grammar can be an illustration of the methodological opportunism.

1.3.5. Cartography: neither complete nor systematic

As UG proponents are not equipped with any guideline for surveying the supposedly inherent properties of language, it is completely generative linguists’ ‘free will’ that determines where to find a universal category and how to define it. In practice, a category in UG can exist simply without anything in support of its connection with the LF (i.e., its innateness). From the way in which generative linguists throw up categories, it is hard to generalize any useful principle by which one can corroborate the containment of a category within the notion of innateness. The term *cartography* is used to refer to the research line of spelling out the configurations of functional heads (see Belletti 2004; Cinque 2002; Cinque and Rizzi 2009; Newmeyer 2008; Rizzi 2013; Shlonsky 2010; Travis 2014). Just like the PTL, this cartographic enterprise is also an attempt to fully generate a list, determining functional categories and arranging them in the correct projection order. Again, it is worthwhile only because those functional categories and their relations (orders) are assumed to be fixed, but it hints at no intention to go any deeper than throwing up random categories. Expectedly, cartographic studies in UG cannot bring up any useful guidelines, on the basis of necessity, in detecting either the presence or the essence of a functional head. There are some peripheral, procedural pieces of advice for practicing cartographic studies. For instance, Rizzi (2013: 435) says that ideally a functional head is defined by one morphosyntactic property, which is expressed by a feature (cf. Haegeman 1997: 47). Fundamental as Rizzi may suppose this to be, it does not address anything that lies at the core of the cartographic studies of UG. For anyone who is committed to this research line, it is required that she or he assure the genuineness (naturalness) of the presence and the essence of a functional head just as how it is in the LF. This then must go back to providing sufficient reason for innateness, otherwise, the cartographic studies in UG remain stranded with arbitrary opportunism, in which completeness and systematicness are too remote to reach.

Cinque’s (1999, 2004, 2006) work is perhaps representative of UG’s cartographic endeavour, allegedly aiming at placing all functional heads, as detailed as possible (note that Cinque does not take the null realizations of them into account), in a universal order. It results in schemes such as the following one.

13. Mood_{speech act} > Mood_{evaluative} > Mood_{evidential} > Mod¹³_{epistemic} > T(Past) > T(Future) > Mood_{irrealis} > Asp_{habitual} > T(Anterior) > Asp_{perfect} > Asp_{retrospective} > Asp_{durative} > Asp_{progressive} > Asp_{prospective} / Mod_{root} > Voice > Asp_{celerative} > Asp_{completive} > Asp_{(semel)repetitive} > Asp_{iterative} (Cinque 1999: 76; cf Cinque 2004: 133)

The outcome of Cinque’s work, as is partly shown in (13), does not clarify the underlying logic in identifying and arranging the labels. It is unquestionable that Cinque does not set forth (13) as an analysis of the notion of innateness, or to use Croft’s (2001) words, without knowing the “a priori way to decide which criteria (if any) are relevant to deciding that a particular category is an instantiation of a universal category” (p. 31). As Cinque puts forward random categories without assuring the ‘naturalness’ of them, there is no way to put a limit on the proposal of labels like those in (13) (because they are not raised on the same ground¹⁴, and we cannot add them up to one thing). Not to mention, by virtue of Uniformity Principle, Cinque does not need to burden himself with the clarification of the necessary and sufficient conditions of the application of a category, yet readily assuming that there must be certain uniformity with it that he does not know (see Cinque and Rizzi 2009) (this means, we will not confirm the necessity of the presence of a label in 13). As a result, there can be little that we can do with (13), especially in predicting, which, nonetheless, requires each category be spelt out for its essence, otherwise disagreement about what is what never ends (see also Croft 2003), and the complexity in that is much more than the Uniformity Principle can disguise.

As emphasized, when innateness is formalized as a categorization function, the universal inventory of functional categories (if it is real) can be expected to obtain with its natural order and natural boundary, with all linguistic entities examined on a par and jointly mapping into a whole. Again, in chemistry, it is always incontrovertible about whether to put an element, either known or unknown, in the periodic table and where to put it exactly, for one element’s identity is unique and knowable, and consequently its relationship with other elements is also unique and knowable. In stark contrast to this is UG followers’ attempts to put together the panorama of linguistic parametric primitives, which are just full of accidents (see Smith and Law 2009). For the cartographic enterprise in UG, completeness and systematicness should be esteemed as much as, if not more than, the general canon of economy (simplicity). Certainly, this is not merely a concern for creating a sense of formal beauty, but as suggested, the irrationality in

¹³ Note that *Mod* stands for Modality, *T* stands for Tense, and *Asp* stands for Aspect.

¹⁴ Admittedly, Cinque attempts to draw empirical support from a wide range of languages for determining the universal order of clausal functional heads (see Cinque 1999, 2004; Shlonsky 2010; Travis 2014), but the unreliability, due to the incapability of identifying linguistic items in an inherent and coherent way, cannot be compensated by that. Specifically, a functional head, with Cinque’s methodology, is only derived from the semantic analysis of a morpheme. Plainly, a functional head is what an overt morpheme conveys in meaning. This process, however, suggests that all the labels in (13) are given to isolated morphemes on a semantic ground, but not to the syntactic positions that are occupied by them. As it often turns out, one syntactic position can be home to multiple semantic labels. Furthermore, as Cinque puts morphemes, one by one, under semantic investigation with varying criteria, it is impossible for him to assemble a holistic view of all the functional head that he reports. In that, he is unable to frame the internal conceptual connection between those putative functional heads. Notably, in (13), both subsumed under Tense, pastness is in fact connected to anteriority. In Arabic, for instance, the so-called perfective form of verbs is said to denote anteriority consistently, by which pastness can be conveyed (see Bahloul 2007). That is, due to the possible containment of pastness in anteriority (see Comrie 1985 for relative tenses vs. absolute tenses), the relation between T(Anterior) and T(Past) is naturally different from that between T(Anterior) and Voice, for arguably anteriority is much more likely to influence the occurrence of T(Past) than Voice. Thus, those labels listed in (13) cannot be truly methodical divisions of a conceptual whole, but random ones. Also, many functional heads in (13), having identical primary labels and different secondary labels, are distributed in a sporadic manner, and it is not clear how those heads are related in configuration. For instance, T(Anterior) is situated between two Aspect projections, far behind T(Past) and T(Future), giving rise to an unexplainable separation.

(11) points to the absence of epistemological significance in UG’s cartography, as well as the fact that UG followers do not care about looking for genuine principle(s) that categories must abide by to be innate in LF.

Worse still, in Cinque’s (1999: 53) analysis of a Korean sentence cited from Sohn (1994: 300), as in (12) below, he mentions something in passing that must call for a lengthier reflection.

14. *ku pwun-i cap-hi-si-ess-ess-keyss-sup-ti-kka*
 the person-NOM catch-PASS-AGR-ANT-PAST-EPISTEM-AGR-EVID-Q
 ‘Did you feel that he had been caught?’

In (14), among the elements agglutinated after the verb *cap* ‘catch’, *-si-* and *-sup-* are two honorific suffixes, with the first one being, in accordance to Sohn (1994: 299), subject honorific and the second one addressee honorific. Oddly, not only does Cinque choose to ignore them but he also proposes that they both are likely (addressee) agreements. No accepted principle explains the motivation of Cinque to preclude honorific suffixes from his universal inventory of functional heads, and to replace them with a term that is more familiar in Western grammatical tradition. Bear in mind that all of the labels Cinque gives in (14) can be as strange to a non-Western language as the label *honorific* is to a Western language. Mysteriously, though, Cinque takes it for granted that a non-Western language should submit to the Western nomenclature that it is never a part of, but not vice versa.

The quote from Croft (2001) bears repeating: “analysts can use whatever constructions they wish in order to come to whatever conclusions they wish” (p. 31). It has been stressed throughout this chapter that in order for anything to be achieved in UG, innateness must be an explicit condition. Only by virtue of that can proposals of categories be effectively constrained, because there must be a specific threshold to be met for any category to enter the hypothetical universal inventory. In what follow, I will spell out the central problem that is attacked in this thesis about generative grammar.

1.4. Stating the problem: innateness but how?

Clearly, it would be much less urgent to seek out the significance of a UG category if it were intended as nothing but a conventional descriptive tool (in this case, it would still need a rigid definition). Nonetheless, UG cannot be considered a success without connecting to innateness. In short, UG is framed in *innateness*, as shown in (15), wherein its scientific value is expected to reside. Again, generative linguists would maintain that all possible patterns of languages are internalized *a priori* by the hypothetical Language Faculty (LF) common to all human beings (see Chomsky 2005; Chomsky et al. 2019; Hauser et al. 2002). It thus follows that linguistic universality is the **reality** of the content of the LF (which is the natural preparation for humans to know languages), to be presented in the format of Principles and Parameters (PP) (see also Chomsky 1981; Jackendoff 2002; Lohndal & Uriagereka 2014). By appealing to innateness, UG proponents believe that the theorization in UG amounts to revealing part of the (mental) truth about our world (Chomsky 2000: 75), thus having ‘extraordinary’ explanatory adequacy. In this sense, UG has a different theoretical orientation from what has stemmed from the work of Joseph Greenberg (see also Croft 2003; Holmberg 2016; Song 2018). However, we must pose some questions about this ‘self-evident’ equation in (15), which generative linguists seem to take to be undebatable and yet barely shed light on.

15. UG’s content = an account of our **innate** ability to speak languages

(15) must be seriously doubted as we become aware that *innateness* is not an **analysable** notion in UG with an **independent** account. Plainly, as much as a generative linguist would claim that grammaticality (i.e., whether a sentence is ‘right’ or ‘wrong’) is part of intuition, in what way could s/he confidently claim that the same is true for the syntactic category *Tense*, or any other categories or formal tools in UG? In other words, as the primary phenomenon in UG, intuition of grammaticality is not effectively ‘looked into’. Assuming language universals from bottom-up already shows that innateness is basically an oxymoron in UG. As is said repeatedly, bottom-up assumptions serving as UG’s primary and sole source for universality signals that generative linguists intend to present the notion of innateness as a final step, that is, initially innateness is essentially impenetrable. But how should innateness be finally evidenced? At best, one can announce that some concepts prove to be coherently formulated and utilized in the accounts of grammaticality for various languages. But this is not evidence of innateness. There can be two fallacies. First, coherence is not sufficient for innateness. Clearly, descriptions of the LF must not be arbitrary, for what it contains must be part of reality. (Crucially, to avoid unnecessary controversy, the term *reality* will be understood as the imposition of necessary truth on humans. That is, an innate grammar is reality in the same way that mathematics is reality which we can only abide by). Thus, other than something made up, a UG element is an *a priori* part of the LF, and it does not exist by virtue of linguistic analyses. Minimally, UG’s categorization must ensure that a linguistic item uniquely maps to its identity as ‘naturally’ intended. But coherence (which is barely achieved, see Chapter Three) does not entail that – UG proponents could come up with a different set of categories, yet still asserting to have deepened our understanding of language. Secondly, if intuition of grammaticality is what generative linguists believe they are portraying, and yet it is not transparent at all, then it is hard to account for how innateness has any bearing on the theorization in UG, or in what way innateness implies a restriction on that. This is the basis for calling a generative syntactic account a *repetition* or a *translation* of what is seen on the surface (see Haspelmath 2021c; Tallman 2021; Chapter Four). Emphatically, the non-analysability of innateness is the very core of the criticism of UG presented in this thesis. In connection with (15) above, UG proponents fail to secure the equation of their theorization to the notion of innateness. How the non-analysability of innateness is harmful to the theorization of UG can be schematically illustrated in what follows.

Figure 2

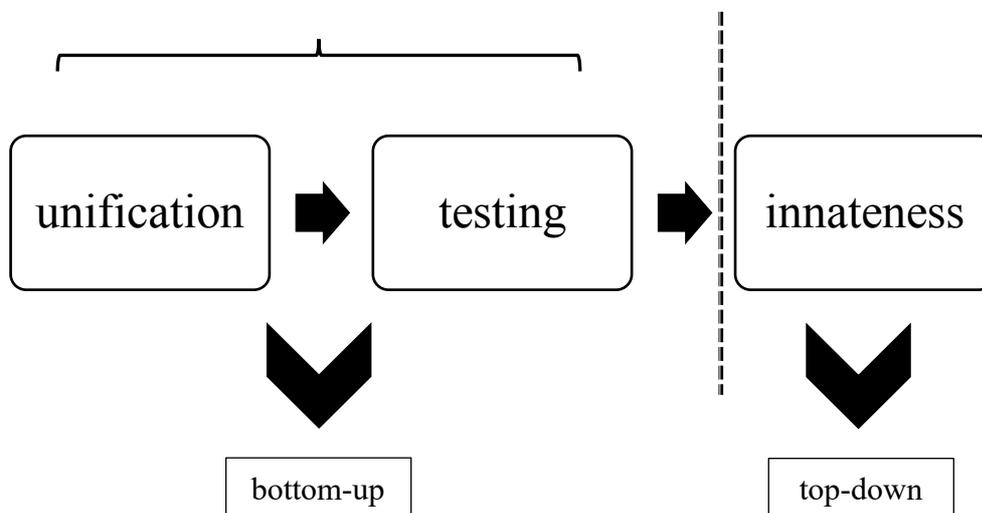
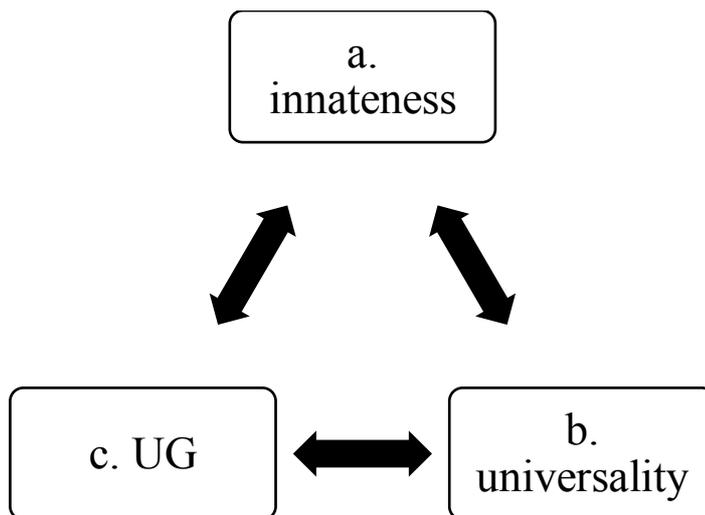


Figure 2 is premised on that innateness is not a self-evident characteristic of UG. It thus shows that UG's theorization must complete two tasks: one is the **unification** of the concepts that are supposedly involved in grammaticality, and the other is, subsequently, the **testing** of the innateness of them. But as UG is filled with assumptions that are not subject to the constraint of innateness, the unification already appears extremely challenging, let alone the testing. By what standards can one ensure that innateness has been reached? This cannot be a theory-internal argumentation. For instance, if one includes Tense (Tense fails even in unification) in the grammatical derivation of a sentence, then it can always be rendered as something 'needed' because grammaticality has been **freely** set down with the assumption that Tense is part of it. Therefore, there must be an account of innateness that is independent of the particular proposals of language universality and is abstracted to its utmost, so that the connection is validated from the bottom-up assumptions to the notion of innateness. In the lack of that, generative linguists enjoy too much freedom that is inappropriate for a quest for necessary truth (see Chapter Four).

Figuratively speaking, the notion of innateness in UG is treated as a stamp on a blank piece of paper: whatever turns out to be written on it would carry the stamp all the same. To be equipped to perform categorization that results in innate categories, UG proponents must truly decipher, from top-down, the LF's natural principle(s) in recognizing and organizing categories. That is equivalent to an effort to independently reveal the epistemological significance of innateness. It is not appropriate for UG proponents to freely take advantage of innateness to promote their grammar as processing deeply rooted explanatory adequacy, yet disregarding the responsibility brought on by resorting to innateness. It is only fair that a theory for innateness is one 'telling' innateness. Otherwise, there is no reason to believe that a category such as Tense is in any way superior to a descriptive tool. But the transitioning from bottom-up to top-down is one step that generative linguists urgently need to take, so that UG's categorization is truly carried out in accordance with real constraint of innateness. Only in this way can UG be set apart from traditional taxonomic grammar, which is exactly how generative linguists wish UG is viewed (see Chomsky 1957, 1965; Radford 2004; Van Valin and LaPolla 1997).

But to clarify, in the current thesis, I take issue with the failure of UG proponents to consolidate innateness to the argumentation in UG, not *innateness* itself. Certainly, grammatical knowledge can be innate, and just as Dąbrowska (2015) puts it, nobody is disputing that (see also the recent blog exchange between Haspelmath 2021a, 2021b and Adger 2021). In fact, I agree with UG proponents on the premise that language universality is equal to the notion of innateness, with the latter understood as the limitation(s) that the presence of language must be subject to. Thus, (15) above can be further completed as in Figure 3 below (with the two-way arrows indicating equation; note that it is an idealization).

Figure 3



To clarify, in Figure 2, the equation between *a* and *b* is unquestionable, and what I consider as problematic is the equation between *a* and *c*, and hence that between *b* and *c*. That is, when UG proponents use general observations in human language acquisition or evolution, like poverty of the stimulus, human speciation and so on (see Berwick et al. 2016; Chomsky 1972; Fitch et al. 2005; Lasnik & Lidz 2016; Mendívil-Giró 2021), to support the notion of innateness, what is overlooked is a methodological discontinuity (or separation). That is because the success of UG is not tied to whether innateness is real, but the reducibility of UG to it, and accordingly, a goal of the current thesis is to suggest how to safely set out the analyticity of innateness (see Chapter Four). On a technical level, this is a problem about UG’s incapability of accomplishing the imperative transition from bottom-up to top-down.

1.5. Organization of the remaining of the thesis

Chapter Two will review Chomsky’s philosophy of language – a methodological naturalism, which entails the ways that he views as proper to investigate languages. The main spirit of that is to treat language as a rule system that projects the finite state of a language to an infinite set of expressions. Accordingly, the unchanged theme of generative grammar has been the attempt to perfect the design of that system, with the guideline of simplicity or economy. That is largely conducted via limiting the theoretical proposals about how to realize grammaticality. With the advent of the Minimalist program (see Chomsky 1995), for instance, it has been suggested that Merge is the only syntactic operation available for accounting for deep-structure activities (note that *lexicon* has never been removed from generative grammar as a ‘material’ basis of syntax). In addition, Chomsky maintains the rationalist view about language acquisition that calls forth the existence of an innate grammar. In practice, this seems to result in the unjustified equation of generative grammar with an innate grammar. But it must be noted that whether there is an innate grammar is a different question from whether generative grammar is innate, and *formal* does not mean *mental* or *natural* automatically. Therefore, it is possible to trace down the trivial involvement of innateness in generative grammar to the fact that from the beginning, Chomsky has not independently defended the innate nature in generative grammar, which was primarily intended to provide a theoretical model so that grammaticality can be deconstructed. Note that grammaticality ought to be the linguistic manifestation of innateness, but the non-analyzability of innateness means that grammaticality in generative grammar can only be a much narrower index of innateness, as there is no way to distinguish grammatical but non-actualized sentences which can conform to innateness but not to convention.

Chapter Three is centred on the recent debate between Haspelmath and some leading linguists or theorists working in the generative tradition (such as David Adger, José-Luis Mendívil-Giró, and Roberta D'Alessandro), regarding the former's journal article entitled *General linguistics must be based on universals (or non-conventional aspects of language)*. In this chapter, some of the issues discussed in Chapter One will be restated with more details, in order to lay stress on the critical points that renders a universal grammar as a 'logical' entity. That is, to truthfully reflecting the metalanguage, a universal grammar should stem from an undeniable ground and allows us to draw a determinate line between necessity and possibility. Chapter Three will serve another purpose. The current situation with the communication between critics and supporters of generative grammar does not seem to be effective, as the attackers are almost predictable of how the defenders would respond, and the defenders become almost annoyed thinking that the attackers are only deliberately uncooperative. Thus, it is hoped that by locating the non-logical involvement of innateness in the generative theorization, critics and supporters of generative grammar may have more constructive communication.

Chapter Four will be an in-depth investigation about the syntactic category of Tense. However, this will not be empirically focused, that is, I will not present evidence either for or against the presence of Tense. That is because to do that, one has to subscribe to the legitimacy in raising Tense in generative grammar and the possibility of defining it. Thus, instead, what I am hoping to show is exactly the 'unknowability' of Tense, which defies the innateness of it. Primarily, it is born out of a descriptive label, i.e., *tense*, in Western languages' grammatical tradition, whose understanding has never been rigidified. One point to note is that the use of such old taxonomic labels in generative grammar is usually taken as axiomatic, and no one seems to care to justify the compatibility between those labels and an ideal computational system. In practice, though, the loosely used label *tense* and other related ones inevitably cause problems in the account of a supposedly essentially bound entity. Due to the lack of definability, the establish of Tense can be unprincipled. This will be shown from two dimensions: from synchronic to diachronic, and from language-specific to cross-linguistic. I will show that the account of Tense in the history of generative grammar is only subject to the availability of theoretical tools, but not the essence of it. Moreover, the original making of it in English does not truly revolve around a conceptual core but relies on random associations of lexical or grammatical items. As a result, it is hard to gather the supposedly Tense members on the same ground. Not to mention that languages with no typical tense morphology will be a challenge for the verification of Tense as one universal label. In that, however, supporters of Tense in languages such as Chinese or Arabic will have no options but to resort to any detectable similarity as the clue for the presence of Tense, which only leads to multiple versions of Tense that cannot be unified, thus impossible to be a universal.

In line with the central problem raised in the thesis, **Chapter Five** will tentatively present a theoretical model that enables us to unfold sentence structure in line with the analyticity of our grammatical intuition. This model has three characteristics. One is that it must be a direct depiction of our grammatical intuition, to capture the obviousness of linguistic entities' combinatoriality. This is to ensure that the model is based on the ground of necessary truth. Formally speaking, the obviousness will be expressed via the supposition that all languages have the same sense of *fullness* about sentence construction, and the analyzability of this fullness will be put forth with *set operations*. Secondly, the model must draw a determinate line between necessity and possibility (freedom) in linguistic forms, that is, we must be able to understand in what way convention plays a role in shaping language. Finally, the model should be freed from the burden of the 'essentialist' organization of categories, which is outlined by the case of Tense in this thesis. For that, categories should be allowed to be part of a grammar

in an *extensional*, rather than *intensional* manner, i.e., plainly, what matters is the divisions between them, not the definitions of them.

2. Chomsky's philosophy of language

In this chapter, I will examine Chomsky's philosophy of language. That can be approached from two facets. One is Chomsky's insistence on formalizing language, i.e., treating language as a rule system mapping a finite state to an infinite set of expressions. This is encapsulated in Chomsky's methodological naturalism. The other is Chomsky's belief that the rule system that both he and his followers are aiming at reflects, as mental facts, how language is learnt. In other words, the rule system is innate. Thereby, we must pause and contemplate what role innateness plays in Chomsky's rule formation process. For generative grammar, innateness is the warrant for its explanatory adequacy, as what is revealed in it is supposedly the deepest metaphysical layer of language (plainly, language is just like this), and because of this, Universal Grammar is a feasible goal of generative grammar (innateness entails universality). However, innateness cannot be a self-evident character of generative grammar. Then, how is innateness guaranteed? Or how is innateness substantially involved in the building of the rule system that amounts to generative grammar? From the beginning, Chomsky is devoted to the design of a computational system and fails to set out the independent criterion(a) for a successful innate grammar. Thus, in practice, it seems that innateness is taken to rely on the idealization of generative grammar as a computational system, which is however not constrained by it in the first place. As a result, innateness only remains a trivial notion. The only salient use of innateness is that if generative grammar is not innate, then it cannot be thought to coincide with how children learn languages because it is too opaque a theory (see Chapter One). In sum, what lies in the heart of Chomsky's (methodological) naturalism is his theory of formalizing language (which consists of a series of assumptions) and its correspondence to reality, i.e., language acquisition. The combination of the two aspects of generative grammar exactly hinges on the verification of innateness of it. It must be noted that whether an innate grammar is possible is not tied to whether generative grammar is innate, and formal does not mean mental or natural. Therefore, the key to the proper model for language as a natural object is the analyzability of innateness.

In Section 2.1, the examination of Chomsky's philosophy of language will start with laying out his alignment with the rationalists, regarding the 'natural preparation' for language acquisition, as well as his equation of generative grammar with the exact content of the natural preparation. But the problem is that as innateness is not analyzable, the composition of generative grammar is not subject to the constraint of it in the first place, and that equation must be doubted. Thus, in Section 2.1, it will be pointed out that the reforms that Chomsky has introduced to generative grammar revolve around his idealization about a perfect computational system which outputs 'correct sentences' – a castle in the air. But because 'correctness' is already known, generative grammar can be seen as merely formalizing a value ('right' or 'wrong') – it means, a derivation is deliberately and freely devised to lead to that result – instead of explaining it. Especially, in the so-called Minimalist program, the syntactic operation that is allowed to happen in the deep structure is restricted to nothing but MERGE, for the sake of simplicity. However, innateness (i.e., being mental reality) is still not a factor in it. Consequently, as the boundary between grammaticality and ungrammaticality is still not tied to innateness, it is unclear what properly activates the process of MERGE (the * mark in generative grammar may indicate possible but not actual expressions, in which case it is pointless to talk about the mechanism that prevents them from taking place). This will be discussed in Section 2.3. In Section 2.4, I will underline that formal does not mean mental or natural automatically, and that the commitment to an innate grammar exactly resides in 'sharpening the boundary of mental', thus contrary to what Chomsky has outlined in his methodological naturalism. Finally, Section 2.4 concludes this chapter.

2.1. Rationalism vs. empiricism

In his refutation of Skinner (1957)'s *Verbal Behavior*, Chomsky (1959) famously pointed out the insufficiency of environmental dispositions in giving rise to all we need to know, tacitly or not, about language, saying "It is simply not true that children can learn language only through 'meticulous care' on the part of adults who shape their verbal repertoire through careful differential reinforcement" (ibid. p. 42). Roughly, the central argument is that children know more than what they can hear or be taught: there is no strict correspondence between utterances and environmental stimulus, and children's knowing languages is not limited to their history of reinforcement or subject to some conditioning (Cowie 2017), e.g., parents' correction. For Chomsky, language acquisition has a core of generativity, which is not available from language data (Chomsky 1965). As Chomsky unequivocally declared himself to be a nativist in language acquisition, the depiction of the **natural** generation of language in one's brain merged with the formation of the rule system invented to deliver grammaticality on the surface. His theory of modelling language was somehow taken as automatically tallying with the way how a child comes to form her/his language. Therefore, what is internalized to facilitate children's learning of languages is the ability to stabilize the generative-style syntactic rules from what they hear¹. It is such rules that turn finiteness into infiniteness, hence the key to generativity. Learning is a process of parameterization. By implication, all the unique grammatical categories and formal tools that belong to that rule system must be present in children's brain/mind naturally, i.e., innate. Nonetheless, this is problematic, because although language acquisition has become an inseparable perspective through which syntax is viewed for generative linguists, this has not implied any substantial understanding about innateness (in the sense that it is internally analyzable). Thus, it is hard to say how the generative presentation of syntax is contained in innateness, and this is crucial since generative grammar as a theory of language acquisition is premised on that it is innate. Finally, it might turn out that innateness is only trivially involved in generative grammar.

Regarding language acquisition, Chomsky would frame what he supports and what he refutes in the dispute between rationalism and empiricism. In general, according to Markie and Folescu (2023: first paragraph), it concerns 'the extent to which we are dependent upon experience in our effort to gain knowledge of the external world', which is expressible in *The Innate Knowledge Thesis*, as is shown below (see Markie and Folescu 2023: Section 3):

- We have knowledge of some truths in a particular subject area, S, as part of our nature.

Undoubtedly, for Chomsky, the variable S is the *a priori* preparation for speaking a language. Chomsky (1974: 9) states what is in stark contrast (i.e., the classical empiricist assumption, for instance, a usage-based theory in Tomasello [2003]) to his rationalist conception of language:

In sharp contrast to the rationalist view, we have the classical empiricist assumption that what is innate is (1) certain elementary mechanisms of peripheral processing (a receptor system), and (2) certain analytical

¹ Chomsky (1964: 8) says:

Returning to the main theme, by a generative grammar I mean simply a system of rules that in some explicit and well-defined way assigns structural descriptions to sentences. Obviously, every speaker of a language has mastered and internalized a generative grammar that expresses his knowledge of his language. This is not to say that he is aware of the rules of the grammar or even that he can become aware of them, or that his statements about his intuitive knowledge of the language are necessarily accurate. Any interesting generative grammar will be dealing, for the most part, with mental processes that are far beyond the level of actual or even potential consciousness; furthermore, it is quite apparent that a speaker's reports and viewpoints about his behavior and his competence may be in error. Thus a generative grammar attempts to specify what the speaker actually knows, not what he may report about his knowledge.

mechanisms or inductive principles or mechanisms of association. What is assumed is that a preliminary analysis of experience is provided by the peripheral processing mechanisms and that one's concepts and knowledge, beyond this, are acquired by application of the innate inductive principles to this initially analyzed experience. Thus only the procedures and mechanisms for acquisition of knowledge constitute an innate property.

To sum up, for Chomsky the dispute between rationalism and empiricism is rooted in whether we are biologically/mentally endowed with the facilitation for obtaining the rule system which generative linguists are proposing². Critically, this in fact contains two research questions. One is about whether grammar can be innate, and the other is about whether generative grammar is innate. Keep in mind that they are two **different** research questions. Clearly, that grammar can be innate does not evidence that generative grammar is innate, which hinges on its derivability from innateness. There is not any direct analysis of innateness in generative grammar, and its success as an innate grammar is only tied to the idealization of it as a rule system, which outputs correct sentences. But generative grammar fails to ascribe the correctness to innateness. As said, without being associated with innateness, the correctness is a narrower representation of grammaticality, as there can be grammatical but unrealized linguistic forms, conditioned by convention; details below (see also Chapter Four).

Chomsky (2005) believes that studying language as part of the world through a biolinguistic perspective (note that *biology* is supposed to frame the presentation of innateness in generative grammar as reality, or to provide the ground of reality for it) can be controversial. In that, he says:

Among the vast array of phenomena that one might loosely consider language related, the biolinguistic approach focuses attention on a component of human biology that enters into the use and acquisition of language, however one interprets the term "language." (Chomsky 2005: 2)

However, as is pointed out by Haspelmath (2020; see also Dąbrowska 2015), biolinguistics is not exclusive to generative grammar, since language (only) happens to humans and there must be some biological mechanism(s) corresponding to that. But again, claiming that the study of language necessitates a biological perspective is different from claiming that generative grammar is the biological fact. The doubts still stem from the emptiness of the term *biology* in generative grammar. After all, what Chomsky and his adherents do under the name of syntax is to account for the distinction between grammaticality and ungrammaticality, which is not subject to (premised on) the biological justifiability of the theoretical notions involved in that. Thus, what about the idea of a syntactic *gap* (caused by the displacement of linguistic entities), or the *wh*-words, or even the operation of *merge* is biological?

Clearly, *syntax* as a product by rationalists looks different from that as a product by empiricists. This division rests upon whether one believes s/he is contributing to 'an internalized generative device that characterizes an infinite set of expressions' (see Scholz et al. 2023). For empiricists, generative grammar is distinct in that it involves abstraction in the 'mathematical' or 'logical' sense (see Tomasello 2005; however, I will use the term *procedural* instead of the two quoted ones, for a reason to be explained below). Chomsky's generative grammar was initiated as a call for treating the investigation of grammar as a science of an independent and formal object (*independent* in the sense that behaviorism is not capable of explaining language, and language

² To complicate the matter, apart from the division of rationalists vs. empiricists among linguists, there is yet another set of tags that a linguist may carry: Externalist vs. Emergentist vs. Essentialist, which links with her/his overall methodological orientations (see Scholz et al. 2023). It is hard to sort out a neat correspondence between the two sets of labels, which are not used in a uniform, consistent way. For the sake of discussion, I will simply consider Essentialists, that is, followers of Chomsky, as *rationalists*, and adopting their perspective, call Externalists and Emergentists *empiricists*.

has its own mechanisms the revelation of which requires the alignment of linguistics with other natural sciences. For that, syntax ought to be placed at the center of it, which consists of rules mapping linguistic items to concrete expressions, hence *formal* (see Newmeyer 1996: chpt.3)). This is a response to what Chomsky has always been opposing to, i.e., limiting what a linguist studies to actual utterances and the circumstances of them (see Bezuidenhout 2008; Scholz et al. 2023). In that, linguistic items tend to be described in terms of the detectable similarities and differences between them and explained in connection with a broader scheme of experience, such as language use, cognitive mechanism, or communication and so on. But what Chomsky emphasizes is the unseen computation that is said to underlie a sentence. As put by Chomsky (1957: 13), ‘the set of ‘sentences’ of some formalized system of mathematics can be considered a language’. This formalized system is thus purified from all that blurs the formal boundaries of language, such as the factors aforesaid (see Chomsky 1986 for the distinction between I-Language and E-Language). Thus, grammar (or syntax) is autonomous³, and the autonomy of grammar constitutes its definability, the integrity of it as an independent scientific department. Centrally, it is the syntactic component that undertakes the *generativity* in generative grammar, containing the abstract rules that lead to well-formedness (see Chomsky 1965). Chomsky views actual utterances as the extensions of the abstractness in which the syntactic component is presented, but never a full view of language structure. However, ‘well-formed’ sentences serve as the only testing ground for a syntactic theory that directly bear on the primary phenomenon of generative grammar: grammatical intuition. In addition, Chomsky (1957, 1965, 1986, 1995) poses simplicity as one vital condition in which a syntactic theory is evaluated, and that is part of what he advocates as the methodological naturalism (see below). In a nutshell, since the syntactic component is finite and the natural language contains an infinite set of expressions, for Chomsky, grammar specifies the projection from abstract (the initial state) to concreteness (the final state). This is purely **procedural** in nature since it is solely motivated to deliver an intended surface form.

By contrast, for empiricists, for instance, a cognitive linguist, syntax can be meaningful, in that it is symbolic, because it is hypothesized that all linguistic representations are conceptual, not different from other cognitive abilities that are considered non-linguistic (see Croft and Cruse 1994: 2). Note that a generative linguist can certainly also claim that syntax is meaningful, but grammatical meaning (see also Hinzen & Sheehan 2013). That is, undoubtedly, what a sentence expresses (or whether it can express anything) has much to do with the underlying structure of it, which specifies the grammatical relations of the lexical items that compose the sentence. Thus, the contrast lies in that an empiricist tends to adopt the explanatory strategy that places language in the overall cognitive and communicative mechanisms, while a generative linguist focuses on the unique, intrinsic properties of language. I will not go as far to examine a cognitive linguist’s meaningful construal of a syntactic construction but only focus on the connection between the abstraction that lies at the core of generative grammar and the innate knowledge thesis of it. That is, innateness is hardly the ground above which generative grammar arises. Thus, it is imperative to ask in what way innateness has proven that the

³ For Chomsky, the most prominent manifestation of grammar’s autonomy is that it is separated from meaning. This is often illustrated by the sentences that are frequently cited in generative literature:

1. Colorless green ideas sleep furiously.
2. Furiously sleep ideas green colorless.

Chomsky argues (see Chomsky 1957: 15) that, with both (1) and (2) being nonsense, speakers of English can confirm that (1) is syntactically valid. Therefore, linguistic analysis must contain different components, namely, the syntactic, semantic, and phonological ones. In particular, the syntactic component is not only independent but also the prerequisite one for the other two (see Chomsky 1965), since it is the ‘first cause’ (called the syntactocentric view; see van Valin and LaPolla 1997).

grammatical categories and relations involved in the abstraction process come from a biological adaptation (or endowment), thus underlying all languages in the world (see Tomasello 2003: 13). Or simply, is a generative linguist's belief that there is an innate grammar evidence of the innateness in the theory that s/he comes up with? To repeat, there are two different research questions in that. In line with this, there is something unusual about Chomsky's rationalist conception about language knowledge: it is said to be tacit, but it is in no way obvious. This is captured by Cottingham (1984: 124):

Chomsky's principles ... are innate neither in the sense that we are explicitly aware of them, nor in the sense that we have a disposition to recognize their truth as obvious under appropriate circumstances. And hence it is by no means clear that Chomsky is correct in seeing his theory as following the traditional rationalist account of the acquisition of knowledge.

The unusualness resides in that if it is not obvious, then how can its innateness be borne out? Again, what I take issue with the Chomskyan Universal Grammar is that innateness has never been analyzable, thus unable to constrain the theorization of it. It means, the innateness will remain unconfirmed. This is inappropriate, because innateness is thought to be the warrant of the universality and the mentality of the rule system (or I-Language) that generative linguists are pursuing, which constitute the explanatory adequacy of it. This is clearly expressed in Chomsky (1965: 27-28):

A theory of linguistic structure that aims for explanatory adequacy incorporates an account of linguistic universals, and it attributes tacit knowledge of these universals to the child. It proposes, then, that the child approaches the data with the presumption that they are drawn from a language of a certain antecedently well-defined type, his problem being to determine which of the (humanly) possible languages is that of the community in which he is placed. Language learning would be impossible unless this were the case. The important question is: What are the initial assumptions concerning the nature of language that the child brings to language learning, and how detailed and specific is the innate schema (the general definition of "grammar") that gradually becomes more explicit and differentiated as the child learns the language? For the present we cannot come at all close to making a hypothesis about innate schemata that is rich, detailed, and specific enough to account for the fact of language acquisition. Consequently, the main task of linguistic theory must be to develop an account of linguistic universals that, on the one hand, will not be falsified by the actual diversity of languages and, on the other, will be sufficiently rich and explicit to account for the rapidity and uniformity of language learning, and the remarkable complexity and range of the generative grammars that are the product of language learning.

In particular, Chomsky sets out the three crucial aspects of language which should enhance the change of the existence of an innate grammar, which are (1) creative aspect of language use; (2) abstract nature of deep structure; (3) apparent universality of the extremely special system of mechanisms formalized now as transformational grammar (Chomsky 1974: 8; cf. Evans and Levinson 2009; Dąbrowska 2015). But these do not provide any clue for us to inspect inside the notion of innateness, nor prove that generative grammar is innate.

One must be able to distinguish the orientation of generative grammar as a theory of modelling languages and that of it as a theory of language acquisition. Specifically, a theory of modelling languages may ultimately count as a descriptive theory, whose success depends on its precision in presenting empirical observations. Just as Tallman (2019) puts it (see also Chapter Four), a descriptive theory also predicts, but it does not necessarily touch on the metalanguage (because generative grammar is innate, it is supposed to be the depiction of the biologically embodied metalanguage). In other words, a theory of modelling languages and a theory of a metalanguage (or that of language acquisition) are subject to different constraints. What lies in the heart of an innate grammar is that it must stand for the mental reality. To be clear, for generative linguists, their theorization of sentence derivation should be obtained from the independent analysis of innateness. However, without any proper criteria specified for generative grammar to meet as

an innate grammar, sentence derivation in the deep structure is a free realm. In that, one invents theoretical tools to formally recount a result that is already known, which may not add any new information (see Haspelmath 2021c; see also Chapter Three). Roughly, what is formalized in the deep structure is simply a value: *grammatical* or *ungrammatical*, in that, however, it is unclear how the content of the formalization should be the natural analysis of that value.

For modelling sentence derivation, generative grammar could be tolerated with its abstractness, which Chomsky's adherents believe to be an advantage. For an innate grammar, abstraction must be shown to be 'permitted' as part of nature. Thereby, an odd circular reasoning occurs. Although generative grammar is said to be innate, innateness is not a real constraint of it. Consequently, as sentence derivation involves more and more abstract entities and relations which are elusive in the data and perhaps even counterproductive for language acquisition (imagine a child's attempting to grasp what the so-called *displacement* properties or *null elements* are), innateness is used to shield the unnaturalness of them. In this connection, Cowie (2017: Section 2.1) comments:

... For if, as Chomsky maintains, mastery of language involves knowledge of rules stated in terms of sentences' syntactic properties, and if those properties are not so to speak 'present' in the data, but are rather highly abstract and 'unobservable,' then it becomes hard to see how children could possibly acquire knowledge of the rules concerning them. As a consequence, children's feat in learning a language appears miraculous: how could a child learn the myriad rules governing linguistic expression given only her exposure to the sentences spoken around her?

In response to this question, most 20th century theorists followed Chomsky in holding that language acquisition could not occur unless much of the knowledge eventually attained were innate or inborn.

It seems to me that *innateness* is a 'romanticized' term for *opaqueness* in generative grammar. That is to say, innateness satisfies a theory-internal need, but it remains empty. This can explain why generative linguists and functionalists are at variance about whether generative grammar is a theory of language acquisition (see Chapter One). To repeat, formalization cannot be taken to be the guarantee for the mental reality of generative grammar.

2.2. Formalization: the unchanged theme of generative grammar

With this said, the one theme that has remained invariant in generative grammar is its attempt to formalize language. Newmeyer (1996) says that it is formalization that makes Chomsky's *Syntactic Structure* a revolution:

What makes Syntactic Structures revolutionary is its conception of a grammar as a theory of a language, subject to the same constraints on construction and evaluation as any theory in the natural sciences. Prior to 1957, it was widely considered, not just in linguistics, but throughout the humanities and social sciences, that a formal, yet nonempiricist, theory of human attribute was impossible. Chomsky showed that such a theory was possible. Indeed, the central chapter of *Syntactic Structure*, 'On the goals of linguistics theory', is devoted to demonstrating the parallels between linguistic theory as he conceives it and what uncontroversially would be taken to be scientific theories. (Newmeyer 1996: 24)

Put in the simplest terms possible, what formalization targets is the transitioning from the initial state to the final state of sentence derivation. For the initial state, generative grammar specifies the elements standing by for derivation. Primarily, due to the finiteness of the initial state, such elements are stated in categorial identities or generalized as common procedures that configure lexical items – both constitutes the dynamics of the sentence derivation and count as universals. Mainly, the initial state is where generative linguists start theorizing (by proposing what there can be), and it is unseen. Meanwhile, the final state provides the stable testing ground for a

theorization, so that it could be modified. In addition, Chomsky constantly underlines the factor of *simplicity* in composing a syntactic account, hence an important condition of generative formalization. However, as is suggested, *simplicity* itself is only a reflection of generative linguists' idealization about formalization, not derived from anything else. Over the years, the changes in generative grammar concentrate on how to devise an ideal computational system, and the drive for that is always the desire to restrict the syntactic operations and the desire for the computational system to output 'correctness' or draw a clear line between grammaticality and ungrammaticality. Eventually, however, the changes are not induced by innateness.

In the early stage of generative grammar, a syntactic analysis is basically tantamount to a rule-rewriting process (though there are different presentations of it). It is the phrase-structure rules that are theorized in the initial states. What lies in the core of such rules is a precise structural **description** of a sentence's constituents. In other words, from the beginning, syntactic analysis serves as a formal rendition of what is seen on the surface. In that, phrase markers, which are largely taken from traditional taxonomic grammar, are gradually replaced with lexical items to the point where a correct sentence is made (for the replacement there can be restrictions applied to it). See the following example from Chomsky (1957: 39-40), where the sentence '*the man has been reading the book*' is analyzed (but I will only focus on the spell-out of the affixes on the verb). According to Chomsky, the sentence's derivation should undergo the following phase (C means consonant):

- *the + man + C + have + en + be + be + ing + read + the + book*

Regarding the realization of C, Chomsky specifies the following alternations:

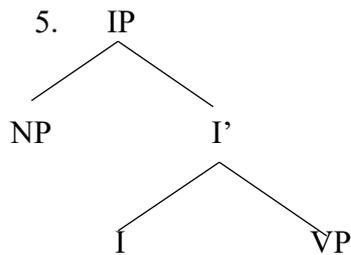
$$C \rightarrow \left\{ \begin{array}{l} S \text{ in the context } NP_{sing}^- \\ \emptyset \text{ in the context } NP_{pl}^- \\ past \end{array} \right.$$

Exactly, the formal procedure of selecting the correct affix is stated as follows:

- Let Af stand for any of the affixes *past, S, 0, en, ing*.
- Let V stand for any M or V, or have or be (i.e., for any nonaffix in the phrase *Verb*).
Then:
Af + v → v + Af#
where # is interpreted as word boundary.
- Replace + by # except in the context v → Af. Insert # initially and finally.

Certainly, the correct -s will be selected finally, as the condition for its occurrence is accurately stated above. However, as long as one determines what is contained in the initial state, it is not a challenge. That is because it is a preset goal that the derivation will be conducted to. Is the derivation an explanation or is it only a translation (as Tallman 2019 calls it; see Chapter Four)? If it is an explanation, do we learn anything about why a verb needs to be affixed and why that affords alternations? Clearly, grammaticality is taken as a 'known' value in the derivation, but since it is not internally analyzable, the analysis shown above is merely a formal rendition of what is seen on the surface. Thus, we do not know more than what we already know. In other words, the entities and procedures used in that rendition should not have significance regarding

the metalanguage⁴. This has been the case throughout the development of generative grammar. Ever since *syntactic structures*, Chomsky has been consciously restricting what is allowed to take place in sentence derivation, while basically taking generative grammar as the procedural guidelines in formalizing language. As said, formalization is the theme of generative grammar, and what varies is only the implementation of it. Ever since late 1960s, X-Bar theory (Chomsky 1970; see also Jackendoff 1977) has become the trademark of generative grammar, and it is the standard schematic diagram of generative derivation. With that, syntactic structures can be put in parallel, including a sentence, see the following example of an Inflectional Phrase (IP) below which is said to amount to a sentence (Chomsky 1995: 122).



With X-Bar theory, all phrases have identical construction. It means, a so-called full projection (see Adger 2002) is composed with a specifier (where NP appears in 3), a head (where I appears in 3), and a complement (where VP appears in 3). In other words, linguistic elements have their categorial identities, and their derivational identities as well. This can give generative linguists more leeway in arranging grammatical relations (but another set of concepts difficult to define). For example, it is said that the specifier in an IP (or TP) projection is assigned with a nominative case (see Chomsky 2000; Adger 2002; Redford et al. 2009). The shift from phrase structure to X-bar, according to Chomsky (1995: 48), is exactly driven by and satisfying the constant need of restricting the theory. Specifically, since the lexicon and derivation are separated, syntactic operations are limited to the interactions (combinations) between head and specifier, or head and complement, etc. But after all, this is the unfolding of a generative linguist's idealization of what s/he means by a computational system, and it has nothing to do with the representation of innateness. This is why the computational system is devised in accordance with the need to deliver the grammaticality seen on the surface. For instance, Chomsky's *Aspects* (1964) limits the lexical-insertion or selection process so that only desired structures are derived. In that, the so-called base rules (limitations on what appears in a position) including subcategorization are introduced. (Thus, a sentence like *sincerity may frighten the boy* would not be generated.) One should note, in this connection, that lexicon as one essential part to the organization of grammar (equivalent in status to syntactic rules) was established in the early stage of generative grammar (lexicon and phrase structure rules are called base component in Chomsky's *Aspects*), and this has never changed, as is put by Cowie (2017: Section 2.1):

But what has not changed — and what is important for our purposes — is that in every version of the grammar of (say) English, the rules governing the syntactic structure of sentences and phrases are stated in terms of syntactic categories that are highly abstracted from the properties of utterances that are accessible to experience...

⁴ To be fair, metalanguage is not as explicit and stressed a goal in Chomsky's *syntactic structure* as formalization, which is deemed as the (only) legitimate method of analyzing language. As is put by Newmeyer (1995: 44):

In Syntactic Structures, there is never any question of how the rules proposed bear on the conception of language introduced and defended in that book: there is a constant appeal to their abstractness and complex interaction, which Chomsky clearly regards to be of greater theoretical significance than the precise details of their formulation.

For Chomsky, lexicon is an idealized entity that tells everything. It specifies meaning and sound (see Chomsky 1964: 84), and more crucially, it specifies how an item can behave in the deep structure, by identifying it and thus marking it. This has become convenient especially when Chomsky extended features as the standard ways to distinguish lexical items. An overview of this practice can be found in Chomsky (1970: 12):

I will assume that a grammar contains a base consisting of a categorial component (which I will assume to be a context-free grammar) and a lexicon. The lexicon consists of lexical entries, each of which is a system of specified features. The nonterminal vocabulary of the context-free grammar is drawn from a universal and rather limited vocabulary, some aspects of which will be considered below. The context-free grammar generates phrase- markers, with a dummy symbol as one of the terminal elements. A general principle of lexical insertion permits lexical entries to replace the dummy symbol in ways determined by their feature content. The formal object constructed in this way is a DEEP STRUCTURE.

Due to the constant existence of *lexicon*, categorization in generative grammar must be able to guarantee that its outcomes are metaphysically compatible with the ideal computational system (as is specified in Chapter One). This is the case no matter how restricted the syntactic operation can be.

2.3. “How seriously should we take Minimalist syntax?”

2.3.1. The ongoing reform

In the 1990s, Chomsky (1995) launched the Minimalist program, and it is one ongoing reform of generative grammar, following principles of economy, toward a simple but effective system. That is always the driving force for the reform of generative grammar, as Chomsky constantly feels the urge to restrict his theory. For that, Chomsky says:

A working hypothesis in generative grammar has been that languages are based on simple principles that interact to form often intricate structures, and that the language faculty is nonredundant, in that particular phenomena are not “overdetermined” by principles of language. (Chomsky 1995: 154)

However, in line with what is raised in the current thesis, that is still an external reform made to idealize the design of generative grammar as a rule system, as innateness is still not factored in the depiction of the deep structure. That is, the simpleness and effectiveness of generative grammar is still obtained in its orientation of formalizing language, not that of reflecting mental reality. Thus, Edelman and Christiansen (2003), in their response to Lasnik’s (2002) review of the Minimalist program, ask (as the article’s title): *How seriously should we take Minimalist syntax* (see details below)?⁵

⁵ In the beginning of the article, Edelman and Christiansen (2003: 60) put the following statements that is quite intriguing:

One might observe, however, that this journey is more like a taxi ride gone bad than a free tour: it is the driver who decides on the itinerary, and questioning his choice may get you kicked out. Meanwhile, the meter in the cab of the generative theory of grammar is running, and has been since the publication of Chomsky’s Syntactic Structures in 1957. The fare that it ran up is none the less daunting for the detours made in his Aspects of Theory of Syntax (1965), Government and Binding (1981), and now The Minimalist Program (1995). Paraphrasing Winston Churchill, it seems that never in the field of cognitive science was so much owed by so many of us to so few (the generative linguists). (Edelman and Christiansen 2003: 60)

It is intriguing because in some way Haspelmath’s metaphorically accusing generative linguists of ‘building up walls’ (as is discussed in Chapter there) echoes the idea that a non-generative ‘passenger’ is unwillingly taken on an unnecessarily long ride by a generative ‘driver’, which, however, costs the passenger. Both metaphors might point to the separation and the incongruity between generative linguists and non-generative linguists or cognitive scientists. Especially, it has been extremely hard for the latter to comprehend and appreciate the former’s success, for that often is a result of one theory-internal assumption built up on another one, but the necessity of them is not a concern in generative grammar.

Then, what can be thought as the minimalized aspect(s) in the Minimalist program? It appears that the term *minimalist* stresses how to render the language faculty as a ‘good solution’ to the “legibility conditions” – according to Chomsky [2000: 9]: other systems must be able to “read” the expressions of the language and use them as “instructions” for thought and action. In that, syntax is the computational system which constructs linguistic expressions for interfacing with the Logical Form and the Phonological Form. In line with this, syntax, still upheld as the central component, can be said to be both necessary and driven by the purpose (thus limited). Chomsky (2005) emphasizes the equivalence between the Minimalist program and a biological point of view that must be imposed on languages. It directs linguists’ efforts to exploring questions such as:

... the extent to which apparent principles of language, including some that had only recently come to light, are unique to this cognitive system or whether similar "formal arrangements" are found in other cognitive domains in humans or other organisms. An even more basic question from the biological point of view is how much of language can be given a principled explanation, whether or not homologous elements can be found in other domains or organisms. (Chomsky 2005: 1-2)

It is claimed that ‘the faculty of language is embedded in the broader architecture of mind/brain’ (Chomsky 2000: 9), but this is different from a functionalist perspective (see Chapter One) in that syntax still stands on its own (being fundamental facts) and is not analyzable in terms of other cognitive capacities. Thus, what Chomsky means by *interface* does not throw light on the mental or biological homogeneity between syntax and other brain activities. It constrains other cognitive capacities (that is, it has requirements for them to meet so that existing assumptions in generative grammar are maintained) more than it constrains syntax. As suggested, the reform is not entailed by the truthful representation of the notion of innateness, i.e., its ‘reality’ still mostly depends on its usefulness in leading to the ‘correctness’ as judged by our grammatical intuition. Edelman and Christiansen comments (2003: 60) on this, saying:

Unfortunately, to our knowledge, no experimental evidence has been offered to date that suggests that merge and move are real (in the same sense that the spatial-frequency channels in human vision are). Generative linguists typically respond to calls for evidence for the reality of their theoretical constructs by claiming that no evidence is needed over and above the theory’s ability to account for patterns of grammaticality judgments elicited from native speakers. This response is unsatisfactory, on two accounts. First, such judgments are inherently unreliable because of their unavoidable meta-cognitive overtones, because grammaticality is better described as a graded quantity, and for a host of other reasons. Second, the outcome of a judgment (or the analysis of an elicited utterance) is invariably brought to bear on some distinction between variants of the current generative theory, never on its foundational assumptions. Of the latter, the reality of *merge* and *move* is but one example; the full list includes assumptions about language being a ‘computationally perfect’ system, the copy theory of traces, the existence of Logical Form (LF) structures, and ‘innate general principles of economy’. Unfortunately, these foundational issues have not been subjected to psychological investigations, in part because it is not clear how to turn the assumptions into testable hypotheses.

Edelman and Christiansen make the precise point that generative grammar is not (based on) a reliable analysis of grammatical intuition. Without the foundation established, there is nothing to be falsified about generative grammar (more details in Chapter Four), since the freedom that results from the non-existence of the foundation is convenient to draw on. Chomsky’s ideal of a ‘minimalist’ system hardly attempts to epistemologically ‘naturalize’ language but is still an emphasis on its uniqueness, thus leading to a castle in the air. Practically speaking, Chomsky has been calling for the restriction of syntactic operations to only *merge*, and the discussion of the significance of that can only be theory-internally framed as it is unclear above what ground of reality it arises.

2.3.2. Nothing but MERGE

The recent paper ‘*Generative Grammar and the Faculty of Language: Insights, Questions, and Challenges*’, by Chomsky, J. Gallego, and Ott (2019; as CGO below), is, first of all, a positive assessment of generative grammar’s progress in investigating human language as an object of the natural world. In that, it restates the notion of innateness as the departure point of generative grammar. This, again, is supported by the deduced ‘contour’ of it, without a perspective inside of it. To repeat, the exclusive (“us not them”) and meanwhile non-selective (there is barely any significant differences among us in knowing a language, called *Descartes’ observation*) human capability of speaking languages must mean that it is a general biological/mental endowment⁶ (see Hauser et. al 2002; Anderson 2004; Berwick and Chomsky 2016). As has been emphasized throughout the thesis, the analyzability of the notion of innateness (of which there is a uniquely correct account) must be a true constraint on an innate grammar. Yet this is still absent in this latest contribution of Chomsky to generative grammar, and it confirms that generative linguists ought to ‘restrict composition to MERGE’. That is, there is but one syntactic operation MERGE (henceforth as M) useful to produce grammatical structures (as judged by our intuition). Plainly, M means the combination of more than one linguistic unit to form a new one: there are External M, combining distinct linguistic units taken directly from the lexicon, and Internal M, creating a new linguistic unit from an old one (i.e., one linguistic unit occurs in two different positions). External M and Internal M are therefore responsible for the placement of lexical items and the displacement of them respectively⁷. With this said, there would be no room for the conception of Move, and other labels such as *traces* and the bar-levels of X-bar. In sum, M is basically all that there can be, and it is free. CGO say that M sufficiently meets the minimal requirement of a computational system for language-generation, allowing discrete infinity and displacement⁸. However, proposing M as almost encompassing all syntactic operations is a reform still in line with a theory of modeling language (both its motivation and purpose are theory-internal). CGO claims that M is a property of all linguistic elements, which suggests that the occurrence of M

⁶ For this, CGO pose the criterion of evolvability for the composition of Universal Grammar: the mechanisms and primitives ascribed to UG (as opposed to deriving from independent factors) must be sufficiently sparse to plausibly have emerged as a result of what appears to have been a unique, recent, and relatively sudden event on the evolutionary timescale. (CGO 2019: 230)

⁷ Note that displacement is supposedly confirmed by the assumption that ‘thematic relations are established in a strictly local fashion’ (CGO 2019: 232).

⁸ Chomsky (1957) initially posed three sets of rules for syntax: phrase structure, transformational structure, and morphophonemics (see also Harlow 1995). Of them, transformational structure rules were surely a trademark of the early versions of generative grammar, deepening sentence derivation. This can be the beginning of generative grammar’s opaqueness. Fundamentally, the need for such rules assumes that a linguistic element has a canonical position where it is base-generated. Such assumption has been followed throughout the entire development of generative grammar. This canonical position is tied to the thematic structure of a sentence, via the principle of locality. In later versions, Chomsky (2000, 2005, 2019) insists that *displacement* properties are essential to studying the I-Language (seeing language as a natural object). This is illustrated by the following Japanese sentences (Chomsky et al. 2019: 232):

4. a. sensei-ga John-o sikar-ta.
 Teacher-nom John-acc scold-past
 ‘The teacher scolded John.’
 b. John-ga sensei-ni sikar-are-ta.
 John-nom teacher-by scold-pass-past
 ‘John was scolded by the teacher.’

Clearly, CGO believes that (4a) and (4b) are thematically equivalent and thus unified on their initial state. In that, they say: The noun phrase John bears the same thematic relation to the verb *sikar* in both (1a) and (1b) [4a and 4b], but appears sentence-initially in the latter. **On the assumption that thematic relations are established in a strictly local fashion** [emphasis mine]—a guiding idea of GG [generative grammar] since its inception—, this entails that the nominal is displaced from its original position in (1b) [4b].

is not linked to the identity of a linguistic element, which thus must be expressed in the lexicon. Anchored by no overall principle, M occurs when it is ‘supposed’ to, i.e., depending on what is needed, which is not unlike any other syntactic operation.

Clearly, what prompts CGO to reduce the formal devices in depicting sentence derivation to M is to continue enhancing the simplicity of the theorization of generative grammar. For that, a specific point is made in reference to the elimination of the feature-triggering process for M, in view of the *ad hoc* nature of it, and for that, CGO says:

The features invoked in the technical literature to license applications of MERGE are typically ad hoc and without independent justification, “EPP features” and equivalent devices being only the most obvious case.⁵ The same holds for selectional and discourse-related features; the latter in addition violate IC, as noted above (cf. Fanselow 2006). Featural diacritics typically amount to no more than a statement that “displacement happens”; they are thus dispensable without empirical loss and with theoretical gain, in that Triggered Merge or equivalent complications become unnecessary (cf. Chomsky 2001: 32, 2008: 151; Richards 2016; Ott 2017b). (CGO 2019: 238)

It has been realized that this is due to the lack of an independently notion of ‘well-formedness’. But since what Chomsky believes is that it **does not** exist (see Chomsky and Lasnik 1993: 508), the idea of ‘overgeneration’ needs to be reintroduced into the theory and justified. For that, it is said that overgeneration must be permitted on purely empirical grounds: ‘deviant expressions are systematically used in all kinds of ways’ (2019: 238). It means that the crucial line between grammaticality and ungrammaticality starts to be blurred, since ‘[s]urface stimuli deriving from the objects constructed by I-Language can have any degree of perceived “acceptability” or “deviance,” from perfect naturalness to complete unintelligibility’ (2019: 238). However, it is hard to tell how enlightening it can be in practice, or how generative linguists that are solving ‘real’ problems (from bottom-up) can appreciate and implement that. As is shown in previous chapters, a generative linguist would need to direct the underlying derivation towards a specific target to claim the success of it, and based on this success, further predictions could be made. To be clear, the boundary of I-Language is supposed to be that of innateness, because the former must be the formal representation of the latter. If well-formedness cannot be tied to innateness and independently demarcated, it is pointless to talk about the well-definedness of I-Language, in that, its precision and necessity can only become instable, since acceptability is a vague idea. It is hard to say which sentence marked with a * is completely (or to what extent) unacceptable and what has resulted in that unacceptability (if there is any). As is said in Chapter One, whether a ‘bad’ sentence is conventionally unusual or mechanically impossible can only be determined by what is allowed by innateness. For the sake of concreteness, in explaining *wh*-extraction of NP (note that ‘rules’ of this topic need to be presented under the supposition that *wh*-extraction and NP must be ideal entities just like the computational system containing them), GGO (2019: 249) give the following contrast in grammaticality, as shown in (5) and (6):

5. What did John read a book about _?
6. *What did John read something, a book about _?

Undoubtedly, the * mark indicates that (6) is not the way that English speakers are accustomed to expressing the idea that is intended in it. This is the full extension that all our grammatical intuition can tell. A more important question is whether (6) is something that the computational system cannot produce, or it is simply not the ‘chosen’ way of saying that (clearly, we can guess what it is originally supposed to mean). If there cannot be a satisfying answer to this, then the so-called I-Language is non-existent. That is because the contrasts such as that between (5) and (6) are central to the generative theorization, which are taken to signal the boundary between possible and impossible linguistic patterns, but we can always say that generative linguists read

unjustifiably too much into the * mark. Exactly, what generative linguists do is to come up with an account of why (6) is mechanically prevented from happening, but this is oversimplification.

It is perhaps insightful for Haspelmath (2020; 2021c) to notice that Chomsky and his colleagues are making efforts to reduce the ‘richness’ of Universal Grammar (see Berwick and Chomsky 2016; Chomsky 2005; Hauser et al. 2002), in that, restricting grammatical composition to M is coherent. However, M does not cancel the substantive basis for the theorization of generative grammar. One must note that in addition to M, the other component of generative grammar is still the lexicon, and with M unable to distinguish linguistic items, the lexicon thus still needs to be exhaustively set out in accordance with the similarities and differences that connect and disconnect linguistic items. In generative grammar, sentence derivation will always start with the identification of linguistic items specified by the lexicon, which undertakes the abstractness of generative grammar. (Not to mention the lexicon is where linguistic universality arises.) This is testified by Adger (2019: 35):

Building a theory involves stating a set of propositions (hypotheses) in a language which has a basic vocabulary of entities, relations, etc. (the concepts of the theory). The syntax of this language and its interpretation is whatever we need it to be, but at least some aspects of it are drawn from mathematical and logical concepts which we have a good understanding of, and, when a theory is fully formalized, all of the propositions can be stated mathematically.

Fundamentally, the problem is still the testability of generative grammar as an innate grammar. As a naturalistic program, its lexicon ought to contain the inherent information about linguistic elements’ interaction with other elements (where they are to be placed or displaced). In this connection, M is not at all helpful. All the problems concerning the use of arbitrary similarities as evidence of language universal cannot be avoided, since there is still no overall constraint on identifying linguistic elements with rigid necessity. Crucially, restricting syntactic operation to M will not redesign a new theoretical prospect for generative grammar.

2.3.3. Chomsky and categories

Indeed, it is a clear trend in Chomsky’s more recent conceptions about the Minimalist program that he is consciously reducing the use of taxonomic labels, as well as the importance of them. For example, regarding the presentation of principles and parameters, Chomsky (1995) makes the following statements:

The P&P [Principles and Parameters] approach aims to reduce descriptive statements to two categories: language-invariant, and language-particular. The language-invariant statements are principles (including the parameters, each on a par with a principle of UG); the language-particular ones are specifications of particular values of parameters. The notion of construction, in the traditional sense, effectively disappears; it is perhaps useful for descriptive taxonomy but has no theoretical status. Thus, there are no such constructions as Verb Phrase, or interrogative and relative clause, or passive and raising constructions. Rather, there are just general principles that interact to form these descriptive artifacts. (Chomsky [with Lasnik] 1995: 22)

Chomsky seems to suggest that when dealing with taxonomic labels, it is the content that fills in them that is subject for generalization and/or parameterization. But if general principles give rise to the ‘descriptive artifacts’, such as *Verb Phrase*, *interrogative* and *relative clause*, this is a process of defining. Then, the definition needs justification (what is being defined and where are they from?). It appears that in dealing with categories, Chomsky may face some paradoxes. Primarily, he intends to limit them but cannot dispense with them since behaviors of linguistic entities are differentiated in their identities. In an overview about lexicon, Chomsky (1995: 216) says that it is a list full of ‘exceptions’. But keep in mind that there are no exceptions if there

is no regularity. In CGO (2019), the uses of lexical labels, such as vP and NP, are still seen as part of the description a sentence's grammaticality/ungrammaticality of. Moreover, Chomsky's treatment of categories can be a rather simplistic one (the infamous $[\pm N]$ and $[\pm V]$ as the basis for word classes can be a good illustration, see also Baker 2002) – plainly, they are thought to be too obvious to be worth defining, but barely any of the lexical label is truly primitive or self-evident. Since the beginning of generative grammar, Chomsky has not been concerned about justifying the use of lexical labels. For him, it is unquestionably involved as part of the ideal formalization. However, the entities that appear in an 'idealized computational system' must be consequential. In that, definability is only a minimal requirement. More vitally, it should be clarified in what way the entities can be deemed as compatible with that ideal. It is rare to find Chomsky's writing that is devoted to the identification of linguistic entities prior to laying out a structural analysis that involves them. This has become part of the generative convention. In particular, about linguistic universality, Chomsky (2001) influentially expresses the 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. (Chomsky 2001: 2)

Chomsky adds that a familiar application of the Uniformity Principle is that 'basic properties are universal though phonetically manifested in various ways (or not at all)'. This is convenient for generative linguists, as it removes the most challenging and the most essential work of the comparative study. Without a doubt, the Uniformity Principle greatly encourages the bottom-up search for universal categories, especially the so-called 'cartography project'. For that, one can confidently transfer what one knows about one language to another and call it a universal. In this regard, Cinque (2006: 16) notes (see also Kayne 2005):

The work reported here is part of a larger enterprise, which has come to be known as the "cartography project": the attempt to draw a map, as detailed as possible, of the functional (or grammatical) structure of the clause and of its major phrases. The underlying assumption is that all languages share the same functional categories and the same principles of phrase and clause composition, although they may differ in the movements they admit and in the projections they overtly realize. Such an assumption has been implicit from the very beginning of generative grammar and is explicit in Chomsky's (2001) Uniformity Principle.

Consequently, some generative linguists become enthusiastic about posing universal categories while not worrying about defining them (initially). This may turn out to be a counterproductive process, since finally the outcomes would only be useful if the uniformity of them could be explicated⁹.

2.4. Formal is not mental or natural.

2.4.1. Sharpening the boundary of mental

⁹ As is noted by Dabrowska (2015: 2):

With respect to parameters, very few scholars have even attempted to give a reasonably comprehensive inventory or what these are. Two rare exceptions are Baker (2001), who discusses 10 parameters, and Fodor and Sakas (2004), who list 13. In both cases, the authors stress that the list is far from complete; but it is interesting to note that only three parameters occur on both lists (Tomasello, 2005; see also Haspelmath, 2007). There is no agreement even on approximately how many parameters there are: thus Pinker (1994, p. 112) claims that there are "only a few"; Fodor (2003, p. 734) suggests that there are "perhaps 20"; according to Roberts and Holmberg (2005, p. 541), the correct figure is probably "in the region of 50-100." However, if, following Kayne (2005), we assume that there is a parameter associated with every functional element, the number of parameters must be considerably larger than this. Cinque and Rizzi (2008), citing Heine and Kuteva's (2002) work on grammaticalization targets ungrammatical and do not acquire overgeneral grammars in estimate that there are about 400 functional categories. According to Shlonsky (2010, p. 424), even this may be a low estimate. Shlonsky (2010) also suggests that "[e]very feature is endowed with its own switchboard, consisting of half a dozen or so binary options" (p. 425), which implies that there are thousands of parameters.

Since Chomsky's *Syntactic Structure*, generative grammar has been established as an attempt to formalize language as a 'natural' object. However, it seems that *formal* is taken to be *natural*, since for Chomsky, what *natural* means is mainly the amenability of language to formalization, which was unusual (prior to Chomsky's *Syntactic Structures*) in humanities or social sciences. But formalization is not a metaphysical constraint, and fundamentally, we need to know about the existence of language, as allowed by the universe, if we endeavor to reach the explanatory adequacy.

In the generative revolution of formalization, the exact conditions of language's existence have never been factored in it. What is mentioned instead, as always, is its 'precision' in modeling the value of our grammatical intuition which is a narrower index of all possible linguistic forms. On one hand, Chomsky attaches much significance to his investigation of language due to its orientation of being a natural (mental) exploration (subordinate to no other scientific division), and yet on the other hand, he explicitly denies that the methodology that he believes to be beneficial for investigating language has any metaphysical connotations (thus not based on them). He considers that language, in conjunction with natural sciences, constitutes the fundamental ground of human knowledge, but the parallelism between language and a natural science lies in that they all have a self-evident and yet inexpressible subject matter. The following passages show how 'effortlessly' Chomsky grants language the status of mental.

Putting "language" aside for the moment, let's begin by taking the other terms of the title in ways that are innocent of far-reaching implications, specifically, divorced from any metaphysical connotations. Take the term "mind" or, as a preliminary, "mental." Consider how we use such terms as "chemical," "optical," or "electrical." Certain phenomena, events, processes, and states are called "chemical" (etc.), but no metaphysical divide is suggested by that usage. These are just various aspects of the world that we select as a focus of attention for the purposes of inquiry and exposition. **I will understand the term "mental" in much the same way, with something like its traditional coverage, but without metaphysical import and with no suggestion that it would make any sense to try to identify the true criterion or mark of the mental. By "mind," I mean the mental aspects of the world, with no concern for defining the notion more closely and no expectation that we will find some interesting kind of unity or boundaries, any more than elsewhere; no one cares to sharpen the boundaries of "the chemical."** [emphasis mine] (Chomsky 2000: 75)

'We may carry over these observations – truisms, I think – to the study of human language and the human mind. Since the brain, or elements of it, are critically involved in linguistic and other mental phenomena, we may use the term "mind" – loosely but adequately – in speaking of the brain, viewed from a particular perspective developed in the course of inquiry into certain aspects of human nature and its manifestations. There are empirical assumptions here – that the brain, not the foot, is the relevant bodily organ, that humans are alike enough in language capacity so that human language can be regarded as a natural object, and so on. But these need not detain us.' (Chomsky 2000: 76)

Briefly, Chomsky states that language is mental, and mental is one aspect of the world, but to sharpen the division of the mental aspect of the world is not the responsibility of a linguist like him. In plain terms, he does not show what makes an entity mental in general, but he is willing to treat language as mental. What this can mean for generative grammar is that it is not a theory devoted to proving how language is mental, but it is built on a 'self-evident' assumption of that. Chomsky calls this methodological naturalism, as opposed to metaphysical naturalism, which he understands as physicalism (see also Jacob 2012). But the 'self-evident' character of mental can render it as a **free realm**. One must be aware that the rigidity in natural sciences is far more salient than in linguistics (if there is indeed something that can be called rigidity in linguistics). It can be true that it is a challenge to sum up, for example, what *chemical* is. But the theoretical edifice of chemistry is built on the fact that an atom is the most primitive structure of all kinds of substance. It is perhaps not controversial that fundamentally, any chemical phenomenon can

be atomically analysable. Crucially, an atom's structure can be independently (either directly or indirectly) illustrated, and it is due to this certainty can chemistry be explanatory. The atomic structure provides the **necessarily** common ground for all elements, of which each one will be uniquely identified with no room for negotiation. This is why having this systematicity in mind, Mendeleev did not need to be confined by elements which had been discovered at his time but was able to predict new elements in his periodic table, where placeholders could be rationally supported as their existence must have been integral to that systematicity as well. Furthermore, an element's characterization must boil down to its unique atomic structure. Note that what an atom should be like is not something obtained *ad hoc* from what is directly observable (see the previous chapter).

With this said, is there anything comparable to an atom in generative grammar, which warrants the rigidity in its theoretical expansion? I am afraid there might not be. Worse still, language, by its own nature (the crucial social dimension of it, and the fact that the generation of it cannot be observed), is prone to linguists' free will. Although *feature* was practically deemed as the smallest unit in the literature of generative grammar, the *ad hoc* nature of it precludes any rigidity from stabilizing the theoretical expansion out of it. That is, there is no epistemological significance of it except for satisfying the theory-internal needs of generative linguists, and as a result, the proposal of a feature is not subject to what is real, but what is needed. As is shown in Chapter 2, a Tense feature can be as diacritically complicated as the expression in (5) below (to be clear, * means a strong feature, and μ means uninterpretable, adopted from Adger [2002: 135]). Each diacritic does not correspond to any independently observable linguistic entities or relations, but it reflects how a generative linguist intends the 'correct' surface structure to be arrived at underlyingly, so that the existing assumptions do not fail.

4. [$*\mu$ tense: past]

Contrary to what Chomsky takes for granted, the meaningfulness of investigating language lies exactly in sharpening the boundary of mental, as that is far from axiomatically obvious. In that, the linguistic exploration of mental cannot be anchored to anything, other than the grammatical intuition itself, but since *mental* is not analyzable, one turns out to use grammatical intuition to explain grammatical intuition¹⁰. In this sense, conversely, only when the boundary of mental is sharpened (to create a definite, independent ground) can an innate grammar be worth pursuing. Otherwise, it is reducible to a vacuous label. In practice, Chomsky's methodological naturalism functions as a call to tolerate or grant the freedom in which a generative linguist would set forth her or his theory, yet incapable of limiting the content of that. Due to that freedom, the formal analysis of generative grammar can only be characterized as unique and isolated, in that, it is impossible to apply it to anything else, nor to integrate it to a wider mental domain (although according to D'Alessandro [2019], generative linguists are aware of this and making efforts in this regard). It must be realized that Chomsky's *methodological naturalism* is not by itself a defence of anything but a choice in need of a defence, which lies in the answer to the question about what is exactly mental (or natural) about language. Again, formal does not mean mental for the same reason that modelling a language is not an innate grammar.

¹⁰ Mainly what generative linguists have been engaging in is filling in the abstract dimension of language, i.e., specifying syntactic rules that allow finite elements to generate infinite sentences. As emphasized repeatedly, they set off from grammaticality and arrive at it. What formalization means is they come up with the syntactic procedures that necessarily results in the grammatical structure. For an innate grammar, this process should be a strictly constrained one, as one must know what entities or relations can qualify for the composition of syntactic rules. There ought to be some criterion(a) set out for that, which fundamentally is derived from the most abstract expression about innateness. For generative grammar, any rule would be good insofar as it can, effectively and economically, leads to grammaticality, which simply meant acceptability (it still largely does).

2.4.2. Definite foundation and rigid expansion

One must be aware that the success of a theory of modelling languages and that of a theory that unfolds a nativist's envision about language acquisition should be evaluated with different sets of criteria. Yet due to the convergence of the two theoretical orientations on generative grammar, there might be some confusion about the scope of evidence advanced for different orientations. Often, how generative grammar formalizes languages is thought to evidence the success of its being an innate grammar, which in the generative sense is the internalized facility that provides the basis for and helps shape how we (learn to) speak. As will be discussed in Chapter Four, a successful model of grammaticality is not so challenging since the 'correct' outcome is already given and all that one does is to devise a process that leads to it, and this is unreasonably free. Also, as shown in Chapter One, similarities among languages are abundantly available, in that, 'inspirations' are easy to capitalize on, hence, the ability to 'predict'. But there is no evidence of a model's being innate, which suggests and is based on the inspection inside of innateness. To repeat, generative grammar is expected to be an elaboration of the belief that there is much innate knowledge that consists in what we can deem as grammaticality. Due to the triviality of innateness, the equal sign between the theoretical models used in it and the innate knowledge is not a secure one. To be clear, there is evidence of the notion of innateness itself, for instance, the famous 'poverty of the stimulus' argument¹¹. All that one can learn from it, however, is that innateness should be possible. What is absent is the evidence that demonstrates the theorization of generative grammar as the only possible interpretation of innateness, so that the concepts such as C-Command, DP, CP, or various features can be more than symbols invented to model sentence derivation but entailed by the notion of innateness. To be clear, the only way to show generative grammar as a genuine attempt at an innate grammar is to base it on the ground of *necessary truth*. This means, we must be able to directly portray innateness and lay that definite foundation for any deduction above it.

Crucially we must axiomatize the notion of innateness, i.e., to break it down to some undeniable facts. Those facts, on one hand, draw the clear line between possible and impossible language patterns, and on the other hand, provide a firm basis for the expansion of a theoretical edifice. By way of example, a triangle cannot be constructed with arbitrarily chosen sides, but in line with the condition that any side must be shorter than the sum of the other two sides. All possible triangles are deductions of this condition which restricts possibility from extending indefinitely. Surly, this is a theorem rather than an axiom in geometry. But what is intended in the foregoing statements is to point out that the presence of language must be subject to (due to) some overall predetermined constraint(s), and the revelation of it/them is the pursuit of an innate grammar. Moreover, the constraint(s) should not tolerate ambiguity. Thus, an axiom of language should only contain self-evident primitives or well-defined element. Also, it should not be *sui generis*. Again, a theorem in geometry must be a corollary to more basic facts, and it can engender more corollaries as well¹². As such, the theoretical system is linked up with rigid logical deduction. As with an innate grammar, we need to know what results in a grammatical statement posed for it, and what results from it.

¹¹ Clearly, a biological 'endowment' (see Chomsky 2000: 87) is too indefinite to essentially bind what is theorized in UG, and indeed it can have no impact on the composition of UG – keep in mind that one way to call *endowment* is *good luck*. Fortunately for UG proponents, the LF is not a directly observable thing (Hoji 2016; Radford 2009), and thus they can retain the freedom in conceiving it. Innateness, without any metaphysical constraint, is too broad an idea to have a definite role in guiding theorization.

¹² Furthermore, when a possibility is taken as a given condition, it functions as a necessity. What this means is that for example, a right triangle is a possible triangle, and when a triangle is right it must show properties that distinguish it from others (i.e., those properties are conditioned on a triangle's being right).

The reality with generative grammar is that, as nothing throws light on the internal conceptual composition of innateness, it is hardly possible to set out a truthful frame to contain the almost excessive freedom of theorization. Without the concreteness of innateness, generative grammar cannot be safely thought as unfolding a rigid causal chain starting from innateness. It is crucial to stress that generative linguists' revelation of the language faculty (LF) – the hypothetical organ in the brain fully responsible for the necessities and possibilities of languages – must be an metaphysical commitment. The Chomskyan Universal Grammar is worth pursuing because anything that can be said about language is supposed to be just how the natural presence of the LF is, but it is not a self-evident statement. Only appropriately, a generative linguist must be answerable for the nature of being mental reality in whatever s/he comes up for the description of the LF. In practice, however, there is not a determinate and definite starting point for any argumentation, nor can it be assessed with rigidity.

For example, if indeed that a sentence must have a *subject* could be considered as one condition that languages must meet (see Radford 2004: 34), then it cannot be just based on an 'intuitive' impression. But, first, it must be deducible from the most abstract way in which language needs to exist, to obtain its necessity, and secondly, that process, in turn, determines the variations of how this condition can be met. Both the cause and the effect of one putative language universal are missing in generative grammar. One cannot simply claim that the presence of a subject in a sentence is axiomatic. On the face of it, saying that the term *subject* is 'intuitively' knowable is far from the same as saying that a line or a dot is intuitively knowable (thus in no need of definition). That is because the term *subject* may just well turn out to be a family resemblance category, as it allows internal differences (a subject can be identified for its role in composing a sentence, its position relative to a verb, its case marking, or its thematic function, etc.) This is a sign that *subject* is not suitable for the description of the metalanguage, amenable to further abstraction.

In this connection, on a more abstract level, principles and parameters, which are thought to be the format for the presentation of language universals, must ideally mirror what is outlined above about the relationships between necessities and possibilities (or necessities). That is, a principle is not singly proposed due to any arbitrary observation, but it must be pinned down against the entire conceptual layout of the notion of innateness. Only in this way will the relationships between one principle and another, or between principles and parameters be truly clarified. More specifically, between principles there will be rigid boundaries established, and the rigidity serves to limit the parameters that are subordinate to a principle (a parameter itself is likely to continue bringing in sub-parameters (see also Newmeyer [2000])). But eventually, there must be a definite starting point for this extension of parameters, and that is the outlining of the notion of innateness, i.e., the necessary basis aforementioned. Otherwise, the Principle & Parameter scheme could not be organizable and has a single-layered and discrete structure, guaranteed not to add up to a coherent whole entity. For instance, when the category *Tense* is postulated for universality (being part of the metalanguage), due to some grammatical tradition in certain languages, it needs to be clarified about how the quality of *Tenseness*, if it could ever be definable, stands in relation to innateness. Is it a first-level extension of innateness (directly derivable from it)? May it prove to be a parameter of a principle, or perhaps another parameter? As *Tense* is a corollary to a higher condition, what are the parallel counterparts of it? As is said, these puzzles will only be cleared away by firmly establishing the necessary basis of innateness and rigidly deducing and following its implications.

In this connection, it must be repeated that categorization lies at the heart of the methodology of generative grammar, as it is the means by which the surface structure is bridged to the Deep Structure. Thereby, connections of languages are supposed to become demonstrable, and it should be so because that displays the mechanism of the LF. Thus, as an innate grammar, its categorization is supposed to show that any category proposed in it is made available by the LF, qualified to take part in the ‘deep’ unseen syntactic operations. However, it is in no way evident how a category in generative grammar should be deeper than a descriptive tool, with no constraint imposed on the process of categorization that warrants the depth in its products. It ought to be borne in mind that necessity is never merely one possibility taking place but must be the only possibility available. Therefore, one cannot categorize an entity while claiming the depth of it simply due to a possibility, but one must be able to negate other possibilities at the same time. In this regard, the methodological constraints often used in generative grammar are external, but not obtained from examining the notion of innateness itself. That is, when theoretical accounts compete, the only yardstick invocable for picking out the ‘right’ one from them is the economy or simplicity in its representation (see Chomsky 1997; Halle 1961). It is perhaps not improper to anticipate a theory to display economy or simplicity, but this can only be a subsidiary consideration, for an innate grammar concerns the reality, not the expectation of any linguist – simply expectation cannot override reality. Analogously, people used to believe that planet would orbit the sun in a circle, which could be more ‘perfect’ in some subjective way, but it has long been clear to us all that a circle turned out not to be how the nature would ‘prefer’ (see Hawking 2016) insofar as the planetary orbit is considered.

2.5.Conclusion

This chapter is devoted to Chomsky’s philosophy of language, which consists in his persistent attempts at formalizing languages, and his belief that the results of that mirror how languages are learnt, i.e., language acquisition is a process of rule formation just in the generative style. Without a doubt, the key to the merge of generative grammar both as a theory of modelling ‘grammaticality’ (again, for generative grammar, there is no distinction between unactual but possible forms and actual forms) and as a theory of language acquisition is exactly the analyzability of innateness. However, it is hard to see what has made generative grammar innate, and Chomsky lays out no criterion for it. Especially, the syntactic account that he composes is not subject to any constraint of innateness (the notion itself). Eventually, the involvement of innateness might turn out to be trivial, since as a theory of language acquisition, generative grammar ought to be innate, and as a syntax theory, generative grammar is unfolded under the assumption that it is an innate grammar (without the proof of it). But whether an innate grammar is possible cannot be directly tied to whether generative grammar is innate – these are two different questions that call for different evidence. What lies at the core of the issue is that innateness must be shown to be analyzable, thus constituting the supporting ground for the theoretical expansion. *Formal* does not mean *mental* or *natural* automatically.

3. Mental reality or a self-healing tautology?

3.1. Tiredness from both sides

Ever since Chomsky started it off, generative grammar, as well as Chomsky himself, has never fallen short of vocal and fierce critics (see Antony and Hornstein 2003). Those critics might be divided into two sorts. One targets the overall perspective through which language is viewed, and this does not involve much of the specific composition of a grammar but mainly the ‘bigger’ problems, including the so-called methodological naturalism, or the biological endowment (as an unanalyzable whole) in human’s language acquisition, etc. Naturally, the other must be more ‘mundane’ as it is about the actual implementation of the methodological naturalism which fills contents in a grammar¹. To be clear, this chapter is an examination of the critics and responses that centered on the theoretical practices resulting from the interpretation of the methodological naturalism, i.e., treating language as a natural object (as a premise of accomplishing a universal grammar). In particular, the discussion in this chapter will be centered on Haspelmath’s article published by *Theoretical Linguistics* in 2021: *General linguistics must be based on universals (or non-conventional aspects of language)*. It was the target and other linguists were invited to comment on it, and then Haspelmath commented on their comments. Among those invited were some of the most influential theorists working in or familiar with generative tradition², such as David Adger, José-Luis Mendivil-Giró, and Roberta D'Alessandro. The exchanges were surely extremely helpful for understanding the current tendencies of both the attacking and defending lines. However, there is an intriguing point that must be noted. That is, the debates are by large predictable, especially with the side of the supporters of generative grammar: one might as well tell what they would say. This is well expressed in Tomasello’s review article called *Universal Grammar is dead* (Tomasello 2009; commenting on N. Evans and Levinson’s [2009] *The myth of language universals: language diversity and its importance for cognitive science*):

I am told that a number of supporters of universal grammar will be writing commentaries on this article. Though I have not seen them, here is what is certain. You will not be seeing arguments of the following type: I have systematically looked at a well-chosen sample of the world’s languages, and I have discerned the following universals ... And you will not even be seeing specific hypotheses about what we might find in universal grammar if we followed such a procedure. What you will be seeing are in-principle arguments about why there have to be constraints, how there is a poverty of the stimulus, and other arguments that are basically continuations of Chomsky’s original attack on behaviorism; to wit, that the mind is not a blank slate and language learning is not rat-like conditioning. Granted, behaviorism cannot account for language. But modern cognitive scientists do not assume that the mind is a blank slate, and they work with much more powerful, cognitively based forms of learning such as categorization, analogy, statistical learning, and intention-reading. The in-principle arguments against the sufficiency of “learning” to account for language acquisition (without a universal grammar) assume a long-gone theoretical adversary.

(In addition to what Tomasello says about what to expect in a supporter’s comment, there is a fixed line, as will be shown below, which generative linguists will not fail to mention to bring up the advantage of their theory: generative grammar involves highly **abstract** and **formal**

¹ It seems that Chomsky has become less interested in answering detailed questions about grammatical systems of individual languages, but as the ‘intellectual ancestor’ (the term is borrowed from Scholz 2023) of Essentialism or generative grammar, he demarcates and guard it by forming the basis on which the expansion of the theoretical edifice of generative grammar can be possible. With this said, as is suggested by Mendivil-Giro’s (2021), one cannot ask Chomsky for an explanation about anything that happens to generative grammar. Simply, Chomsky justifies the treatment of language as a natural object (see Chomsky 2000 for his arguments against dualism or physicalism in investigating languages) and clarifies what it implies for the study of language (mainly, infinite discreteness and displacement properties). But Chomsky’s initiative about using nothing but MERGE as the legitimate syntactic operation that realizes the correct surface structure (see Chomsky et al. 2019) can be a sign that he is cautiously aware of some of the ‘far-reaching’ expansion of generative grammar.

² To be clear, non-generative linguists commented as well, but that will not be a focus herein.

models that are purely **mathematical** or **logical** to break down grammaticality, thus capable of predicting possible or impossible language patterns.)

But from the perspective of a supporter of generative grammar, this is, based on the responses that I will shed light on later, a question about ‘why I have to explain such clear facts repeatedly to them?’ – s/he might think that critics of generative grammar are deliberately uncooperative. Therefore, it is hoped that the discussion below can be a call for the critics and the supporters of generative grammar to concentrate on the scrutiny of the legitimacy of Universal Grammar as a logical entity (since I argue in this thesis that this is tied to whether innateness effectively constrains generative grammar), so that there can be constructive communications. It amounts to asking, ‘does generative grammar indeed explain grammaticality in principle and in general?’ Specifically, Section 3.2 will set out Haspelmath’s general conception of approaching language universals. That is primarily an objection to the natural-kinds program, manifested mainly in basing language universals on language-particular phenomena. In this connection, it involves the distinction between what Haspelmath calls comparative concepts and descriptive concepts. In Section 3.3, I will outline Haspelmath’s attack on generative grammar which is channeled through the distinction between general linguistics and particular linguistics (and theoretical linguistics as well). In that, a particular point that should be noted is that Haspelmath says that generative linguists are building up walls around them with their specific theorization of sentence derivation. Although Haspelmath means, it is demanding for non-generative linguists to understand and appreciate the ‘achievements’ from the syntactic analyses that generative linguists do, it can be a sign that finally, in connection with Chapter Two, generative grammar is merely the specific ways proposed to formalize languages (thus one needs to subscribe to them to understand and appreciate the ‘achievements’, but why must one?), and not concerned about the metaphysical and epistemological significance of them. Therefore, Haspelmath calls the generative syntactic analysis a repetition of what is observed on the surface: grammaticality is not in fact explained. In Section 3.4, I will respond to the routinized defense from generative linguists, which revolves around how generative grammar is theoretically ‘outstanding’ as one mental grammar that determines the boundary between possible and impossible linguistic forms. It will be pointed out that the mental reality of generative grammar, and consequently the mathematical or logical nature of it, only hinges on the verification of innateness, which is however not analyzable in generative grammar.

3.2. Haspelmath’s conception about language universals

3.2.1. Objection to the natural-kinds program

Without a doubt, Haspelmath is currently one of the most persistent and most articulate critics of generative grammar (as is Croft; see Croft [2001, 2003, 2010, 2016]), especially towards the project of Universal Grammar. In that, Haspelmath is at variance with generative linguists about what the truly reliable method is in seeking out language universals. As far as taxonomy is concerned, Haspelmath has endorsed the Greenbergian sense of language universals, in that, roughly, language-specific categories are unbounded variations not subject to unifications, and only explainable on a purely conventional level. Haspelmath criticizes generative linguists for not truly comparing languages (by thinking that a language-specific category is potentially a universal category). As is said in Chapter One, aiming at ‘an innate module containing purely grammatical constructs’ (Newmeyer 2005: 3), generative linguists believe that it is plausible to postulate universal categories from bottom-up (initially in one or a few languages). Again, this can be testified in Kayne (2005).

Comparative syntax necessarily involves work on more than one language, but it is not simply that. On the one hand, it attempts to characterize and delineate the parameters that ultimately underlie cross-linguistic differences in syntax. On the other, it attempts to exploit those differences as a new and often exciting source of evidence bearing on the characterization and delineation of the principles of Universal Grammar (UG), of the properties that, by virtue of holding of the (syntactic component of the) human language faculty, will be found to hold of every human language. (ibid. p. 3)

Newmeyer (2005: 19) contrasts formalists (or essentialists) and functionalists in their attitudes towards the practice of linguistic typology, and concisely summarizes:

Functionalists have been most likely to take the generalization at face value and to put forward some user-based explanation of why more languages would be likely to work in some particular way than in some other way. Formalists, on the other hand, have tended to focus on developing some principle of UG from which the majority tendency among the world's languages is predicted to follow. In general, this UG principle is arrived at by an intensive analysis of one or two languages instantiating the typological generalization, rather than by comparative work. As far as the minority of languages that seem not to instantiate the UG principle are concerned, typically either some grammar-complicating rule or principle is attributed to them or they are ignored entirely.

It is reasonable to state that insofar as grammatical categories are concerned, an important part of the descriptive foundation of all languages, Haspelmath supports **language relativism**, just as outlined above. In terms of pursuing a universal grammar, it has one implication: language-specific categories ought not to be transferred from one language to another to induce language universals, because linguists are free to propose and define them. The basic spirit is expressed well by Bloomfield (1933: 20).

The only useful generalizations about language are inductive generalizations. Features which we think ought to be universal may be absent from the very next language that becomes accessible. Some features, such as, for instance, the distinction of verb-like and noun-like words as separate parts of speech, are common to many languages, but lacking in others. The fact that some features are, at any rate, widespread, is worthy of notice and calls for an explanation: when we have adequate data about many languages, we shall have to return to the problem of general grammar and to explain these similarities and divergences, but this study, when it comes, will be not speculative but inductive.

In harmony with Bloomfield, Haspelmath himself notes:

Grammatical terminology has long been carried over from one language to the next (Latin to German, English to Japanese, and so on), with smaller or greater adjustments, so it has long seemed to linguists that they are using the same categories that are used in description also for comparison. But upon further reflection, when taking the perspective of a larger number of languages, it becomes clear quickly that language-particular notions do not work for comparison. Greenberg (1963) knew well that “we are essentially using semantic notions” (rather than language-particular syntactic categories) when comparing the orders of major clause constituents, and likewise Swadesh’s list of 100 meanings could not possibly refer to meanings that are equally relevant for comparison (Swadesh’s goal) and description. (Haspelmath 2016: 299-303)

Thus, here I emphasize the diversity of languages, and I note that their comparison is not at all straightforward. We cannot simply use the building blocks as established on the basis of Latin, English, or Chinese, and carry them over to all other languages. And even if we compare many different languages, it is not clear if our results contribute to “understanding the human brain” or other aspects of human biology. (Haspelmath 2020: 2)

Based on what he says above, Haspelmath opposes the natural-kinds program, which he argues, is the underpinning of generative grammar. Instead, truly comparative concepts (which shows true commensurability) should be used as the yardstick for comparison (see Haspelmath 2010, 2016). In what follows, I will set forth the major contrasts between Haspelmath and generative linguists.

3.2.2. Linguisticity vs. Language Faculty

Haspelmath packs our capacity for languages into what he calls *linguisticity* (see Haspelmath 2020, 2021c; cf. Adger 2021). Plainly, as language happens to human beings, and human beings are one biological species, it must have some biological manifestation(s), just like many other human activities. In this connection, he likens the human capacity for language to that for music, to emphasize the coherence of all our cognitive abilities and that of the biology that underlies them (see also Tomasello 2005). Clearly, Haspelmath intends to show that *biolinguistics* is not a property exclusive to the Chomskyan tradition, i.e., he says, we do not need to be a generative linguist to be qualified for doing biolinguistics. Haspelmath mentions the term *biolinguistics* to bring out the common footing of him and generative linguists: language is certainly in need of an examination through a biological perspective. However, Haspelmath construes the term *biolinguistics* in the most general way, therefore minimizing the domain-specificity of language mechanism that involves our body. Accordingly, he criticizes that generative linguists assign a biological status (i.e., being contained in the Language Faculty), rather unwarrantedly, to their unique theoretical assumptions. Ideally, Haspelmath argues, biolinguistics needs to absorb the cross-species studies to understand ‘how the various components of linguisticity might have arisen’ (Haspelmath 2020: 4), saying that concepts specific to human languages are unlikely to be useful due to their inapplicability for extension. Subsequently, from an external perspective, different capacities of human need to be compared on a par, so that the one for language can be integrated in a whole. From an internal perspective, he insists that linguisticity be centered on serious comparison of various languages.

3.2.3. Comparative concepts vs. descriptive categories

3.2.3.1. General Category Fallacy

Haspelmath (2018) explains the important contrast that has been recurring in his works, that is, comparative concepts vs. descriptive linguistic categories (see also Haspelmath 2010). In that, he explains why this contrast must be raised, saying:

To make lasting progress in linguistics, we need cumulative research results and replicability of each other’s claims. **Cumulativity** and **replicability** [emphasis mine] are not much emphasized by linguists and one of the reasons why these seem difficult to achieve is that, often, we cannot even agree what we mean by our technical terms. Typically, this is because we do not distinguish clearly enough between descriptive categories of individual languages and comparative concepts for cross-linguistic studies. We routinely use the same terms for both (e.g., ergative, relative clause, optative mood) but I have argued that we cannot equate the two kinds of concepts in the general case³ (Haspelmath 2018: 83).

Briefly, he argues, *comparative concepts* are different from *descriptive categories* (Croft [2016] calls *language-specific categories*) in that languages can be compared in a commensurable way with the former, but not the latter. Commensurability, as well as the two terms emboldened in the citation above: *cumulativity* and *replicability*, ought to result from the transparency, or the stability of a concept’s definition. Therefore, it might be fair to say that comparative concepts are seemingly independently definable (of specific languages), whereas descriptive linguistic categories are unknowable without the induction by language-specific empirical considerations. Croft (2016: 383) puts an emphasis on the locality of language-specific categories, clarifying:

Language-specific categories are classes of words, morphemes, or larger grammatical units that are defined distributionally, that is, by their occurrence in roles in constructions of the language.

³ Haspelmath also expresses his concerns about linguists’ using technical terms exclusive to a certain framework and hardly penetrable for others. This point will be brought up again in Haspelmath (2021c). See below.

Language-specific categories are language-specific because they are defined by their distribution in constructions, and the constructions that define them are also language-specific. Lango Adjectives are not the same as English Adjectives because Lango Adjectives are defined by Lango constructions. English does not have Lango Adjectives, and Lango does not have English Adjectives. Here, using the language name in the term, as well as capitalization, makes it clearer that these categories are not comparative concepts. (Croft 2016: 383)

Surely, this is an ideal distinction, as the comparative concepts' being independent can only be relative. The point is that comparing languages and describing individual languages should be on separate grounds⁴, since appropriate description does not automatically create comparability.

Without attending to the distinction between comparative concepts and descriptive categories, Haspelmath legitimately warns, the common practices in cross-linguistic comparison are prone to what he calls the '**general category fallacy**':

We do not learn anything about particular languages merely by observing that category A in language 1 is similar to category B in language 2 or by putting both into the same general category C. (Haspelmath 2018: 84)

This **general category fallacy** echoes what was said about generative grammar in Chapter One: the universality of a category can only be supported by arbitrary similarity, not sameness. Practically, Haspelmath (2018) illustrates this by showing the Spanish-specific construction *estar V-ndo* 'be V-ing', which is said to belong to the general category *progressive*. This label, however, as he stresses, is not useful in advancing our knowledge, for the label adds no more information than how it is locally described in Spanish. I suppose, what this means is that how this Spanish progressive is empirically manifested will not be determinately predicted or constrained by the label, nor can it be said that the Spanish progressive is a rightful instantiation of some higher-level category. That is because *progressive*, when it is applied to Spanish, is basically a devoid category, (see also Chapter Four for the discussion of tense/Tense). Finally, this boils down to the fact that, those customarily used grammatical categories (such as *progressive*) have never been anchored by a conceptual core nor limited in its extension (by means of specifying the empirical demonstrations that can be tied to it). Haspelmath thus asserts that the usefulness of such labels of general categories is only verified in how reliably one makes inferences based on them. Again, Haspelmath ascribes that reliability to language comparison, by virtue of which the meaning of a concept becomes definite. On this exact ground, Haspelmath is against assuming comparative concepts as natural kinds or pre-established categories, as it suggests, universality is axiomatic and there is no need to search for it (but to test it). That is, as has been shown with tense/Tense, the existence of it (as meeting descriptive need) in some language(s) should indicate the existence of it elsewhere (no filtering applied), and the original account of it should be more or less the same one cross-linguistically. (As is said, the original account of a putative universal category merely provides clues of similarity for one to establish the 'same' category in other languages, but similarity does not bear out sameness, in that, one must prove that a certain category does have a meaningful 'sameness'.) As a result of the so-called natural-kinds program, one obtains random (Croft [2009, 2010] uses the term *opportunistic*, and Haspelmath the term *diagnostic-fishing*, see below) categories that appear to have free intensions and free extensions, thus not true to the name of *language universal*.

⁴ About this, Croft (2016: 384) adds '[t]he comparison of language-specific categories and comparative concepts in Section 5 makes it look like language-specific categories have nothing to do with comparative concepts. A linguist writing a grammatical description using language-specific categories appears to be doing something completely unrelated to a typologist using comparative concepts to discover language universals. This would be an unfortunate state of affairs, not unlike the disconnect between generative syntactic theory and almost all current descriptive grammatical practice. There are reasons to believe, however, that this is not the case. Just as descriptive grammatical research is essential to typology and universals research, the results of typology and universals research is valuable if not essential to descriptive grammatical work.'

3.2.3.2. Natural kinds and Haspelmath's comparative categories

In fact, if generative linguists could show that the categorization that they practice leads to real natural kinds, then the general category fallacy would not be a problem for generative grammar. It is necessary to explicate at this point what *natural kind* entails in the current thesis. For that, it is useful to quote from Bird and Tobin (2023: the first paragraph), where the idea of *natural kinds* is concisely introduced via an antithesis (see also Chapter One):

‘To say that a kind is *natural* is to say that it corresponds to a grouping that reflects the structure of the natural world rather than the interests and actions of human beings.’

In conformity with this, Haspelmath (2018: 90) points out in passing that natural kinds exist **independently** of any observer (see also Dahl 2016: 428). However, the term *independent(ly)* is not as intuitively obvious as Haspelmath might imagine⁵ (with no doubt, discussions of that comprise many fundamental philosophical and/or scientific debates, beyond the scope of the current thesis). Thus, instead, the meaning of natural kind needs to be put in as practical terms as possible in this current thesis. For that, it is beneficial to understand *natural* as opposed to *arbitrary* or *conventional* (see Khalidi 2023: 2; see also Section 1.3.3), and naturalness may be corroborated through the fact that an entity can only be uniquely categorized/identified. Mainly, a natural kind is expected to allow **inductive inference** (chemical elements are paradigmatic examples of that, see Chapter One), and thus it is strictly **internally unifiable** and **externally distinguishable** (see Bird and Tobin 2024: Section 1.1.1; see Chapter Four for the discussion of *essence*). This can afford a useful perspective for us to assess a linguistic theory that involves non-arbitrary/non-conventional entities (i.e., entities that do not exist for the sake of a linguist's analysis). In general, this has much to do with eliminating the freedom ‘in the interpretation of the baseline theoretical categories for us to easily test the hypothesis in practice’ (Tallman 2021: 107), so that cross-linguistic data can be **deterministically** mapped into one theoretical model. Moreover, this warrants the stable configuration thought to occur in the hypothetical language faculty for generative grammar: linguistic entities should be ‘recognizable’ to be operatable. This, I think, should lie in the heart of the critique of what Haspelmath calls a natural-kinds program. Or else, it would be difficult to tell whether generative grammar should be respected as mental truth or reduced to a set of invented devices (the highly technical terms that amount to theoretical walls, as Haspelmath calls them) that formalizes languages for certain purposes.

⁵ Haspelmath (2018) compares the description of a new language to that of a new island, in that, he distinguishes natural kinds, social categories, and observer-made concepts. Haspelmath first declares that plant and animal species, and kinds of minerals, are natural kinds, but mountains and streams are not. But in what sense can one suppose that plant or animal species are naturally divided but mountains and streams are not? To explain the ‘independency’ of ‘natural kinds’, he adds, ‘to talk about [red foxes], we need detailed descriptions and agreement on a label but not a definition’ (Haspelmath 2018: 90), and thus if we somehow know a particular animal species, then we recognize it wherever it is found. First, detailed descriptions that are agreed on about a particular animal species can count as a *definition*, and more importantly, it is hard to say that this is not the case with mountains and streams. Secondly, Haspelmath claims that ‘researchers may find completely new plants and animals (endemic to the island) but they will not find completely new landscape forms to which existing terms (like “mountain” or “stream”) are inapplicable’ (*ibid.*). This is an emphasis on the ‘independency’ of plant and animal species, but it does not seem valid. That is because human beings could not have been acquainted with all the landscape forms at once, since there must be a process where deserts, plains, plateaus, seas... gradually become part of our common sense, which should be similar to the expansion of our knowledge of plant and animal species. Not to mention, how can one ensure that no new term ever needs to be introduced to indicate a new geographic distinction? Note that the expression ‘*completely new*’, as is adopted by Haspelmath above, cannot be taken literally, because even though a new species is possible, it must be able to relate (i.e., bear resemblance) to what we already know. This holds true for any new things. As such, Haspelmath draws the line between natural kinds and observer-made concepts, but he fails to truly shed light on the criterion(a) of *independency*.

Note that Haspelmath tends to frame his objection to the natural-kinds program on a ‘technical’ level, i.e., by extending the use of a term from one specific language to another, one encounters the thorny issue of proving that the term has remained the same. He is certainly correct in this respect⁶. But he barely talks about the **natural** part of the natural-kind program, which need be carried out on a metaphysical level. It should be clear that the naturalness of a category in the natural-kind program is the reason why it is worth pursuing: naturalness entails sameness, but sameness does not mean naturalness. Therefore, the non-unification (or even unification) of a category in generative grammar must be reviewed on the premise of its naturalness. That is, we must interrogate about how naturalness is warranted. Failing to do that might be a reason for the ineffective communication between generative linguists and their opponents, including Haspelmath (details below). Moreover, it is not quite straightforward how, on a pure technical level, Haspelmath separates comparative concepts that he endorses from descriptive categories, so precisely that all the problems that could be thought of for the latter will be avoided by the former. This can be doubtful (see also Tallman 2021), because there does not seem to be a rigid line between *comparative* and *descriptive*: it is just not the case that being *comparative* means not being *descriptive*, or vice versa.

Haspelmath argues, comparative concepts split into two main types: category-like comparative concepts and *etic* comparative concepts. What he calls category-like comparative concepts are those that linguists are most accustomed to dealing with, such as *syllable*, *subject*, *future tense*, or *verb*. Haspelmath notes that these are not originally intended for cross-linguistic comparison (but, by implication, grammatical distinctions informative when fitted in specific grammatical conventions), and extended for that only later. Clearly, these are still bottom-up concepts whose meaning cannot break away from empirical considerations of particular languages, and the way how the universality of these concepts is assumed is not considerably different from the ones proposed by generative linguists. (Undoubtedly, generative linguists will agree, to a great extent, on the universality of what Haspelmath calls category-like comparative concepts.) Also, it is not easier to set out an unvarying definition for any of them – in fact, the concepts mentioned above are among the most difficult ones to define in linguistics. Unification is still a trouble. It is highly likely that examples of the category-like comparative concepts that one detects cross-linguistically are nevertheless organized by similarities (i.e., family resemblance) not sameness. This thus goes back to the same question: do these labels have ‘sameness’? Even if one imposes a definition on the labels ‘independently’, it is still essential to know in what way that definition signifies, because arbitrariness does not further our understanding about Human Language as a determinable entity. In Haspelmath’s case, he might need to show how a definition which he finds appropriate can be associated with the linguisticity that he proposes in lieu of the Language Faculty. But it has remained a rather vague idea. Note that Haspelmath rejects the natural-kind program in view of the non-comparable nature of it (according to Haspelmath’s standards), but fundamentally a universal grammar need be underlain by a deeper epistemological layer, which functions as the overall constraint on it.

⁶ Dahl (2016: 430) rhetorically asks: can categories be equated across systems? In that, he thinks that variation among languages ought not to be what deters us from claiming crosslinguistic categories. That is because ‘different “stages” or “manifestations” of individuals, like different tokens of one type, need not have the same properties.’ (p. 431) For instance, Dahl says, one-year olds are not particularly similar to themselves at 90, but they are undeniably the same people. That is, we cannot judge one as a different person at a different age, just because changes inevitably occur to her/him. However, this is inappropriate because beforehand we already know that we are talking about the same person (and for that there must be a reason). As with a crosslinguistic category, a reason to deem putative cases of it in different languages is exactly what we need to seek out, and it must be more substantial than one shared label. Just as Dahl notes, the lower-case l and the upper-case L are the same letter because they occupy the same slot in the alphabet. Then what makes us assign the category of adjectives in different language, for example, the same slot in an overall layout of inherent linguistic entities. It is reasonable that an innate concept has varied manifestations, but it is not reasonable that an innate concept cannot be unified. I do not believe that common roots are evidence of innateness, since as Haspelmath would argue, they might as well be historical coincidences.

Otherwise, on which ground do typologists like Croft and Haspelmath ascertain the genuineness of a comparative concept and accept one another's proposals? And where is the end of the proposals⁷? I have argued that the foregoing questions are unsatisfyingly unanswerable in generative grammar. As important as it can be, comparison might not lie in the heart of the problem. It is hard to imagine that generative linguists would consider that what they are pursuing, in response to the Chomskyan Universal Grammar, is not comparison at all (see below). Rather, we must focus on the disconnection between generative grammar's content and the putative epistemological significance of innateness of it.

3.3. The attack

3.3.1. General linguistics, particular linguistics, and theoretical linguistics

In 2021, Haspelmath published an article in *Theoretical Linguistics*, which is entitled '*General linguistics must be based on universals (or non-conventional aspects of language)*'. This is, as the journal's format specifies, a target paper, and it means that Haspelmath would need to invite other authors to comment on his work and then reply to them in turn. Included in the invitations are some of the leading generative theorists, such as Adger, D'Alessandro, and Mendívil-Giró, as well as linguists who may not show a prominent generative tendency, namely Bickel, Forker, Fuchs and Paschen⁸, Tallman, and Zaefferer⁹. As one would imagine, Adger, D'Alessandro, and Mendívil-Giró form a united front against Haspelmath, defending generative grammar on the same ground while perhaps placing their emphasis on different areas. Nothing, however, about their defense is truly unprecedented or unexpected. The remainder of the commenters, though not necessarily taking side with the generative linguists, all seem to disagree, to various degrees, with Haspelmath on some issues. In that, I believe, Tallman's comment has appeared to be the most beneficial one insofar as this thesis is concerned. That is because Tallman comprehends and elaborates on Haspelmath's attack on generative grammar, and he breaks down the debate on a methodological level that concerns the articulation of metalanguage, where he points out the difficult position that linguists all face in general (surely including Haspelmath).

In his target article, as usual, Haspelmath characterizes Chomsky's call to build up a universal grammar as the natural-kinds program, for it most saliently aims at bringing to light the innate building blocks of all languages. He chooses to, however, channel his objection to that, through the terminological distinction between *general linguistics* and *particular linguistics*, which, he says, is often neglected. In drawing our attention to this distinction, Haspelmath reiterates that

⁷ Croft (2016: 378) says that certain comparative concepts are more semantically rooted, which can be called functional since, Croft believes, they can be derived from information packaging functions. Potentially, this is one way to enhance the controllability of comparative concepts if information packaging can be subject to analysis in a holistic way. However, as alluded to by Croft, a conceptual space independent of grammatical properties is perhaps insufficient for an account of language as a structured entity. That is, unless one can prove that semantic categories are invariably realized via certain constructions, it is difficult to argue that different syntactic constructions are truly the same thing, though pertaining to the same semantic category (not to mention that it is highly likely that a semantic category is open-ended).

⁸ As Haspelmath mentions non-conventional aspects of language, Fuchs and Paschen's comment mainly focuses on the elusiveness of the notion of conventionality. In that, they convey that it can be challenging to take the notion as setting up a categorial distinction in the composition of grammar. This is in response to Haspelmath's suggestion that non-conventional aspects of language can be a (more) reliable ground where general linguistics arises.

⁹ Neither of Forker's and Zaefferer's comments on Haspelmath's paper is based on an evaluation of UG's actual theorization process. Forker chooses to frame her critique of Haspelmath within the discussion of the nature of grammatical rules. On a metatheoretical footing, Zaefferer disapproves Haspelmath's framework-free description of linguistic phenomena as impractical. Zaefferer seems to understand Haspelmath's attack on GG simply as his objection to transferring category concepts used in the description of a single language to other languages, and on this basis, Zaefferer calls Haspelmath Procrustean.

language universals do not coincide with phenomena in particular languages, which, crucially, are historically accidental. For that, he says:

My basic claim is that general linguistics must be based on the empirical study of language universals, unless we study non-conventional aspects of language, e.g. by observing behaviour in psycholinguistic experiments or slips of the tongue or by making stimulus poverty arguments. At first blush, this may seem like a completely uncontroversial claim: It is obvious that language particular phenomena are historically accidental to a large extent and we cannot draw conclusions about Human Language from features that are peculiar to English or Quechua, such as the fact that the word for ‘house’ is *wasi* in Quechua and *house* in English. In Plato’s dialogue *Cratylus*, Hermogenes defends the view that the forms of a language are arbitrary and based on convention, whereas Cratylus claims that they have a natural connection to their denotations. As far as the shapes of words are concerned, Cratylus is obviously wrong, and grammatical patterns, too, are largely language particular and simply conventional. (Haspelmath 2021c: 2)

In particular, Haspelmath alludes to Adger et al. (2009) and Pesetsky (2013) due to their typical generative treatment of language-specific conclusions as, uncritically, language universals (see Haspelmath 2021c: 2). Clearly, this is still the same problem about the reliability of linguistic universality solely under the bottom-up approach of generative grammar, except that it surfaces as the problem of misunderstanding and misusing the label *general linguistics*.

What might have complicated the matter is another frequently used label *theoretical linguistics*. Specially, Haspelmath points out the unclarity in the label of ‘theoretical linguistics’, since one can hardly think of anything that is not theoretical in linguistic studies, in the sense of furthering theoretical understanding of language, perhaps except *applied linguistics*. He blames it for the widespread confusion between being theoretical (roughly, meaning the involvement of abstract theoretical models) and being general. That is, some linguists tend to expect the investigation of a single language (or a few of them) to yield general implications just because it is delivered with highly abstract formal devices specified by a certain framework. For that, he emphasizes that theoretical linguistics is not automatically general linguistics: if a linguist only theorizes on particular languages, then s/he is doing particular linguistics, no matter what technical tools are at her/his disposal. Haspelmath’s dissatisfaction with the label *theoretical linguistics* mainly lies in that it seems to obviate the need of the comparison of languages in the study of language universals¹⁰.

3.3.2. Describing languages vs. describing the metalanguage

¹⁰ Haspelmath indicates that this might have something to do with Chomsky’s leading a generative revolution in linguistics, saying:

It appears that the confusion arises to a large extent from the widespread replacement of the older notion of “general linguistics” by the new and vague notion of “theoretical linguistics” (often simply called “linguistic theory”). While general linguistics has an unambiguous meaning (the study of Human Language as a capacity of humans, or as a general attribute of the human species), it is much less clear what is meant by “theoretical linguistics”. I think that the widespread equation of “theoretical linguistics” with the general study of language obscures some important distinctions, and that the sources of the divisions between linguists of different research communities would become clearer if the crucial distinction between general linguistics and theoretical linguistics became more widely recognized. (Haspelmath 2021c: 2-3)

D’Alessandro seems unimpressed with Haspelmath’s insistence on the distinction between general and theoretical (or particular) linguistics, for that, she says, in what sounds to me to be a slightly sarcastic manner:

The reaction I had while reading this paper was admiration mixed with annoyance. Admiration because I find it very sympathetic that one of the most prominent linguists in the world would still struggle to have everyone agree on using one term and defining what can be called theoretical and what not. People at his level usually just pick one word and the others follow. MH is not like that: he wants to explain to the reader why he does what he does and why everyone should too, and this deserves praise. In general, defining our ontology should be a primary task for every linguist. (D’Alessandro 2021: 53)

About the theoretical status of descriptive linguistics, Tallman thinks that one can use the term ‘theories’ to refer to falsifiable hypotheses, and in this sense, descriptive linguistics does have ‘theories.’ He means that a linguistic theory does not necessarily contribute to the depiction of a metalanguage (for example, the Faculty of Language), but in any event, it ought to input right linguistic facts and outputs testable, more general linguistic claims. Thus, it is the falsifiability that lies in the core of a linguistic theory – one should not uncritically equate any general claim to a theory without regarding its testability. Tallman suggests, the real question is that as one believes her/himself to be depicting a metalanguage, whether s/he meticulously attends to the falsifiability of every progress that s/he makes. On this basis, he agrees with Haspelmath on the unreliability of basing language universal on one language (details below), and he says:

I think that the process of ‘analysis’ described by MH [Martin Haspelmath] tends to overestimate the certainty with which we can make reliable inferences from a single language. (Tallman 2021: 98)

Obviously, *falsifiability* is a term that has been repeatedly underlined in the criticism directed toward Universal Grammar, as it is noticeable that a generative linguist has at her/his disposal the theoretical freedom which ‘smooths’ the transfer of some locally established category from one language to another (see Tomasello 1995, N. Evans and Levinson 2009, and Dąbrowska 2015). In view of this freedom, Tallman says that generative linguists need to develop method(s) of registering, measuring, and tracking the uncertainty in mapping language data to categories of general linguistics (see also Chapter One). In general terms, Tallman further breaks down the freedom in making an old theoretical model fit new data:

We do not directly corroborate or falsify our hypothesis with novel data. Rather we test our hypotheses against data mediated by one or more models of the data. The model is a **translation** [emphasis mine] of the data into the technical vocabulary of one’s theory. (Tallman 2021: 98)

In linguistics we should recognize that the selection of tests proceeds in tandem with model fitting, and that this is probably necessarily so. We have not developed a method for sampling diagnostics that reins in the possibility that the diagnostics were chosen a posteriori in such a way as to prejudge a desired hypothesis to be correct (or false, depending on our goals). (Tallman 2021: 101)

Tallman uses the term *translation*, as is emboldened above, to refer to the great manipulability in a linguist’s abstracting of data into a theoretical model. This is closely linked to the very root of the critique directed towards generative grammar in the current thesis: the lack of ontological constraint (more discussions below).

3.3.3. General linguistic paradox

After Haspelmath introduces how he distinguishes general and theoretical linguistics, he draws our attention to what he calls the *general linguistics paradox*. It is commonly acceptable that, Haspelmath says, we investigate particular languages in order to understand Human Language, with the latter manifesting the significance of the former. Thus, the general linguistic paradox can be expressed as follows:

We want to explore and understand the nature of Human Language, but what we can observe directly is particular languages. (Haspelmath 2021c: 9)

Haspelmath concentrates the rest of his discussion on evaluating three alternative solutions to this paradox¹¹, which are ① non-conventional aspects of human language, ② general linguistics through worldwide language comparison, and ③ general linguistics based on a natural-kinds program for the building blocks of languages. (Note that ① might include studies on language behaviors and language learnability which might not directly shed light on language structure, and I will not attempt to expound on ①. Fuchs and Paschen's comment mainly dwells on the elusive notion of conventionality in the study of language.) Between ② and ③, Haspelmath re-stresses that both must restrict the study of a particular language from directly contributing to general linguistics 'without further assumptions', because 'a particular language represents historically accidental conventions of a speech community'¹² (Haspelmath 2021c: 10). (I suppose, by *further assumptions* he means the envision of the corresponding pattern between what we observe and what we understand about Human Language.)

Haspelmath calls ② the well-known Greenbergian approach, underlining that it is not a mental grammar but composed of social rules. In so doing, he lays out two differences between ② and ③, which he would consider as advantages of ②. First, there is no 'deep' analysis in ② (which, I suppose, is single-purpose and too abstract to be truly accessible) and secondly, comparative concepts, instead of descriptive categories, are used in ②. Apparently, for Haspelmath, the key to solving the so-called general linguistics paradox will always reside in comparison (in that, it is important to build up comparability; see Chapter One). As with the natural-kinds program, he says that generative linguists do not have a clear methodology and clear criteria for success (see Chapter One). One manifestation is that a large number of inherent categories has been proposed for the innate grammar blueprint, with little agreement, however, on what they are exactly¹³. For that, Haspelmath says:

There are a large number of new proposals about the building blocks of the innate grammar blueprint, but there is little (if any) convergence among them. There is no agreement about serial versus parallel architectures, lexicalism, DP versus NP, antisymmetry, phases, cartography, and many other core aspects of grammar. Those new ideas and generalizations that have been widely accepted belong to the level of phenomena (D'Alessandro's 2021 "mid-level generalizations"), not the explanatory level of innate natural kinds. (Haspelmath 2021c: 14)

Haspelmath notes that the idea of a rich innate blueprint for grammars was given up by influent authors (see Hauser et al. 2002; Chomsky 2005), but this is not yet reflected in the practice of mainstream generative grammar. This does show how entrenched the inherent categories in the unfolding of generative theorization (details below). In that, he notes:

Smirnova and Jackendoff only discuss Russian, and they simply presuppose that a discussion of Russian Nominalizations must be relevant to the English phenomena discussed earlier by Chomsky and Grimshaw, **which**

¹¹ Both Forker and Zaefferer mention that the general linguistics paradox that Haspelmath raises is truly not a particularly prominent problem for linguists to tackle. Any scientific investigation of abstract entities would need to be initiated by observing individual instances of the ontology that is defined in it. Thus, the general linguistics paradox can be rewritten in a generic format.

¹² Forker accuses Haspelmath of not being able to spell out in what sense grammatical rules are social rules, which according to her might diverge: some come up by regulations and some emerge spontaneously. (Haspelmath replies to that saying, 'it is perhaps true that linguistic conventions are particular remote from consciousness, they are not the only type of socially learned unconscious rule system'.) In this connection, she also thinks that failing to recognize the object of inquiry in linguistics as abstract, Haspelmath has an unclear image of the nature of language. Forker has a particular understanding about the term abstract. Objects are abstract because they do not exist anywhere or at any time – they are either eternal and unchanging/unchangeable or 'outside' of time, and both non-physical and non-mental. This does seem to be another debate, and as said by Haspelmath, he has nothing to contribute to the issue that Forker raises.

¹³ Haspelmath does not deny the possibility of supposing a universal inventory of categories, which 'exist in nature independently of any scientific observation' (ibid. p. 13), as the basis for language comparison.

is clearly the case only if “nominalization” is somehow part of the innate grammar blueprint. If it were not, then it could be that Russian is entirely irrelevant to understanding English [emphasis mine]. (Haspelmath 2021c: 18)

As seen in the citation above, Haspelmath demonstrates that through the example of Smirnova and Jackendoff’s (2017) paper that freely transfers conclusion about Russian Nominalization construction to English. In that, he reminds us of the premise of the validity in doing that, i.e., ‘nominalization’ is already proven to stand for linguistic universality, or at least, are likely to be proven as such (since generative linguists make use of a bottom-up approach).

In Haspelmath’s target paper, there are two specific critiques that are, on one hand, mentioned rather briefly (though important), and on the other, elicit no direct response from the proponents of Chomsky in their comments. First, for generative grammar, cross-linguistic investigations are supposed to be united precisely by its technical vocabulary and rule notations designed as the tools to portray the so-called ‘deep domain’. For that, Haspelmath says, generative linguists are putting up walls by employing the kind of analysis exclusive to them, which involves such labels that are only meaningful for those who subscribe to them, and yet remain impenetrable for others¹⁴. Secondly, Haspelmath points out that the kind of analysis that generative linguists engage in is a redundant description of the surface structure:

It is quite common for research articles to consist of two parts: One part lays out the phenomena in a way that is generally comprehensible to any linguist, and another part (typically called “analysis”) describes the phenomena a **second time** [emphasis mine], using the highly technical metalanguage of current mainstream generative grammar (or more rarely, of some other generative approach, such as Distributed Morphology or Lexical Functional Grammar). (Haspelmath 2021c: 16)

I argue that we need to inquire into the two critiques to their utmost depth (below, in connection with the issue of testability or falsifiability that Tallman has brought up). The two critiques are symptoms of one fundamental inadequacy, which is tied to the epistemological significance of generative grammar and the defense of it. That is, as an innate grammar, generative grammar is not truly subject to the constraint of being innate, but the theory itself is taken as revealing the innateness that is responsible for our ability to speak, meaning that anything useful to make the theory ‘correct’ is automatically innate. Therefore, it is the freedom that generative linguists grant themselves that renders the theory as inaccessible, since, however single-purpose and metaphysically inexplicable an underlying syntactic entity can be, it would be supported by innateness. Moreover, with innateness not analyzable, the so-called Deep Structure cannot be independently borne out and thus only is an abstract repetition (or modelling) of the surface structure.

3.4. The defense

3.4.1. Adger: a mathematical/logical grammar

In response to Haspelmath’s dissatisfaction with the label *theoretical linguistics* (that seems to remove general linguistics off the ground of comparison), Adger first lays out what he believes it means to do theoretical linguistics. In that, to limit the range of debate, he says that ultimately both he and Haspelmath are doing theoretical linguistics, with the same goal: they ask what the unique property about human beings is so that they become capable of acquiring and speaking languages. A generative linguist would call it the Faculty of Language, and Haspelmath would

¹⁴ It mirrors Newmeyer’s (2005) comments on Universal Grammar’s being heavily theory-laden (not amenable to independent evaluation). In that, he says that one generalization usually draws on the support from a complex web of hypotheses in Universal Grammar.

call it linguisticality. Adger thinks that both refer to part of the natural (biological) world. Then, Adger points out that ‘[t]heoretical linguistics is linguistics whose primary concern is building and exploring theories’ (Adger 2021: 35), and on this basis, he adds:

Building a theory involves stating a set of propositions (hypotheses) in a language which has a basic vocabulary of entities, relations, etc. (the concepts of the theory). The syntax of this language and its interpretation is **whatever we need it to be**, but at least some aspects of it are drawn from **mathematical** and **logical** [emphases all mine] concepts which we have a good understanding of, and, when a theory is fully formalized, all of the propositions can be stated mathematically. (ibid. p. 35)

As suggested above, what *theoretical linguistics* ‘truly’ means is not the essential matter in this exchange. Adger certainly intends what is set out above to be a synopsis of his justification for what generative linguists do, more so than a differentiation of theoretical linguistics from non-theoretical linguistics. Overall, the premise of his justification is that generative grammar is a theory of language as a natural object, i.e., it is biologically manifested, and specially, mentally or cognitively real. That means, generative linguists put forwards hypotheses and evaluate them with empirical observations. Adger claims that determining a proper theory among competing ones is the process of deepening our understanding about the Faculty of Language. That often needs to involve the factors of the simplicity of a theory (as is said, this is theory-internal) and the power of it in prediction. In short, a sufficiently (relatively) simplistic theory that holds true for new data should be a good one that reveals the truth about the Faculty of Language. Adger dwells on two points that can be extended from what he says about doing theoretical linguistics. The first one is that to build and explore theories, it is inevitable to employ a basic vocabulary¹⁵ of entities, relation, etc., i.e., labeling cannot be dispensable with in stating a set of propositions about a language. Clearly, this replies to Haspelmath’s critique that the generative linguists put up walls with their unique kind of analyses full of highly technical terms. The other one is that a generative linguist would finally manage to set the seal on the mathematical or logical nature in their analyses, to prove the coherence and plausibility of their theory. The term *mathematical* or *logical* are not easy to comprehend in the generative literature in general. In Adger’s case, I gather, both of them bear on the fact that generative analyses, involving formal tools, count as a truthful reflection of what takes place underlyingly that generate correct sentences. Adger’s two points above indicates one thing: all (categories or formal devices) are for nothing but the grammaticality (which is given on the surface level). Thus, it is the freedom that a generative linguist enjoys that makes Haspelmath call generative analyses a repetition, and makes Tallman call them a translation.

Notably, Adger deems an analysis in linguistics as a mapping from data to theory, an idea that has been discussed in Chapter One. In short, a theorization is the abstraction of what is observed by means of categorization, i.e., labeling – propositions that linguists make are only abstract when predicated on categories. He illustrates this point by giving the following examples (see Adger 2021: 36).

1. a. The dog is hungry.
b. It dogged my footsteps.

Adger puts (1a) and (1b) in conjunction, both containing the word *dog*, to indicate that the first step towards completing a linguistic analysis is to assign an identity to a linguistic item. That

¹⁵ This implies that initially the generative theorization need not be derived from an overall idea of innateness. This is why Adger emphasizes the testing of theories. About this point, as is cited above, Tallman says, the kind of ‘analysis’ that Haspelmath targets ‘tends to overestimate the certainty with which we can make reliable inferences from a single language.’

is because one needs to sort out the linguistic items in accordance with their syntactic behaviors, which is a great part of a grammatical account. Thus, Adger states, a linguistic item should not be uncategorized, otherwise the difference between *dog* in (1a) and *dog* in (1b) would be left unaccountable. Also, a linguistic item should not be ambiguous in their identity, i.e., the word *dog* must be identified differently in (1a) and (1b). Finally, he suggests, it is appropriate to say that *dog* in (1a) and *dog* in (1b) belong to N and V respectively, which are naturally present in the Faculty of Language.

Adger is correct in saying that linguistic analyses cannot be done without specifying identities of linguistic items. That is what linguists all do. But how can this point lead to the conclusion that, for instance, *dog* in (1a) is N and *dog* in (1b) is V, both of which conform to how linguistic items must be ‘naturally’ recognized. At best, the labels N and V show that there are two distinct syntactic groups in English, i.e., *dog* in (1a) indeed behaves differently from *dog* in (1b), but the difference does not clear up what the intension of N or V is. The innateness of them depends on what independent constraints one imposes on the mapping from *dog* to N or V, which has always been a theoretical void for generative grammar. Not to mention, as has been shown in previous chapters, with labels like N and V unclarified in their essence, the verification of the universality of them is arbitrary since one can only propose similarities as evidence for that – what Haspelmath criticizes, when accusing generative linguists of erecting walls with highly exclusive terminology, is the indefiniteness in them. Thus, the problem is that the mapping process must be carried out in accordance with necessity, not possibility¹⁶. That is because a scientific inquiry into a natural object is supposed to bring into light the necessary truth about it. In line with this, in reporting that a linguistic item is an instantiation of a certain category, a generative linguist must take the responsibility of confirming that it is impossible to be identified in any other way. By contrast, plainly, what Adger means by mapping is only conveniently venturing a guess, which is not guaranteed to point to the conceptual content of the Faculty of Language. Because of this unguaranteed naturalness, N and V are labels that still describes, not explains. Note that what N and V can mean entirely rests on what can be observed, that is, N and V does not tell us why so. Adger shows another example in which the distinction between N and V is thought to explain the grammaticality or ungrammaticality: **The despise frightened me* (this is a frequently quoted ungrammatical sentence in generative literature). Clearly, the verb *despise* ‘wrongly’ appears in the position of a nominal subject. This is not something that one can find out only in a generative linguist’s analysis, and indeed, to capture the generalization, one is likely to use the labels N and V. But do the labels N and V explain why there should be such a generalization? The answer is no. In generative grammar, this is ‘explained’ in a circular way, i.e., the reason why V cannot appear in the position of N is that that leads to ungrammaticality; when asked why that is ungrammatical, a generative linguist would have nothing more to say than the observation that V cannot appear in the position of N. This, I suppose, can be a reason why Haspelmath and Tallman dismiss generative linguists’ analyses as tautological. The reason for that is, crucially, that grammaticality or ungrammaticality is not independently deduced by the theory of generative grammar (more details below).

Moreover, generative linguists tend to use the terms *mathematical* or *logical* rather lightly, for it is not easy to make sense of the *mathematical* or *logical* quality in their analyses. On the face of it, what lies at the core of both mathematics and logic is **rigorization**, which is made possible by laying a foundation of necessity, by axiomatization or definition, and subsequently deducing the necessities or possibilities engendered thereby. By contrast, it is fair to say that the lack of

¹⁶ Haspelmath says, ‘if we were sure that there must be innate building blocks, then this arduous path would of course still be worthwhile, because it would be the only possibility’. (Haspelmath 2021c)

rigorization encapsulates all the practical problems that has been outlined in previous chapters. Adger suggests that the various labels that are results of a naturalistic approach might only be a superficial indicator of an underlying order, which is much simpler. He takes natural numbers as an analogy. In that, he says, the richness in natural numbers (since there are so many of them) only consists of two building blocks, one is the primitive elements of 1 and 0, and the other is the rule of ‘positional interpretation extending infinitely in one direction’. This means, we can just put the numbers from one to nine, for example, as 1, 10, 11, 100, 101, 110, 111, 1000, 1001. Clearly, Adger intends to compare the two building blocks to what constitute UG’s rule system: the substantive universals and the formal universals¹⁷. For that, he adds, ‘[t]he task is to keep abstracting, trying to get down to more fundamental units and their principles of combination’ (Adger 2021: 42). Haspelmath (2021d) acknowledges that the reduction of the richness to basic primitives is certainly worth exploring, while concerned about the insufficient restrictiveness in that (there are infinite natural numbers). I believe that the real incongruity in Adger’s analogy still resides in the lack of rigorization in generative grammar (Adger himself notes, the analogy is inexact).

All natural numbers must be able to undergo a binary conversion that only comprises 0 and 1, with each of them corresponding to a unique form, because it is axiomatic that natural numbers all belong to one system. Their systematicity is constituted by the rigorization in the separation of them. There are two manifestations of this rigorization. First, natural numbers must always be different from another one, i.e., $0 \neq 1$, $1 \neq 2$, etc., and secondly, any two consecutive numbers are different in the same way, i.e., $1 - 0 = 1$, $2 - 1 = 1$, etc. Accordingly, what frustrates Adger’s hope in the simplification of generative grammar can be clarified. One major obstacle is that, as is said, the mapping process from a surface linguistic item to its supposedly innate identity is not performed along necessity, but possibility – Adger himself says that the interpretation (or mapping) can be whatever we need it to be (see the citation from Adger above). It means that when a linguistic item *a* is identified as A, it is not automatically denied that it cannot be B as well. Another one is that the labels proposed in generative grammar are based on fairly arbitrary conceptual grounds, which are not only hard to render as coherent but also highly likely to be open-ended (see Chapter One).

3.4.2. D’Alessandro: a grammar that predicts

D’Alessandro’s (relatively short) comment on Haspelmath’s paper mainly targets two critiques that she regards as evidently inappropriate for what is commonly practiced under the name of science. First, about the lack of general data in generative grammar, she replies, linguists are certainly entitled to extend what is already known about one language to a new one (i.e., you do not need to test one hypothesis against all languages for that). Secondly, as with the highly technical terminology exclusive to generative grammar, she says that linguists certainly do not need to subscribe to one terminology system and use it strictly in the same way. D’Alessandro contends that what generative linguists do is not in any way so unusual that it is disqualified as a scientific quest. For that, she conveys her annoyance by Haspelmath’s deliberate and constant non-cooperation, rendering his critiques as ignorant of such clear facts. Haspelmath in his reply clarifies that he is not attempting to impose unreasonable limits on linguists doing normal science, but there are detailed questions to ask about how to do what linguists do while feasibly advancing towards the common goal (i.e., understanding Human Language). Tallman (2021)

¹⁷ Indeed, the natural numbers are conventionally mentioned as an analogy to the naturalness of generative grammar (see also Chomsky 2002).

points out, one of the (crucial) ‘detailed questions’, is about the falsifiability or testability that completes the scientific status of a theory. In that, he says (Tallman 2021: 97):

If by referring to some claim or practice as “theoretical” we mean to assign it some scientific status, I think we are asking the wrong question when we ask whether descriptive and documentary linguistics passes the bar. Descriptive and documentary linguistics is either atheoretical by definition, or obviously theoretical, because descriptive claims are testable and descriptive methodologies are required to assess the empirical facts on which general claims are based. Rather, the question should be directed at universalistic claims, which have a much more tenuous relationship with falsifiability.

But the theme that D’Alessandro shares with Adger while responding to Haspelmath’s critiques is the power of generative grammar in prediction. Apparently, the prediction has been a crucial part in a generative-style analysis (an example will be shown below). In other words, generative linguists do not think of their theory not to be strictly testable. In that, D’Alessandro expresses:

The point is: we are not asking what is there, but what can be. A theory makes predictions not only as to what will happen, but also, and especially, as to what will not. That is a key point in my kind of research that makes it radically different from many other token-based, corpus-based approaches. (D’Alessandro 2021: 55)

Keep in mind that what a generative linguist, like D’Alessandro, call prediction is a predication on categories. Therefore, doubts about that will nonetheless arise due to the lack of rigidity in the mapping process from a linguistic item to its underlying identity – for generative grammar, this is the categorization in accordance with innateness. For that, Tallman says that:

It is often claimed that theoretical models developed and fit to data of one language make testable predictions about the next. I argue that this is not true in cases where categories and relations presupposed by the hypothesis do not map **deterministically** [emphasis mine; the same below] onto the next language. While such a theoretical model can be fit to novel language data, hypotheses couched in the model cannot be meaningfully tested. Stated in another way, ‘analysis’, as it is typically undertaken in linguistics, **renders the hypotheses that the analysis is designed to test unfalsifiable in practice.** (Tallman 2021: 95)

That is, linguists that are working within the generative framework put forward general claims via the assumed naturalness of the technical vocabulary, and yet they do not truly bear that out. Inevitably, uncertainties are hidden in that.

Tallman emphasizes that predictions made by extending a theoretical model from one language to another must be premised on the deterministic nature in the technical vocabulary that is used to connect two or more languages. Certainly, that is one crucial thing that cannot be guaranteed in generative research, with its bottom-up assumptions. As has been shown, generative linguists must unfold their theorization by carrying over a theoretical model from a language to another as if that theoretical model had been proven to be universal (i.e., it was a true revelation of the metalanguage envisioned). This process will solely depend on the non-rigidity in the categories and relations proposed for that model, which are maximally transferrable since the applicability only boils down to similarity. It is never difficult for a generative linguist to formulate similarity in favor of her or his analysis. This might explain what Tallman means by ‘unfalsifiable’ above. At this point, we may reuse the case where Adger (2002: 125-132) establishes Tense as a major syntactic category in English and based on that, ‘predict’ possible linguistic forms elsewhere (see also Chapter Four).

First, Adger’s construction of Tense begins with singling out English models and substantiating the position that they occupy.

2. *Gilgamesh must should seek Ishtar.

3. *Gilgamesh might can seek Ishtar.

(2) and (3) show that modals belong to one category (Adger says, (2) and (3) are ungrammatical in most but not all dialects of English), because the position that they appear in is the one (and it is distinct from other linguistic items' positions). Apparently, Adger draws upon the principle that plainly, the same things 'repel' each other. Then, Adger claims that this position that holds modals is syntactically tense in nature, i.e., it is where Tense features are base-generated. Adger supposes that English modals carry Tense feature because of three facts. First, English modals inflect for tense (although modals' inflection for tense has a semantic dimension different from regular verbs'). Secondly, according to Adger, a phenomenon called Sequence of Tense proves that 'modals split syntactically into present and past forms, and that this is a process which is independent of their interpretation' (consider the contrast between 5 and 6; see Adger 2002: 128). Specifically, as the following sentences in (4-6) suggest, when the matrix clause contains a past verb, then the embedded one must contain one as well, which is not conditioned on the ordinary sense of pastness (as defined by, for example, the relative positions of the so-called event time and speech time). In short, the transition from (4) to (5) is syntactic in nature because the past verbs in the embedded clauses in (5) do not in fact denote the so-called pastness.

4. I believe [she may be pregnant]/[she can do that]/[she will go].
5. I believed [she might be pregnant]/[she could do that]/[she would go].
6. * I believed [she may be pregnant]/[she can do that]/[she will go].

Finally, Adger says that 'when there is a modal to bear the tense features of the sentence, the main verb remains uninflected for tense' (Adger 2002: 128), see (7) below. By that, I assume, he intends to show that tense morpheme is more closely tied to modals than to regular verbs.

7. *Gilgamesh might loved Ishtar.

Therefore, Adger concludes that the position of modals in English is the base of Tense¹⁸, that is, between regular verb and subject on the surface. Adger demonstrates the following examples to support Tense as a constituent independent of, and higher than, that formed by the verb and its object (which is a unit called vP).

8. What Gilgamesh may do is [seek Ishtar]
9. ... and [seek Ishtar], Gilgamesh may

I do not intend to examine herein whether Adger presents a conceptually unified category above, both concerning the integrity of Tense itself and the procedural parallelism between it and other generative 'universal' categories (see Chapter Four). One point that must be clear is that Tense is automatically taken to be universal on its accountability in English. Thus, the applicability of it elsewhere is whatever similarity (i.e., specific empirical demonstration) can relate to that accountability of it in English. Once that similarity is flagged, the term can be confirmed in its use, and the new properties of it can be considered 'predictions'. For example, Adger (2002: Chapter Five) cites from Mauritian Creole and Sranan as cross-linguistic evidence, to show that his account of Tense in English has 'predicted' the possibility of marking tense outside the verbal construction. See the following examples in (10) – (13) (see Adger 2002: 133). Clearly,

¹⁸ In addition to modals, Adger also includes the emphatic *do* and the infinitive particle *to* as the overt members of Tense. But as the emphatic *do* and the infinitive particle *to* are not involved in proving the existence of Tense in Adger's account of Tense and are subsumed to it only after the establishment of it, I will simply skip that discussion at this point – it does not have much to do with the point that I am building up.

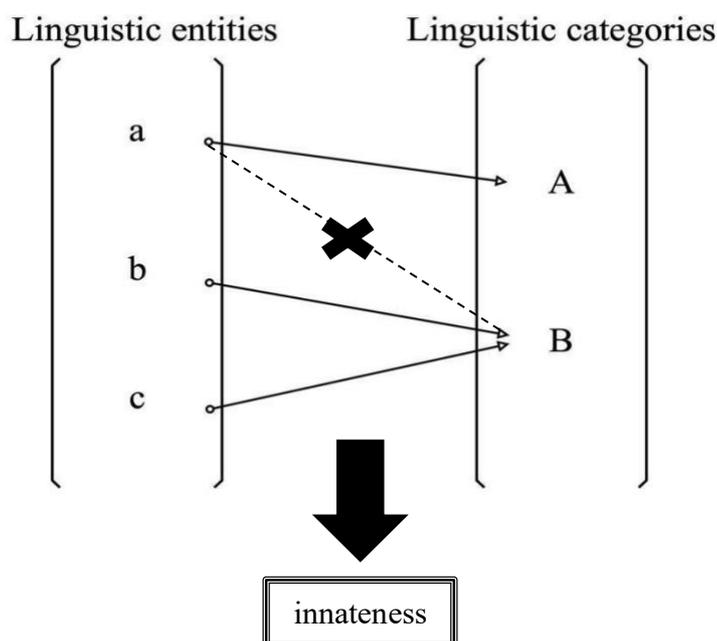
he presupposes the two elements *ti* in (11) and *ben* in (13), glossed both as *past*, to be Tense elements that correspond exactly to what he constructs rather painstakingly out of English empirical considerations.

10. Mo mahze
 I eat
 'I eat'.
11. Mo ti mahze
 I past eat
 'I ate.'
12. Mi waka
 I walk
 'I walk (habitually)'.
13. Mi ben waka
 I past walk
 'I walked'.

If Tense could be identified with such easiness in Mauritian Creole and Sranan, I wonder why Adger would go through that much of trouble to convince us of the presence of it in English in the first place. This process shows, as Tallman (2021: 107) notes, 'there are too many degrees of freedom in the interpretation of the baseline theoretical categories for us to easily test the hypotheses in practice'. Appropriately, Tallman characterizes such theoretical transfer from one language to another as a process of **translation**, which does not serve the purpose of truthfully restoring a metalanguage. I believe that we can grasp such a characterization from three aspects. In principle, translation is certainly not a rigid mapping between two languages, i.e., we do not assume that when two words of two languages are considered counterparts in translation, they must be instantiations of a higher-level category that all (or at least the two) languages have in common. All that we can safely say is that the two corresponding words in translation somehow overlap in meaning (i.e., having coincidental similarity(ies)), which can be utilized to satisfy a certain need for proper translation (whatever one believes the criteria are for it). With this said, translation requires one to deliberately make use of the similarities between languages, and in that, we hardly attempt to determine a uniquely correct translation. Fundamentally, we will not talk about falsifiability in translation, because it does not progress with any rigidity; we solely talk about whether a translation achieves a certain goal that one has the freedom to set and view as important.

To bring rigidity in their theorization, generative linguists must ensure that the mapping process is carried out in accordance with a *function* (see also Chapter One). That is, when a linguistic item is inputted, via it, only a unique result will be outputted, without any ambiguity permitted. This implies that the categorization is the overall, uniform partition of the same ground. In line with this, for generative linguists, 'the same ground' must be the notion of innateness, and thus the *function* at issue must be the analysis of it. In other words, innateness must be constructively factored into the mapping process, as the fundamental constraint on that (see Diagram 1 below). Only in this way can generative linguists put a limit to the constant and haphazard expansion of the supposedly universal inventory of categories (see Dąbrowska 2015; Newmeyer 2010) – note that innateness itself automatically amounts to universality – and organize it in conformity to the conceptual structure of innateness. (For instance, as is said in Chapter Two, one needs to know whether a concept is directly derived from the notion of innateness or secondarily.) Only in this way, finally, can we appreciate generative linguists as committed to an innate grammar.

Diagram 1



(Note that Diagram 1 shows once a linguistic item *a* is identified underlyingly as *A*, then it is necessarily not *B*, and this identification cannot reflect the ‘free will’ of a linguist but the notion of innateness.)

More importantly, generative grammar must be tested against the independent analysis of the notion of innateness. That is because eventually, as D’Alessandro stresses, generative linguists strive to draw a line between what happens with language and what cannot, but that line is real only when it registers the boundary of the content of innateness. Otherwise, the theorization of generative grammar just descends into what Tallman calls tautology, not to mention that there is too much freedom to prevent the theory from ‘falling’. To repeat, what generative linguists are mostly interested in is to envision Deep Structure’s activities that can lead to correct surface structure and use its grammaticality to prove their envision. This is analogous to completing a story whose ending is given, in that, whatever one imagines, one never fails to have the ‘correct’ ending. But if the story is true, then there is only one possibility. The problem is thus that there is no constraint on one’s ‘imagination’ about what has happened. One does not need generative linguists to report to her/him that correct surface structures are grammatical, but s/he needs to know what makes them grammatical, and that must be based on the intension of grammaticality, rather than an instance of it. In this regard, observable instances of grammaticality are not equal to the intension of it, but a portion of the extension of it. That is, what one observes cannot be taken as the limit of grammaticality – there are grammatical but not actuated linguistic forms.

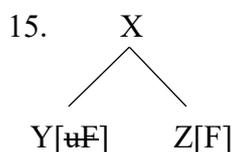
In short, a grammar that is claimed to be innate must be proven to be innate. Yet bewilderingly, generative linguists do act as if innateness is in no need of verification because everything they propose, as long as it works for the theory, should be automatically innate. This can be shown in Mendivil-Giro’s comment on Haspelmath’s paper (see below). Yet prior to that, I will lay out some points that concerns the tautological nature of the generative analyses, as is indicated by Haspelmath and Tallman, and I will illustrate the idea of rigidity with a true mathematical case as well.

3.4.3. Tautology

In a nutshell, the manifestation of the tautological nature of generative grammar is that it never truly accounts for what grammaticality means, and the reason for that is the lack of independent analysis of the notion of innateness. I will expound this issue further by comparing an analysis in chemistry with one in generative grammar. Think of the simply chemical reaction where the substances of sodium (Na) and chlorine (Cl) combine to produce table salt (NaCl). This can be expressed in the formula below (unbalanced, for the sake of simplicity).



It does not require advanced chemistry for us to understand that the reaction in (14) occurs due to the complementing extranuclear electrons of the elements Na and Cl. More specifically, in the case of (14), Na loses some electrons to Cl (or Cl attracts some electrons from Na) so that both reach a stabler status. Therefore, NaCl is the result of the tendency of the two elements for a (more) balanced status. Evidently, (14) can be explained in a satisfying manner because the nature of chemical reactions which gives rise to (14) (if not all) is independently provided, i.e., how to define chemical stability in terms of movement of electrons. This nature has nothing to do with the observation of (14), in the sense that even if we did not observe (14), we would still be able to predict it. Eventually, it is the nature of chemical reactions that determines what elements may or may not react. This is the ideal explanatory adequacy that linguists need to set their goal for. By contrast, the generative analysis that Haspelmath thinks of as redundant is at best a somehow abstracted restatement of what we already know. In that, the abstraction is *ad hoc* since it does not draw on any general principle about linguistic combinatoriality. See (15) below for the illustration of the process Merge (adopted from Adger [2002: 67]).



We may apply (15) to the formation of the phrase ‘*drink water*’, for example. Clearly, we know ‘intuitively’ that *drink water* is a possible combination, and what (15) does is not to break down this combination with an independent perspective, but to restate this possible combination with technical terms. That is, roughly, the uninterpretable feature on one of them is checked by the counterpart of the feature (but interpretable) on the other. Admittedly, I believe that (15) does have some theoretical potential as it invokes the idea of complementation, but it is imperative that the complementation be explicable with truly accessible notions that can be independently evidenced. Otherwise, the supposition that checking between interpretable and uninterpretable features brings about combinatoriality remains *ad hoc*, incapable of making useful predictions. This is not unlike saying that in the case of (14), the substance Na carries with it some imperfect property that happens to be eliminated by Cl₂ (or reversely). This is not as satisfying.

3.4.4. Rigidity: An analogy of triangle

Suppose that one attempts to assemble a triangle, on a plane, by selecting segments with proper lengths. Apparently, one cannot randomly set the three sides of the triangle, as the sum of any two sides of it must be greater than the third one (known as the *triangle inequality*). Accordingly, there is a rigid division between possible triangles and impossible ones. Thus, one will not be

able to make a triangle out of segments measuring, for example, 2, 2, and 5, no matter how one manipulates them. Understandably, generative grammar is aiming at bringing to light the rigid division between possible linguistic forms and impossible linguistic forms. That is, the intrinsic conditions that make language what it is. No one will deny the novelty in that pursuit, and indeed, as suggested by Mendivil-Giro (2021), in doing that, we complete the study of language.

However, if we compare the systematic knowledge of what is called Euclidean geometry with the hypothetico-deductive enterprise that Mendivil-Giro claims GG to be, we will notice some crucial incongruities. To be clear, it may not be a customary practice of generative linguists to liken what they are building to the edifice of Euclidean geometry, but they do repeatedly stress that their knowledge about language is obtained in the ‘normal’ way, which has been testified as effective. Particularly, I put generative grammar on a par with Euclidean geometry since the latter is without a doubt the most straightforward exemplary of that normal way. Euclidean geometry explores the possibilities of our world (the one that we can/could experience) by setting out some **stable** limits of it. Thus, anything that is reconcilable with the limits are allowed to occur. What makes Euclidean geometry a logical system thus lies in that the possibilities are effects of the previous limits. For instance, a triangle with three sides that measure 3, 4, and 5 is possible since it does not violate the triangle inequality, which, in turn, is derived from other more fundamental limits that are called axioms. Importantly, an axiom is not raised lightly, as it does reflect the boundary of our thought, which means that an axiom is the bottom line of any argument and is without a proof itself. Thus, Euclidean geometry is true knowledge because at the onset, it states strictly some deep-seated but also obvious fact about what we cannot experience otherwise, and based on the strictness in that, everything that is involved in expanding a geometrical possible world can be defined and is not subject to variation.

By contrast, it seems to me that most efforts made by generative linguists are not pointing out, or based on, what we cannot experience otherwise. As is said, the notion of innateness, if that is the ultimate limit of language, has not been effectively consolidated into the methodology of generative grammar. The irony is that as a theory aspiring to reveal the non-free nature about language, its own unfolding has enjoyed too much freedom. For example, I do not believe that the decision by a generative linguist to label a linguistic item as DP, CP, or TP etc. is because empirical evidence suggests it to be the only possibility. That labeling process does not appear to be a more serious one than a free guess. Not to mention that the application of those labels is permitted randomly by similarities, not by definitions.

3.4.5. Mendivil-Giró: a mental grammar

Mendivil-Giró attempts to ward off Haspelmath’s attack on generative grammar by drawing us the picture of a comprehensive science of language. He suggests that the content of generative grammar conforms to, and is at the same time confirmed by, the assumption that the capacity of language is innate. Thus, he argues, equipped with the theoretical tools which make possible the exploration of the mental domain, generative linguists are answering the most fundamental questions that no other branch of our field has set the goal for. In that, Mendivil-Giró thinks of Haspelmath’s view that takes language as social constructs (what he calls a Saussurean notion of language) to be incomplete and insufficient. Mendivil-Giró accuses Haspelmath, as well as other externalist authors, of failing to understand that the innateness of human language should determine how the conventional part of it is formed.

There are some points in Haspelmath's paper that Mendívil-Giró deems as misrepresentations of the unfolding of innateness in generative grammar. In that, he objects to Haspelmath's claim about generative grammar being a "rich innate grammar blueprint", saying:

In fact, generative grammarians do not assume that there is a "rich innate grammar blueprint" and that languages are composed of "innate building blocks of grammar". What they assume is that, if the capacity of language is innate (as Haspelmath also admits: "everyone accepts the existence of biocognitive prerequisites for language" # 6.5), then it would be very surprising that this capacity did not channel, condition or restrict the design space available to children, who have to acquire the language of their environment. (Mendívil-Giró 2021: 86)

This implicitly invokes again the typical generative defense line: the correctness of generative grammar entirely hinges on the innateness of language, in that, if the latter is provable, so must be the former, and automatically, generative grammar, as a theory of modelling language, must at the same time be isomorphic to children's acquisition of languages (see Chapter Two). Also, while emphasizing the parallelism between generative grammar and humans' ability to know a language, Mendívil-Giró says that substantive content is not the implication of innateness¹⁹:

This assumption [i.e., language is innate] has no substantive content: it is not assumed that languages should have innate components, nor that all languages should be composed of the same pieces, nor that there are grammatical constructions (if that notion has any sense). The only thing that is presupposed (and I think it is not controversial) is that what enables people to speak and understand any language is a knowledge system that people possess (their I-language). (Mendívil-Giró 2021: 87)

I agree with Haspelmath on that Mendívil-Giró's envision about what a proper mental grammar consists in can be a bit disconnected with the usual practices of generative linguists²⁰. It is quite clear that the assumption of "innate building blocks of grammar" is a major way how generative linguists would render language's being subject to the channeling, conditioning, and restricting by its innateness (whether one would approve of the use of the word *rich* or not). This can be seen in both Adger's and D'Alessandro's comments. It is fair to claim that categorization (i.e., the mapping from a surface linguistic item to its innate identity) lies at the heart of generative grammar's theorization, for it largely undertakes the abstractness in generative grammar, which is equated with the exploration of the mental aspect of the world. In that, generative linguists put forwards grammatical statements by means of predicating about categories, and categories are assumed to provide 'natural' comparability between languages. For this reason, generative linguists care about establishing a local category in a different language and arguing about how it can be correctly detected or described (see Chapter One). For this reason, generative linguists base a grammatical statement about an individual language on empirical demonstrations drawn from other languages (as seen above). If these categories cannot be proven to be innate entities, much of generative linguists' work would perhaps lapse.

¹⁹ Mendívil-Giró seems to suggest that proposals of building blocks are truly the last resort: "If, as a consequence of this work, proposals for certain "innate building blocks" emerge, these may be considered discoveries (if reasonably confirmed) or hypotheses to be falsified, but not initial assumptions of the theory."

²⁰ Haspelmath says: "... but he [Mendívil-Giró] ignores the usual practice of generative grammar, where categories that are readily learnable from the environment are routinely taken to be available to any language (e.g. the distinction between dependent and oblique case, as in Smith et al. 2019). If such categories were not innate, it would not be meaningful to claim that category X that was found in language L_A also exists in language L_B. But linguists make such claims all the time, presupposing a rich set of innate building blocks. (Haspelmath 2021c: 139)

In addition, Mendívil-Giró does not accept that Haspelmath considers the syntactic entities or relations that generative linguists deploy in their grammatical statements as *natural kinds*²¹. He has a narrower understanding about the term *natural*. He holds that notions like *C-command*, *Noun*, or *Person* are cognitive entities, thus not natural, in the sense of not being substantial or observable, like cells or molecules. Nonetheless, the term *natural* indicates that those entities, whether cognitive or not, are part of the reality that we expect our scientific efforts to shed light on (i.e., not made up by linguists for the sake of grammatical analyses). In that, those entities must be uniquely accountable by having essence and rigid boundaries. As is said by Mendívil-Giró himself, those (cognitive) entities are discoveries, and then it is the generative linguists' responsibility to show that they are not merely inventions of generative linguists but derivable from innateness.

Mendívil-Giró remarks that one should not expect generative linguists to be certain about the natural existence (innateness) of the entities, principles, or structures which are hypothesized as parts of the Faculty of Language. Rather, the correctness of those can be 'theory-internally' determined (see the citations below). The underlying logic in this theory-internal innateness is consistent with Adger's and D'Alessandro's defenses of generative grammar that have been examined above. For that, Mendívil-Giró says:

Towards this end, generative grammarians postulate the existence of entities, principles or structures, as in any inquiry that follows the hypothetico-deductive model. Such entities may or may not be natural kinds, and may or may not be innate. The linguist (qua linguist) cannot know. When certain entities, principles, or structures postulated in a theory resist comparison with other theories (of mental grammar), and at the same time are not very likely to have been learned from the environment, it is possible to end up postulating that they are innate. (Mendívil-Giró 2021: 92)

If the object of study is the FLB [Faculty of Language in the broad sense], then generative grammarians, in the construction of theories of languages (models of mental grammars), introduce into their theories those elements and principles necessary to account for the form and meaning of linguistic expressions, independently of whether these are innate or not, language-specific or not, human-specific or not. Only the comparison with other (models of) mental grammars and with models of other human cognitive organs can help to decide if these postulated elements or principles are generalizable (or perhaps universal). Therefore, the success or failure of the work of generative grammarians does not depend on whether or not there are innate building blocks, but on whether or not their models are capable of predicting (in the simplest and most empirically adequate way) the form and meaning of the expressions of the analyzed language. (Mendívil-Giró 2021: 92)

He mentions two factors capable of determining the correctness of generative hypotheses. One is the comparison with other competing **mental** grammars. The other is the lack of learnability (from the environment) of the entities, principles, or structures utilized in a theory (basically,

²¹ Haspelmath does not clearly set out the naturalness in what he calls natural kinds. By likening describing a new language to discovering a new island, Haspelmath (2016) separates plant and animal species from mountains and streams, in that, the former is natural kinds but not the latter. It might not be easy, however, to state what constitutes the fundamental differences between them. Haspelmath contends that talking about natural kinds, like plants and animals, involves 'detailed descriptions and agreement on a label but not a definition' (ibid. p. 90), and by contrast, mountains and streams are not categories of nature, but created by observers so that one must learn what they mean from other people. It seems to me that the descriptions that Haspelmath outlines to distinguish natural kinds and non-natural kinds are in fact mutually applicable. He emphasizes the term *observer-made* as the core of non-natural kinds, perhaps in view of the freedom in the definitions of them. (for that, he gives the well-known example of Pluto, which has been taken out of the list of planets.) In doing that, I suppose, Haspelmath implies that natural kinds plainly are present by themselves, whether the observers notice or not, or where they decide to draw the line. But he also says that the recognition of natural kinds does not depend on a definition, which can be contradictory. That is because if an entity naturally exists, unsubjects to human will, then it must have a definition that we need to bring to light. Haspelmath is unconvinced that some terms are obviously observer-made but are treated as pre-established categories.

all that putatively occurs in the Deep Structure is not unlearned from the environment; see also Section). But I wonder why Mendivil-Giró is so sure that generative linguists are portraying a mental grammar. After all, generative linguists never raise any methodological standards that can in effect set apart mental grammars from non-mental ones. Since the syntactic derivation in generative grammar is proposed without the constraint of being innate (which is one essential condition of being mental, or vice versa), eventually one can merely claim generative grammar to be a model of language. In this sense, I believe that any other grammar could be competing with generative grammar, as all linguists are modelling languages. It appears to be a common pitfall for generative linguists to presume that modelling a language's correct surface structures (with a certain degree of abstractness) means a mental investigation, and as long as a language's correct surface structures can be 'successfully' modelled (which, given the theoretical freedom, is not at all challenging), whatever is involved in that model must be part of mental. One must be aware, as has been repeated throughout the current thesis, that the notion of innateness has never been analyzable in generative grammar, so as to frame the theory. All the evidence that generative linguists can present to support innateness of language (see Chomsky 2002; Hauser 2002) does not help us in any way inspect inside the notion. Therefore, believing in innateness differs from warranting an innate grammar. Moreover, what can be said of a grammar free from the constraint that it is supposed to be built on? Based on what has been commented on Adger's and D'Alessandro's replies to Haspelmath, it is *ad hoc* in two senses.

But whether there are any alternative mental grammars to generative grammar, the standard for the correctness of generative grammar is the reality of its content. Any potential comparison must be carried out in line with that standard, and unreal entities, principles, and structures are surely not what one can learn from the environment.

3.5. Conclusion

In this chapter, the discussion has been centered on Haspelmath's attack on generative grammar, launched by his article *General linguistics must be based on universals (or non-conventional aspects of language)*, published with *Theoretical linguistics*. As is said above, this target article elicits comments from other linguists and then Haspelmath replies to them. In reviewing those comments (especially from generative linguists) and replies, it becomes evident for us currently what about generative grammar is dissatisfying for the critics and what about it is valued and upheld by the supporters. Haspelmath chooses to express his dissatisfaction via the distinction between general linguistics and theoretical linguistics. In that, he clarifies that being theoretical (i.e., building up specific theoretical models with formal tools) is not the same as being general. Although generative linguists' comments do discuss what is rightfully called theoretical or general linguistics (which can be an 'annoying' distraction, as is suggested by D'Alessandro), the main defense of them is still what has been said repeatedly. That is, generative grammar is a **mental** grammar drawing on **mathematical** or **logical** concepts to formalize our grammatical intuition, thus able to **predict** possible/impossible patterns. However, these points are exactly what needs to be doubted, since without the proper ontological constraint, the theorization in generative grammar seems to enjoy too much freedom that prevent it from falling. To make the exchanges between critics and supporters of generative grammar more constructive, I believe that there is one question that must be posed: whether the syntactic analyses in generative grammar are truly the real mental activities that generate the 'correct' forms or count as a 'self-healing tautology' (an expression taken from Tallman 2021: 108). It is vital because generative grammar is supposed to be the formal presentation of innateness, and yet this presentation is not based on the analyzability of innateness. Thus, it is hard to say how innateness frames the theorization of generative grammar so that it is metaphysically or epistemologically significant

as promised. After all, the only criterion for the success of an innate grammar is clarifying how the notion of innateness is non-trivially involved in the theory.

4. Tense: an essential entity without an essence

4.1. The unknown innateness about Tense

As said in Chapter One, methodologically speaking, it is conventional to refer to the followers of generative grammar, led by Noam Chomsky, as the Essentialists, whose aim is to identify the intrinsic properties of language (see Scholz et al. 2023). It means that generative grammar is expected to be a truthful presentation of our grammatical intuition, which must not only be precise but also mentally real. This is a process of constructing the abstract rule system which is our natural preparation for learning language. However, it is hard to know how this process is guaranteed as mentally real. For generative grammar, there is no standard set out to evaluate its innateness, and its success entirely rests on how it is designed as a perfect rule system. That is, generative linguists assign a derivation process to a sentence as the sufficient reason for its ‘correctness’. As suggested in Chapter Three, grammaticality is hardly explained (because it is an intuitively given value), but only ‘repeated’ or ‘translated’ in a formal way. Since innateness is not an independently analysable notion in generative grammar, proposals of the supposedly intrinsic properties of language need not be subject to *being innate*.

Critically, some of the intrinsic properties are said to be substantive ones while others are said to be formal devices that configure the interactions of the former (see Dąbrowska 2015). Since identity of a linguistic element must be clarified in the lexicon and assumed prior to formulating or applying a rule, categorization lies in the heart of the methodology of generative grammar (see Evans 2014) – universality largely boils down to a determinate set of universal categories (see Haegeman 1997; Jackendoff 2002). Thus, one minimal requirement for Essentialists is to make sure that any proposal for a universal category must state the explicable uniformity of it that can function as the sufficient reason for its presence. Not to mention that uniformity is the necessary but not sufficient condition for an innate category, i.e., belonging to the hypothetical language faculty (LF) (see Berwick and Chomsky 2016; Chomsky 1965, 1972; Fitch et al. 2005; Jackendoff 2002; Lasnik and Lidz 2016). In other words, the uniformity of category in generative grammar must amount to the derivability of it from innateness. As innateness is not consolidated in UG methodologically, the notion is treated as if it were an automatic quality of whatever is brought up in the literature (see Borsley and Müller 2021; Haspelmath 2020, 2021c; Hudson 1999). This causes an irreconcilable conflict. On one hand, the expansion of UG feeds on the vacuity of innateness, by virtue of which much theoretical freedom is created; but on the other hand, the ultimate success of UG must hinge on the definiteness of innateness. Overall, the failure of UG proponents to bear out how a category proposed for UG must be part of the natural presence of the LF leads to a bottom-up style in the categorization of UG. Determining the universal inventory in UG is merely a process of throwing up categories on random grounds. No one can empirically decode what it means to be a category belonging to the LF. As is pointed out by Croft (2001: 31), in no way can a generative linguist conclude about what empirical demonstration(s) is/are relevant to being a universal category, in which case she or he can only bring up ad hoc ones for UG (see also Haspelmath 2007, 2010).

This is the case with the category called Tense¹. Eventually, we can only describe Tense, which is a proposal of a universal grammar from bottom-up, as contingent. That is because we would

¹ Comparative studies centered on the morphological label tense, or the syntactic one Tense, could be a good illustration of this problem. On one hand, the applicability of the label tense/Tense has prompted a great number of discussions and debates, in that, the distinction between tensed and tenseless languages is often mentioned. (In syntax, this can be channeled through the argument either for or against the presence of the Tense node in the sentence derivation, but as tense is often taken as a warrant for Tense, tenselessness and the absence of Tense do not need to be equivalent.) On the other hand, tense is easily

not discuss it if generative grammar had not been initiated with the examination of English, as well as other Western languages where tense morphology is prominent. Also, it is unclear how a traditional descriptive label tense can give rise to a syntactic node with much indemonstrable metaphysical significance, which is to be operated in an ideally designed computational system – no one explains how tense matches up to that ideal. Nonetheless, for some generative linguists, Tense represents a hope (as a universal category) for, from bottom-up, there is no effective way of screening morphological signals for language universals. To be clear, my discussion of Tense is certainly not based on an agreement of generative linguists on the universality of it – in fact, it is difficult to know what exactly are agreed on among them in terms of substantive universals (not the labels but the essences of them; see Dąbrowska [2015]). For the comparative study of generative grammar, the cross-linguistic establishment of Tense is the only way of bearing out the universality of it, and yet it is an unprincipled process (i.e., its construction does not revolve around a stable Tenseness). Worse still, UG is not equipped with an error-correction mechanism, because even if a category is put forth inappropriately for universality, there is no way to point it out immediately by way of deduction, and in the cross-linguistic verification, it is even harder to detect it for one is always able to present a resemblance to indicate the possible existence of this category in question.

Haspelmath (2007, 2008, 2010, 2018, 2021c) points out the problematic practice in generative grammar that empirical considerations of specific languages are directly taken on a universal level. It is problematic because no language is grammatically superior to others, and no formal signal is epistemologically more profound than others. (According to Haspelmath and other functionalists, how a particular grammatical system is formed is largely ascribed to convention.) That is, a grammatical statement mostly draws on possibility rather than necessity (yet this line cannot be drawn from top-down in generative grammar). In generative grammar, comparison between languages will often need to set up a reference, for which one can barely justify. This chapter is a demonstration of what Haspelmath has been criticizing: using language-specific phenomenon to make cross-linguistic conclusions. More importantly, the comparison process, which amounts to the verification of the universality of a category, is a random manipulation of similarities. Therefore, this chapter will show, the making of Tense does not truly match up to its metaphysical significance. Specifically, as for Tense, there is no explicable Tenseness of it. Its establishment does not stick to a conceptual core, but only random associations of linguistic items. This holds true for both the original construction of Tense, which functions as a theoretical template for other languages, and the cross-linguistic duplication of that template. That is, the making of Tense does not shed light on its definability, let alone its mental reality. I will approach this non-existence of Tenseness from two directions. One is the raising of Tense in English (including a historical perspective), and the other is the cross-linguistic test of its universality in Chinese and Arabic. To be clear, the main contribution of this chapter will not reside in the presentation of any new and exciting empirical evidence of the absence of Tense, but rather the unknowability of Tense. Especially, this will be shown through the establishment of Tense in three languages, which results in a family resemblance concept. As said, there is no way to lay out the empirical manifestations of Tense independently. If one attempts to make a Tense in Chinese or Arabic, one can only model that on the template drawn out of English. However, since Tense's presence has never been confirmed (by relating it to the metalanguage being constructed), there would not be a rigid boundary of it, in that, one freely decides what motivates Tense and what new properties it can have. Eventually, the making of Tense in Chinese or Arabic is only tantamount to arbitrary extensions of similarities. In this sense, the

associated with time, thereby attaining a special status. Not to mention that tense is a salient grammatical feature of Western languages, whose conventional crystallization tends to be viewed with extra importance.

assessment of Tense accounts in English, Chinese, and Arabic are much more methodologically driven than empirically driven. Finally, another problem about Tense construction is the unclear line between descriptive tradition and formal syntactic representation of entities allowed to be in an ideal computational system. Clearly, tense, as a loosely understood taxonomic label, will cause difficulties once entered into the domain where entities must be essentially rigid.

4.2. The rise of Tense in English: adjustments to theoretical models

Remarkably, the theorization of any concept in UG is flexible enough to adjust to the changing syntactic models posed for the derivational configuration of UG. That can just be evidence of a UG concept not resulting from the revelation of it as a real mental entity but is merely theory-internally driven. In that, the rise of Tense in UG, as a syntactic unit, including what has been ascribed to it, is purely opportunistic. Above all, generative linguists may pay attention to the label *tense* and attach to it syntactic significance just by virtue of the convenient availability of it as part of the descriptive tradition of Western languages, and no one seems to have asked for proof of the derivability of tense from the notion of innateness. As a result, it is impossible to present tense/Tense in the scheme of Principles and Parameters that is supposed to demonstrate the conceptual structure of innateness. It means that we will not be able to infer whether Tense (assuming that it could be confirmed as part of linguistic universality) is a first-level principle, or a parameter of a principle, or a parameter of another parameter... As with the integrity of Tense as an innate category, the rendering of it will not be subject to the reality of it. In what follows, I will show that the theoretical status of tense/Tense is utterly subordinate to the overall conception of sentence derivation and the availability of formal tools, in that, generative grammar is mainly viewed in its function of modelling language.

In Chomsky's (1957) early conception, morphological involvement in a sentence's derivation is thought to be peripheral, since derivation is mainly composed of lexical rewriting rules, as in (1), proceeding from top down to flesh out the structure of a sentence.

1. a. $S \Rightarrow NP + VP$
b. $VP \Rightarrow V + NP$
c. $V \Rightarrow \text{take}$
d. $\text{take} + \text{past} \Rightarrow \text{tuk}$

Plainly, the realization of tense morphemes is by way of some lower-located morphophonemic rules responsible for providing the correct phonetic instruction for a sentence, and it takes place within the verbal domain, meaning that tense does not have an independent categorial identity (see 1c and 1d). Vitally, (1) shows what Chomsky imagined as registering the generative character of languages, clearly influenced by the traditional taxonomic grammar assuming the uniformity and rigidity of the old descriptive labels involved. But he was obviously intending (1) to be a demonstration about how the correct form can be realized, in that, what is stressed is its conciseness and abstractness, not its naturalness. He was unable to clarify how the lexical rewriting rules is necessarily the way in which the generative nature of languages breaks down (if languages have a generative nature), i.e., conforming to what is actual. Just as it turned out, those rewriting rules are indeed not, thus easily wiped out of the theory.

With the 'deepened' focus of generative linguists into the unseen sentence derivation that leads to the imposition of the Deep Structure (DS), the account of tense/Tense is thoroughly reformed to accommodate new derivational apparatus coming along with it. Thus, under the framework of Government and Binding (see Chomsky 1995; Haegeman 1994), and the more recent

Minimalist Program (see Chomsky 1995; Hornstein 2004), the significance of Tense keeps growing as theoretical devices that are more abstract are available to add to its complexity: tense shifts from a peripheral, non-categorial morphological instruction in (1) to a massive syntactic complex (i.e., Tense) encompassing ideas such as modality, finiteness, and case assignment (details below).

The addition of the DS, as a major theoretical advancement of generative grammar, drastically increases the abstractness in categorization. On one hand, phrase projection that fills up the DS creates much theoretical space for envisioning unseen structural configurations, and it does not need to be circumscribed by the surface word order, whose obtainment is, however, guaranteed. On the other hand, with syntactic functions tied to features, identification of categories can land on linguistic items smaller than lexical words – often an overt morpheme, or sometimes nothing pronounceable at all, as long as a syntactic position can be reinstated via some unprincipled local or global comparisons (e.g., that Chinese can have Tense is supposed to be defended by that English has Tense). As such, tense morphemes break away from the verbal domain, which is said to mainly unfold thematic relations, and tense is located further up to finally become an important functional layer of a sentence, which is much more than morphological expression. This functional upgrading of tense/Tense is based on associativity rather than necessity. That is, (2) and (3) schematize the hierarchical arrangements of different phrasal layers of a sentence. Note that the generation of a sentence was once rewritten as $S \Rightarrow NP + M(odal) + VP$ (see Radford 1988: 293), and it was replaced by $S \Rightarrow NP + I + VP$ (See Chomsky 1981: 25) as emphasis was put on the distinction between functional and lexical categories, and finally it is accepted in the generative literature that a sentence itself is the projection of a functional category, i.e., Complementizer Phrase or CP.

2. Inflection [Infl: tense]: CP ... IP ... VP ...
3. Tense [tense]: CP ... TP ... VP ...

Primarily, the realization of tense morphemes was a function (alongside agreement) subsumed under the node called Inflection Phrase or IP, and the proposal of this Inflectional Phrase node, responsible for the morphological grammaticality of verbs, is key to the current description of Tense in generative grammar, since under it, tense morphemes, modals, and the infinitive particle *to* are thought as different exponents of one category (see below). The proposal for Tense to substitute IP may have originated in Pollock's (1989) argument about splitting IP into TP and Agreement Phrase or AP (details below; see also Haegeman 1997), but AP appears to be much less frequently mentioned than TP. Currently, it seems to be generally accepted that Tense, in lieu of IP, is the functional layer between CP and VP (see Adger 2002; Radford 2009) insofar as English is concerned, but the difference is minimal, because first, we cannot ensure what empirical demonstration(s) must be linked to the core of either TP or IP, and thus whatever function IP is said to serve can be simply used to describe TP, and secondly, no matter which label comes up, the derivation would not be affected (in fact, Adger 2002 does not effectively differentiate the two labels).

In this brief account of the theoretical transition of Tense, what I must point out is that none of these syntactic representations of Tense, differing from one another in an unprincipled and unconstrained way, is based on some real knowledge of the existence of such a thing as Tense, but the transition of Tense from (1) to (3) is merely a demonstration of the changing availability of theoretical tools. In fact, that (1) can be negated and replaced by (2) and (3) is a clear sign that the conception of Tense is never essence-based, and it is certainly possible that when new

theoretical assumptions are put forth and adopted in generative grammar, the syntactic representation of Tense should be once again reformed.

Before the discussion of the theoretical content of Tense, a clarification about the term *essence* is in order. Khalidi (2023: 17) sets out the following four statements that are thought to essentially describe essential properties, while noting that there is no universal agreement on that.

- Essential properties are both necessary and sufficient for membership in the kind.
- Essential properties are modally necessary to the kind (which is often glossed as: associated with the kind in every possible world in which the kind exists).
- Essential properties are intrinsic to the kind rather than extrinsic or relational.
- Essential properties are microstructural.

I will not be able to provide an assessment about those statements, let alone to argue for any new criterion for essential properties in general. But in connection with those statements, I will understand *essence* as playing an important role in rendering a category as being *scientific*. Following Khalidi (2023: 17), the most widely accepted requirement for a scientific category to meet is for it to be **projectible**. In that, essence is something that an entity or a procedure can be uniquely identified with, and thus, an entity or a procedure can be said to have a non-arbitrary (non-conventional) definition (see Chapter one). The condition of being projectible should be factored in the categorization of generative grammar because it guarantees the viability of a universal grammar as a truthful description of the language faculty. In line with this, one vital task for generative linguists is to eliminate the freedom in their categorization, which is often a target of critique (Haspelmath [2018] calls the freedom diagnosis fishing, and Croft [2001] calls it opportunism). In addition, as pointed out in Chapter Three, it is unclear how the lexicon in generative grammar can be organized in the LF and thus configured by it. That is, if an item cannot be somehow ‘correctly recognized’ by the LF, rules will not be correctly applied. Thus, when I say that the conception of Tense is not ‘essence-based’, I mean that there do not seem to be efforts in making the term projectible. That is, as will be shown in the next section, in a particular language, Tense is established without having a conceptual core, and it is unclarified why different empirical demonstrations must be unified under the same name; cross-linguistically, the hunt for Tense is merely a process of ‘creating’ resemblance(s) to that already established Tense (which is not essence-based in the first place), so that the naming with Tense can be somehow justified, but it is far from clear whether all the different Tense accounts present the same thing.

4.3. Freedom in accounting for Tense

As is said, without knowing what constituting the DS, one will not be able to tell what can be or cannot be possible in it. Crucially, as the proposal of any operation in the DS is not motivated independently, the only evidence that a generative linguist can obtain to prove the correctness of a syntactic account is whether it results in the right surface form; but as the DS is a free realm, one can add to it whatever device needed for deriving the right form, that is, to prevent assumptions from falling by laying more assumptions under them.

An either famous or infamous instance of the unconstrained freedom in depicting the DS is the introduction of the notion of feature strength (see Chomsky 1995; Adger 2002), which is said to switch on or off the factor of locality in the occurrence of *checking* between matching features (see Chomsky 1995; Uriagereka 1999) and thus has bearing on movement – according

to Adger (2002: 157), '[a] strong feature must be local to the feature it checks/is checked by' – in addition to the idea of interpretability. Note that checking is said to occur when interpretable features and their uninterpretable counterparts match under the structural configuration *c-command*, alleged to eliminate uninterpretable features and finally present interpretability for semantic interface (see Adger 2010; Chomsky 2000; Ura 2000). Evidently, the notion of feature strength is added to the theoretical repertoire of generative grammar as regular derivational procedures are inadequate.

As is said, in the DS, verbs are no longer thought to carry tense morphemes as base-generated, and thus a syntactic link between IP (or TP) and VP is needed for the realization of tense morphemes on verbs (See Tense Chain in Chomsky 1981; Adger 2002), and this connection is referred to as *verb dependency*. In generative literature, spelling out conditions of verb dependency has become a major topic for syntactic parameterization (see Emonds 1978; Ouhalla 1991; Rizzi 1990). Under the assumption that every part of a sentence has its universal canonical position in the DS (see 4 below), the comparison between English and French in terms of the ordering of verbs in relation to both negations and adverbs (see 4 – 7 adopted from Pollock 1989: 367) seems to indicate that on the surface level, English verbs and French verbs land in different positions as a result of different conditions of verb dependency. In that, French verbs seem to be further front than English verbs, as the latter precedes negations and adverbs, and the former follows them.

4. I ... NEG... (Adv) V
5. a. *John **likes not** Marie.
 b. Jean (**n'**) **aime pas** Marie
 Jean like not Marie
 'Jean does not like Marie.'
6. a. *John **kisses often** Marie.
 b. Jean **embrasse** **souvent** Marie
 Jean kiss often Marie
 'Jean often kisses Marie.'
7. a. ***Likes** he Marie?
 b. **Aime-t-il** Marie?
 likes-he Marie

Therefore, the difference is expected to be accounted for by way of verb movement, that is, English tense feature differs from the French one in not attracting verbs to a higher position in Tense. Finally, the difference is formalized by the proposal of the contrast in feature strength (see Chomsky 1999; Adger 2002), in that, the feature [tense], supposedly causing verb dependency, is weak in English and strong in French (thus motivating the movement of French verbs²).

² Pollock's split of IP greatly draws on the assumption of the unconditional co-occurrence of tense and finiteness as features, as well as the assumption in (4) that each part of a sentence has a universal canonical position. Based on (8) – (11), Pollock further supposes a possible two-fold upward movement of verbs, one motivated by tense and the other by agreement, hence the split of IP. That is shown by the verbal position in infinitive structures of French, see (8) – (11).

8. Souvent manger du chocolat c'est mauvais pour la peau.
 often to-eat of chocolate it-is bad for the skin
 '*To often eat chocolate is bad for the skin.*'
9. Manger souvent du chocolat c'est mauvais pour la peau.
 to-eat often of chocolate it-is bad for the skin

The notion of feature strength is purely *ad hoc*, because the decision about whether a feature is strong or weak cannot be generally set out in a principled manner, and we could only know a feature's strength when regular derivation procedures cannot reach the expected surface form in accordance with existing assumptions (it is not even clear what features ought to show the distinction in strength), i.e., it is a remedial measure in case that any inconformity takes place, and such measures barely have a limit. Thus, the construction of Tense feature has become extremely ontologically peculiar. Tense feature can be as diacritically complicated as what is shown in (12) below in theory.

12. [* μ tense: past]

To clarify, * marks a strong feature, μ indicates the uninterpretability of it, i.e., the expression of tense morpheme is not inherent to a syntactic position at hand (this is certainly an arbitrary decision to make), and what follows the colon is the value that a tense feature carries along as is selected by the syntactic component (even though no one knows how that could be achieved). Again, no upper limit is put to the complication of a feature construction: generative linguists can just keep bringing forth whatever is needed in favour of their theorization, no matter how unique a linguistic universe would be eventually engendered by that.

Apart from verb dependency, there is also subject dependency said to regard Tense. As is said, fulfilling a thematic role, the subject is originated in a lower VP-internal position, and similarly, how it rises to precede Tense needs to be accounted for (see McCloskey 1997). Conveniently, the projection of Tense, in order to be maximal, demands its specifier position to be occupied, which can be provided for the subject, and to trigger the movement, Tense is hypothesized to contain an uninterpretable feature of [N] that assigns the nominative case, diacritically as [μ N: nom] (see Radford et al. 2009: 265). Apparently, subject dependency and verb dependency are both theorizations with one assumption explained by another in order to maintain the integrity of the theory itself, and this could happen in generative grammar exactly because none of its tools can be verified in its reality, thus unbound.

4.4. The non-existence of Tenseness in English

Moreover, the syntactic register of tense as Tense in the underlying domain is not a reflection of a principle, but merely a conventional practice that is commonly accepted. Once entering the syntactic domain, Tense transcends morphological tense for it undertakes combinatoriality in the background. Nonetheless, syntactic Tense does not break away from morphological tense — tense is the footing of Tense where the latter is not only initiated but also finalized. On one hand, tense inflection is customarily taken to be a natural introduction to Tense, whereby its own establishment as a syntactic category is obviated. On the other hand, importantly, tense

		<i>'To often eat chocolate is bad for the skin.'</i>							
10.	Ne pas	manger	de chocolat	c'est	mauvais	pour	la	peau.	
	NE not	to-eat	of chocolate	it-is	bad	for	the	skin	
		<i>'Not to eat chocolate is bad for the skin.'</i>							
11.	*Ne	manger pas	de chocolat	c'est	mauvais	pour	la	peau.	
	NE	to-eat not	of chocolate	it-is	bad	for	the	skin	
		<i>'Not to eat chocolate is bad for the skin.'</i>							

Under the assumption that the infinitive verb *manger* is base-generated in (8) and (10), it is allowed to move in front of an adverb in (9) but not the negation *pas* in (11) because, Pollock argues, only tense feature figures in infinitive structures, unlike (5) - (7) where agreement feature also figures.

inflection is also supposed to bear out the grammaticalization of Tense, because the syntactic operations within Tense projection can be postulated to lead to the point where tense inflection is realized on verbs, and therefore the grammatical chain of Tense can be formally substantiated. In this connection, Chomsky (2002: 33) suggests that the move of English verbs to the “inflectional system” (presumably composed by functional categories) before reaching surface is motivated by the need for them to carry tense affix that lacks lexical independence. In other words, the hypothetical movement is validated in that it is deemed as a necessary operation that makes possible the realization of tense morpheme on verbs. Hence, visible tense inflection largely represents the theoretical substance of the underlying Tense projection. However, it has never been clarified in generative literature on what ground it is safe to deduce Tense without tense (to be fair, as is said, we could not know whether it is safe to deduce Tense from tense either), suppose we did know how to properly understand the term *tense*.

As is said, internally, the purported UG category Tense must exhibit certain ‘sameness’ among its alleged members, a minimal requirement for Tense to be essentially analysable, and it must prove to be the innate quality of it. Even with the demand of innateness put aside, the sameness of Tense, some syntactic quality(ies) that can be stably used to describe Tense or its members, is extremely difficult to obtain. In practice, the formation of Tense is not bound by anything, not having a conceptual core that anchors it or limits how far it can be conceptually extensible. Inevitably, Tense is not unlike the term *game* in that one will never be able to ascertain what legitimately licences the application of it. This holds true for either a local Tense or a global one.

In the case of the English Tense, often taken for granted as a theoretical reference in UG, there is no natural uniformity in the making of it that we can consider as Tenseness, and as far as the involved empirical considerations can support, labelling tense morphemes, modals (sometimes including the auxiliaries, see Radford 2009) and the infinitival particle *to* as Tense heads (Adger 2002: Chapter 5; Carnie 2002: 45) does not seem credible. There is no coherent reasoning in naming a Tense head: no conceptual core of it is specified so that it is evident how a Tense head is deduced, and as a result, the conceptual boundary of Tense is also indeterminate. As I will show below, Tense members are gathered along discrete paths of random connections. In that, it is impossible to outline the conditions by which they can be seen as structurally equivalents, i.e., there is no syntactic environment that allows them to substitute one another, which clearly is the only way to illustrate that they are of the same syntactic nature. Moreover, the connections due to which the aforesaid linguistic items are put on a par as Tense heads in generative literature are not internally consistent or externally private. Clearly, these are signs of a term of family resemblance, which means that the Tense construction does not conform to the essentialist quest of UG.

It is said that both modals and the infinitive particle in English have something to do with tense marking, but in an asymmetrical way, and this is often the overall background against which the Tense triangle is sketched out (see Wekker and Haegeman 1985: 46-47; Uriagereka 1998: 111). But eventually, all that can be set out from that is only some random statements where modals and the infinitive particle are mentioned in liaison with tense morphemes, but how these statements necessarily reveal the nature of them is not clear. Specifically, the connection of modals with tense morphemes is that modals inflect for tense themselves, see (13a), which is often used to show that modals stand for a tense nature (tense morphemes on modals have different semantic implications from those on regular verbs), but it is not a consistent principle in practice for determining the syntactic nature of a position – sometimes, the syntactic nature of a position is just a semantic label of the lexical items that occupy it (see Cinque 1999, 2000);

the connection of the infinitival particle with tense morphemes is that it does not inflect for tense: a tensed verb phrase cannot appear in an infinitival phrase, see (14a), which some claim is the clue that the infinitival phrase is the opposite of a tensed structure, including modals (see Adger 2002; Chomsky 1977; Radford 1988). In generative literature, the foregoing statements are expected to point to certain Tense-relatedness of both modals and the infinitive particle, and therefore under ‘Tenseness’, modals and the infinitive particle *to* are even said to be in ‘complementary distribution’ in English (Adger 2002: 130). At first glance, that is supported by some empirical considerations about what can or cannot follow modals or the infinitive particle in English: mainly, the mutual repulsive effect demonstrated in (15) (see also Chomsky 1977: 87; Radford 1988: 304), that is, modals and the infinitive particle cannot be adjacent to each other, and they both accept a so-called bare verb (see 13), rather than a tense verb (see 14a and 14b) (see Adger 2002: 128, 130). Before arguing against the claim of modals and the infinitive particle being in complementary distribution, we may first examine the internal organization of Tense.

- 13. a. Lily **finished/could finish/can finish** her work in time.
- b. Lily wanted **to finish** her work in time.
- 14. a. *Lily wanted **to finished** her work in time.
- b. *Lily **can/could finished** her work in time.
- c. *Lily insisted **on finished** her work in time.
- 15. a. *Lily **could to finish** her work in time.
- b. *Lily wanted **to can finish** her work in time.

There are difficulties in forming a clear, unified notion of Tenseness. If the infinitive particle is held to be opposite to overt tense morphemes due to what is shown in (14a), i.e., an infinitival phrase cannot contain a tensed verb (note that many other linguistic items do not precede tense verbs, see 14c as an example), one needs to put up an internal hierarchy within the category of Tense, because by that logic, modals are closer to tense morphemes than the infinitive particle due to the fact that they inflect for tense themselves, see (13a); but it would be incongruent to account for how modals stand in relation to tense morphemes since modals do not precede tensed verbs either (see 14b), yet meanwhile inflecting for tense. Often, to enhance the connection of the infinitive particle *to* with tense morphemes, the former is said to covertly mark a non-finite, abstract, or unspecified tense (see Haegeman 2006: 181; Radford 2009: 5; Radford et. al 2009: 251) for it has contextually adjustable temporal reading but no formal signal of it, see (17). However, as shown in (16) below, if the infinitival particle is opposite to tense morpheme, an action noun or a gerund are with it in this regard (see Brown and Miller 2016; Burton-Roberts 2016 for the so-called non-finite clauses). There is no reason to object that the way how the action noun in (16a) and the gerund in (16c) are temporally interpreted is different from that about the infinitive particle in (17) (see also Stowell 1982).

- 16. a. Lily can imagine her boyfriend’s furious **reaction** to the election result.
- b. Lily can imagine her boyfriend **will** furiously **react** to the election result.
- c. Lily can imagine her boyfriend furiously **reacting** to the election result.
- 17. a. I believed Lily **to** finish her work in time.
- b. Lily wanted **to** finish her work in time.

Vitaly, the purported complementary distribution of modals and the infinitive particle is not supported by empirical demonstrations based on modals and the infinitive particle taking up the same syntactic position. That is, (13) and (14) are intended to show a common property of

Tense members, i.e., what can or cannot follow a Tense member, and thus it must be premised on the clear uniformity of Tense. Therefore, what is missing is exactly the evidence of modals and the infinitive particle being structural equivalents. Likewise, (15) draws on a general idea that similar things are repulsive of one another. But not co-occurring may well be evidence of difference, rather than sameness, between linguistic items. For instance, without showing how a preposition occupies the same position as a modal or the infinitive particle does respectively, (18) and (19) might demonstrate that the preposition *in* is in ‘complementary distribution’ with modals and the infinitive particle as it does not co-occur with either of them — one can even argue that prepositions are with an abstract tense value as well. But prepositions are never considered as Tense heads. Again, the problem is that the connection is not presented on the basis of structural equivalence.

- 18. a. *Lily is **in can** the house.
- b. *Lily **can in** the house.
- 19. a. *Lily wants **in to** be the house.
- b. *Lily wants **to in** the house.

To clarify, members of one uniform syntactic category do not co-occur on the premise that they can freely substitute each other with an unvarying syntactic scale, since not co-occurring is not a sufficient condition for sameness. For instance, in (20c), the modals *can* and *must* cannot be adjacent to each other (according to Adger [2002: 126], modal adjacency is acceptable in certain English dialects), but (20c) does not suffice to justify that the two items *can* and *must* belong to the same category unless it is in conjunction with (20a) and (20b), which points out that *can* and *must* are structural equivalents, and it is vital to the constitution of complementary distribution.

- 20. a. Lily **can** finish her work.
- b. Lily **must** finish her work.
- c. *Lily **can must / must can** finish her work.

Then importantly, is there structural equivalence between modals and the infinitive particle *to*? Clearly, empirical demonstrations only suggest a negative answer to that question³, see (21) and (22), because modals and the infinitive particle play distinct roles in the syntactic combinatoriality of a sentence.

- 21. a. Lily wanted **to** finish her work in time.
- b. *Lily wanted **can** finish her work in time.
- 22. a. **To** leave Jay, Lily **must** be brave.
- b. ***Must**/***Will**/***Can** leave Jay, Lily **to** be brave.

It seems that Radford (2004: 51; 2009: 6) and Radford et. al (2009: 250) realize the lack of a statement about the overall comparability among Tense members, and they attempt to point out certain structural correspondence between that the infinitive particle *to* and a typical auxiliary (mainly a modal) based on what is shown in (23) where the bracketed parts are equivalent. However, the equivalence between the two bracketed parts in (23a) and (23b) resides in their entirety for being, to use the generative term, the complement of the verb *believed*. It does not

³ Both Radford (1988: 304), credited to Bresnan (1976: 17), and Haegeman (2006: 183) mention the point that VP ellipsis is possible after modals and the infinitive particle, but not after lexical verbs. However, this similarity cannot be shown to be a Tense property.

indicate that an embedded clause and an infinitival structure must constitute a one-to-one correspondence lexically. (16), repeated below in (24), shows that in complementing the verb *imagine*, an embedded clause as a whole is equal to a simple noun phrase or a gerund phrase, but it is pointless to equate the modal *will* of (24b) with any single element of (24a) or (24c). (23) does not prove the structural equivalence between a modal and the infinitive particle, because the substitution is not specifically narrowed down to these two elements. In fact, as we can see in (25), even in complement structures, the infinitive particle *to* and modals cannot substitute each other (the so-called complementizer *that* is often conveniently omitted in discussing the sameness of the infinitive particle *to* and modals). That is because a structure such as that in (26a) is equivalent in its entirety to (26b), but not (26c). One consequence of conflating all (26a), (26b), and (26c) (as CP projection) is that a sentence has no significance as the largest syntactic unit in language (see Chapter Five).

23. a. I believed [Lily **could** finish her work in time].
 b. I believed [Lily **to** finish her work in time].
24. a. Lily can imagine her boyfriend's furious **reaction** to the election result.
 b. Lily can imagine her boyfriend **will** furiously **react** to the election result.
 c. Lily can imagine her boyfriend furiously **reacting** to the election result.
25. Jay expects that Lily **will**/***to** move to Beijing.
26. a. (...) Lily to move to Beijing (...)
 b. (...) that Lily moves/will (can, must, ...) move to Beijing (...)
 c. Lily will move to Beijing.

In a nutshell, the connections of the infinitive particle and modals with tense morphemes are not sorted out in a way that can lead to a definable category with rigid boundary, because among them there is no uniform property in any sense. To repeat, the minimal requirement for Tense to be a legitimate proposal for a universal category is that it shows a definable sameness that grants the application of it. It seems that UG proponents only randomly pose statements as sameness or difference to either argue for or against a particular point without an overall syntactic system in mind. At this point, it is fair to say that the combination of modals and the infinitive particle under Tense is a preconceived idea, with much evidence against it deliberately overlooked. The putative universality of Tense is baseless: no common property can be set out among the so-called Tense heads, only random connections, none of which is guaranteed to point to what is supposed to be the natural Tenseness.

4.5. The theoretical transition of Tense

4.5.1. English: the template

At this point, it is beneficial to observe the theoretical transition of what is called Tense from English to Arabic and Chinese, that is, basically from the center of UG to its margin, which is full of arbitrary decisions about what in one language might be the same as in another and what might be different.⁴ Since the theorization of Tense in English is mostly laid out above, I shall

⁴ Conventionally, generative grammar bears out the presence of categories primarily on a position-driven basis, that is, as long as a position is available for lexical (or morphological) assertion, its presence must be preserved in any case throughout. Therefore, the (b) structures in (27), (28) and (29) below are said to have missing (empty) categories, marked by \emptyset . Clearly, the simple guideline behind this practice is that a short linguistic unit must refer to a long one for a full structural layout, which is certainly problematic, especially cross-linguistically. That is because we shall never be able to judge when a sentence is fully syntactically represented in its derivation. For instance, even though in English (27a) is somewhat a fuller structure than (27b), how can one ascertain that (27a) does not include empty category(ies)? A more richly marked sentence can always be

only set down some key points of it in what follows with reference to Adger's (2002) analysis, for it is basically a summary of what has been widely accepted for Tense in generative literature. (Note that there is not a completely unified account of Tense in English and hardly will be one, let alone in Arabic or Chinese.) In practice, Tense supporters in both Chinese and Arabic have no choice but to adopt a strategy based on **arbitrary resemblance**, for they must show that their versions of Tense are somehow comparable to a 'verified' version, mostly that of English, which is the point of the presumption of Tense as a language-independent conception. For that, Tense supporters must conduct their empirical considerations deliberately towards a pre-set target, via whatever is reminiscent of a more 'obvious' Tense, yet without attending to the real cause(s) — if there is any — by which Tense arises.

To compare, I will briefly present below some Tense accounts for Arabic and Chinese, due to their being relatively complete in argumentation and representative of the non-essentialist methodology that I take issue with. But emphatically, my focus is not to judge a Tense account as proper or improper by examining whether it conforms to certain practical assumptions of generative grammar, which are not derived from innateness in the first place, neither is it to argue for a more precise description of the empirical demonstrations involved in a Tense account, but only to pinpoint the unprincipled statements of connections and disconnections among languages that Tense supporters make use of to imply unwarranted universality of Tense. Thus, I do not aspire to be comprehensive in discussing every possible Tense account that has been composed in Arabic or Chinese, but I wish to underline some common methodological pitfalls that are unavoidable no matter what empirical ground one attempts to tie Tense to, because Tense is not 'originally' defined.

The comparison is twofold. First, all Tense accounts are methodologically unifiable. Absorbing UG's theoretical tools of convenience, as is outlined previously, a Tense account of Arabic or Chinese is analogous to that of English in being manipulations of similarity and difference in a random, non-systematic way, void of any reasoning based on necessity. Secondly, however, Tense accounts cannot be essentially unifiable, in the sense that all are portraying the same thing. It is impossible to finally ground the category called Tense as a universal, for Tense supporters embrace the freedom of deciding what the principle(s) is/are for Tense and the what the parameters are for it. Accordingly, in both Arabic and Chinese, the composition of a

brought to light, since compared to other Western language, English is relatively scarce in morphology. Nonetheless, even if one seeks out the world's most complex language in morphology, it is still far from safe to claim that it is the fullest syntactic representation, for a certain category is likely to remain constantly empty, in which case it could never be proposed into the universal inventory of categories. Thus, it is vital that we put a limit on the maximal extension of a sentence and define the completeness of derivation.

27. a. Cars **can** run fast.
b. Cars (\emptyset) run fast.
28. a. We hope **for** Lily to win.
b. We expect (\emptyset) Lily to win.
29. a. ... **that** Lily won.
b. (\emptyset) Lily won.

Meanwhile, a rather odd phenomenon concerning the hypothesis of empty categories is that English is usually taken to be a self-sufficient language, not subject to external references for its derivation, in that, empty categories are posited by virtue of structural comparison within itself, like that in (27), (28) or (29). But a language like Arabic or Chinese must face external pressure in analyzing its syntactic constituents, only to maintain the grammatical integrity of another language. The inequity is a clear sign of the utter arbitrariness of the referencing system that cannot be forsaken in generative grammar because without it the linguistic identification would not be initiated. Obviously, attempts to establish Tense in Arabic and Chinese count as illustration of that.

syntactic account that must refer to what has been concluded with Western languages mainly consists of two processes. One is to present some empirical demonstration that can be reminiscent of a point mentioned in the English account of that syntactic structure, to suggest its existence. The other is to continue to lengthen the account by adding to it whatever can be conducted to relate to this syntactic structure in question, but there is no principle whatsoever about how different a structure it can be turned into from the ‘original’ one.

Adger (2002) establishes the node Tense as one core functional category (i.e., it does not assign the so-called θ -roles) that consists in the overall projection of a sentence (prior to his discussion of CP, Adger provisionally maintains that TP is the *head* of a sentence, which is later replaced by CP). At the onset, Adger defines Tense as ‘the category that hosts the tense features for the whole sentence’ (Adger 2002: 124), but he does not specify whether this concerns only English or all languages. Though, certainly, his empirical demonstrations for Tense are from English.

Adger initiates the establishment of Tense by finding the syntactic space for it, which, as said above, is the position of models. But oddly though, this position is labelled as Tense, instead of Model (note that DP or CP are labelled for what their lexical members do). See the sentences below in (30-33) that all contain models (taken from Adger [2002: 126]).

30. Gilgamesh **may** seek Ishtar.
31. Gilgamesh **can** seek Ishtar.
32. Gilgamesh **will** seek Ishtar.
33. Gilgamesh **should** seek Ishtar.

Adger suggests that the constituency of a model be accounted for in terms of its role in building up a sentence. In that, two points must be mentioned: one is that a model occurs before a verb, not after it (see 34), and one is that it is outside of the constituent headed by a verb (see 35).

34. *Gilgamesh seek may Ishtar.
35. What Gilgamesh may do is [seek Ishtar].

As such, Adger points out that the position that holds models needs to be identified on its own. According to Adger, the phenomenon Sequence of Tense shows that ‘modals split **syntactically** [emphasis mine] into present and past forms, and that this is a process which is independent of their interpretation’ (Adger 2002: 128; consider the contrast between 37 and 38). Specifically, as the following sentences in (36-38) suggest, when the matrix clause contains a past verb, then the embedded one must contain one as well, which is not conditioned on the ordinary sense of pastness (as defined by, for example, the relative positions of the so-called event time and speech time). In short, the transition from (36) to (37) is syntactic in nature because the past verbs in the embedded clauses in (37) do not in fact denote the so-called pastness.

36. I believe [she may be pregnant]/[she can do that]/[she will go].
37. I believed [she might be pregnant]/[she could do that]/[she would go].
38. * I believed [she may be pregnant]/[she can do that]/[she will go].

In this regard, however, both Klein (1994) and Ogihara & Sharvit (2012) mention that a non-past verb embedded in a past sentence is possible. See the following sentence (from Ogihara and Sharvit 2012: 638). In the case of (39), Sequence of Tense is not a syntactic requirement.

39. Joseph found out that Mary loves him.

Moreover, the following contrast in the use of verb tenses in fact makes a difference in temporal interpretation. According to Sharvit (2003: 669-670), in (41), the time of *Mary being pregnant* contains not only *John's believing* but also the speech time, and the latter is unspecified in (40).

40. John believed that Mary was pregnant.

41. John believed that Mary is pregnant.

For Adger, to augment the syntactic nature of models, he claims, 'when there is a modal to bear the tense features of the sentence, the main verb remains uninflected for tense' (Adger 2002: 128), see (42) below. By that, Adger intends to show that tense morpheme is more closely tied to modals than to regular verbs.

42. *Gilgamesh might loved Ishtar.

Finally, Adger completes his justification for calling the position which modals occupy Tense, and based on the following demonstrations, he includes the emphatic *do* and the infinitival *to* in this category as well (see Adger 2002: 129-131).

43. Enkidu did free animals.

44. Enkidu does free animals.

45. *Enkidu do freed animals.

46. Enkidu said he freed the animals and [free the animals] he did.

47. She tried [to leave].

48. *She tried [to left].

49. *She tried [to can leave].

(43-46) prove that the emphatic *do* behaves syntactically in parallel to models, and (47-49) are intended to show that the infinitive particle *to* is related to tense by not inflecting for tense and it is 'complementary' to models. The syntactic **nature** of Tense in these elements is not clarified: all Adger informs is that these elements have connections to tense morphemes (but not in the same manner). Even more crucially, as is discussed in the previous section, there is no syntactic environment where these elements can alternate, which means that it is in fact not the same syntactic positions involved in the empirical demonstrations serving to establish Tense (as is shown in 25 above).

Clearly, Adger's establishment of Tense mostly draws upon specific phenomena from English, and how would this safely entail any cross-linguistic implication(s)? Adger automatically takes the accountability of Tense in English on a universal level, however. In that, the applicability of it elsewhere is whatever similarity (i.e., specific empirical demonstration) can relate to that in English. Once that similarity is flagged, the term can be confirmed in its use, and the new properties of it can be considered 'predictions'. Thus, Adger cites from Mauritian Creole and Sranan as cross-linguistic evidence, to show that his account of Tense in English has 'predicted' the possibility of marking tense outside the verbal construction. See the following examples in (50) – (53). Clearly, he presupposes the two elements *ti* in (51) and *ben* in (53), glossed both as *past*, to be Tense elements that correspond exactly to what he constructs rather painstakingly out of English empirical considerations. If Tense could be identified with such easiness in Mauritian Creole and Sranan, I wonder why Adger would go through that much of trouble to convince us of the presence of it in English in the first place.

50. Mo mahze
I eat
'I eat'.
51. Mo ti mahze
I past eat
'I ate.'
52. Mi waka
I walk
'I walk (habitually)'.
53. Mi ben waka
I past walk
'I walked'.

Again, using language-specific data to make cross-linguistic conclusions is one major problem that Haspelmath criticizes about generative grammar. But it is still dominantly the underlying spirit of many studies in the generative literature, as pointed out by Haspelmath (2021c: 2).

The reason why I am emphasizing this here is that in recent decades, there has been a strong tendency to base general claims on the study of particular languages, or on a small non-representative set of languages, rather than on language universals. For example, Adger et al. (2009) mostly study Kiowa, and Pesetsky (2013) mostly studies Russian, but works like these of course make very general claims. The methodological background of this approach is not as naive as Antoine de Rivarol's claims about the universality of French, but I will argue that many linguists have not considered all the implications when they claim that their study of one or a few languages can make a contribution to general linguistics.

In order to provide a clearer reference for comparison, I will summarize Adger's establishment of Tense with the following key points.

54. The position that modals occupy, between the subject and the verbal cluster, hosts the categorial feature [tense] in the functional domain (as opposed to the lexical domain).
55. For reasons listed above, modals (including the emphatic *do*) are said to be Tense heads, as well as the infinitive particle *to*.
56. Apart from lexical heads, there must be a null head of Tense, since the position of modals may be unoccupied, and it is responsible for the realization of tense morphemes on regular verbs.
57. Verb dependency: the empty Tense head checks and values the uninterpretable tense feature on verbs, whereby tense morphemes are spelt out.
58. The morphological opposition of tense amounts to a binary split of tense values: [past] and [present], which are both regarded as semantic primitives, and a tense value, attached to the categorial feature [tense], is schematically denoted as [tense: ±past].
59. Subject dependency: to derive the right order, it must be hypothesized that the subject is moved up to the specifier position of Tense, for it must receive its theta-role within the verbal cluster, and Tense, as a functional category, assigns to it the nominative case.

4.5.2. Arabic

The analysis of Aoun et al. (2010) recognizes Tense via the resemblance of Arabic to English in that both marks subjects with the so-called nominative case, as is shown in (60) and (61)

either cause a movement or not. Aoun et al. and Benmamoun propose that [+past] and [-past] (or [+present]) share the selectional feature [+D] (allegedly a categorial feature of determiners whose complements are said to be nouns, see Adger 2002: chpt. 7) in line with the subject dependency in (59), and [+past] differs from [-past] in that the former has an additional selectional feature [+V] but the latter does not, i.e., the association of [+past] and [+V] draws on verb dependency (see 59), but the same does not apply to [+present]. Hence, [+present, +D] vs. [+past, +D, +V]⁶.

Evidently, the theoretical theme of this Tense account in Arabic, as is outlined above, is significantly changed, and it is unknown what guarantees that these changes are not relevant to affecting the essence of the syntactic construction so that it is not Tense anymore. I must emphasize that I do not assume any of the points mentioned in (54) – (59) is a principle or a parameter of Tense, but if one does assume that the English Tense is a genuine universal category, just as the Tense supporters in Arabic or Chinese must do, the reproductions of it must remain the same thing, and what can be reserved from the ‘original’ Tense account and what can be changed from it must be set forth in a principled manner. A characteristic in the composition of Tense accounts in either Arabic or Chinese is that, with Tense’s presence assumed, its functions or properties ‘testified’ elsewhere are only uncritically copied or altered conveniently when needed. Crucially, throughout the construction of Tense, we are not informed of the necessity of the existence of Tense. It must be noted that without a Tense posed for the derivation of Arabic sentences, one would not need to particularly set out the non-parallelism between (62a) and (62b) only to enrich the account of a unit whose reality cannot be confirmed. Since we always have the freedom to devise feature content, we can pose whatever node that we deem appropriate and attribute to it whatever featural composition that

-
64. a. Past: T[+past, φ] ... Asp ... V[$u\varphi$]
 b. Present: T[-past] ... Asp[φ] ... V[$u\varphi$]

In that, [φ] may be on either T[+past] or Asp (in non-past reading) to interact with [$u\varphi$] on V, and therefore, by the process of *checking*, in past reading, V moves to T via Asp, and in non-past reading, it only moves to Asp.

⁶ Benmamoun (2000: 56) supposes that the syntactic division of “present tense” and “past tense” can explain the grammatical contrast in (65), which shows that the negative *laysa* requires its co-occurring verbs to be in imperfective form but not perfective form, and the ungrammaticality of (65b) is said to lie in that the sentential negative *layse* blocks the putative movement of the perfective verb to T, resulting in unchecked selectional feature, due to “minimality” (i.e., the verb cannot move across the morphologically independent negative), assuming that Negative hosts a projection below T and above V.

65. a. *laysa* *t- $\mathit{\text{ta}}\mathit{\text{al}}\mathit{\text{i}}\mathit{\text{b}}\mathit{\text{u}}$* *yaktubu*.
 NEG.3SM DEF-student write.IMP.3SM
 ‘The student does not write.’
 b. **laysa* *t- $\mathit{\text{ta}}\mathit{\text{al}}\mathit{\text{i}}\mathit{\text{b}}\mathit{\text{u}}$* *kataba*.
 NEG.3SM DEF-student write.PRF.3SM (Benmamoun 2000: 4, 5)

Importantly, the contrast between (66a) and (67b) in grammaticality does not come down to structure immediately. This is not unlike, to take examples from English, the contrast between *raise* and *rise* in forming passive, or the contrast between *dance* and *arrive* in taking extensible temporal adverbials.

66. a. The price is raised.
 b. *The price is risen.
 67. a. He danced for hours.
 b. *He arrived for hours.

The ungrammaticality of (66b) or (67b) does not need to point to anything structural but, to borrow the term from generative grammar, the subcategorization of verbs based on features of lexical meaning: transitive vs. intransitive in (66) and durable vs. instantaneous in (67), and the ungrammaticality is identifiable only on the basis that *risen* and *arrived* occupies the same syntactic position as *raised* and *danced* does respectively. Hence, whether to co-occur with *laysa* or not cannot be taken to be a structural test.

is needed for deriving the correct form, and that does not need to be Tense. In other words, the debate about the existence of Tense will never be truly settled. To emphasize, it is not my major concern whether this structural parallelism is a genuine phenomenon or not (see Benmamoun 2000), but as an effort to bear out the language-independent nature of Tense, any account of it is obliged to guarantee that any empirical consideration associated with Tense is truly part of its definition.

Another point worth mentioning is that Benmamoun (2000) defends this non-parallelism by claiming that in the verbless sentences of Arabic, whose predicates are nominal or prepositional, the past reading often requires the presence of the perfective copula⁷ *kaana* ‘be’, as conjugated properly (see 68a), but the present reading does not require that of the imperfective copula (see 68b)⁸. Thus, Benmamoun concludes that the Tense head position **must** be lexically occupied in (68b) but not in (68a). In line with the common practice in generative grammar, this non-parallelism hypothesis may appear rather odd. On one hand, Benmamoun agrees that (68a) contains a null copula and (68b) an overt one, in which case (68) is analogous to (69) – (71) below. On the other hand, however, in generative grammar, the alternation between an overt element and a covert one is ultimately deemed as a preliminary difference in the phase of *selection*, without posing any derivational difference like that posed by Benmamoun. This means, (a) sentences and (b) sentences in (69) – (71) have identical derivation path, except that an overt item would correspond to a covert item in the derivation to maintain parallelism – null items are hypothesized to prevent structural non-parallelism in generative grammar. In view of this, if (68a) has a null element, it would be present to ensure that (68a) and (68b) constitute a lexical one-to-one correspondence in derivation. Therefore, the lexical element *kaanat* ‘be’ in (68b), whatever position it is said to occupy, is exactly in parallel with the null copula in (68a) as a result of preliminary selection, however that might be carried out, and the parallelism does not need to be undermined when an overt element is selected instead of a null one. Again, I do not disapprove the Tense account of Benmamoun due to this inconformity but the arbitrariness in choosing to agree or disagree with existing assumptions in generative grammar. Also, I am not interested in arguing for a more concrete conclusion based on the comparison in (68), but the structural non-parallelism is clearly far-fetched, only to add some ‘substance’ to the Arabic Tense.

68. a. *faatīma* *muṣallimatun.*
 Fatima teacher
 ‘*Fatima is a teacher.*’
- b. *kaanat* *faatīma* *muṣallimatan.*
 be.PRF.3SF Fatima teacher
 ‘*Fatima was a teacher.*’
69. a. Cars **can** run fast.
 b. Cars (**∅**) run fast.
70. a. We hope for Lily to win.
 b. We expect (**∅**) Lily to win.
71. a. ... that Lily won.
 b. (**∅**) Lily won.

4.5.3. Chinese

⁷ Jaber (2014) reports that there are cases where the addition of the imperfective copula is obligatory in the so-called present reading.

⁸ In fact, (68a) may adapt to a past context without the addition of the perfective copula *kaana*, not unlike (68b).

Apparently, what is said above about the construction of an Arabic Tense can also be said about that of a Chinese Tense on a methodological level. Mainly, without articulating the necessity of Tense, whether having it or not, Chinese sentence derivation will always be accountable with the theoretical power of generative grammar that allows one to freely decide what identity shows what property (see T. Lin 2012 for a depiction of Chinese sentence derivation with and without a Tense node). As with what follows, I would like to stress the problem of baselessly granting universality to descriptive labels.

To obtain Tense in Chinese, Lin (2011) first strenuously puts forward a Chinese version of the finite vs. non-finite contrast, which is arguably an even vaguer notion than Tense (see Adger 2010; Klein 2018). Clearly, inspired by what is said about the English Tense in (72) and (75), Lin sees the finite vs. non-finite contrast as a hint of Tense presence, which is certainly still an unwarranted connection but for him a possibility (like what is said about subject dependency, subsuming the infinitive particle *to* under Tense is posterior to the establishment of Tense in English, and again it means that the infinitive particle is not factored into the decision about the presence of Tense in English). As suggested above, Lin's Tense account leads to a crisis of infinite definition, that is, to prove Tense, Lin proves the finite vs. non-finite contrast in Chinese, but to prove the finite vs. non-finite contrast, Lin must prove whatever he believes is the essence for that, and this goes on and on. Lin only arbitrarily chooses to believe that the argument for Tense can be appropriately established by installing the finite vs. non-finite contrast in Chinese. However, in the end, none of the terms along this reasoning line is obtained with necessity, and it is obscure how the application of some unfamiliar terms to Chinese could be deemed as any kind of achievement, which is at the cost of the theoretical transparency. The presence of the finite vs. non-finite contrast, as well as that of Tense, seems to be preconceived in Lin's account, and he just makes use of whatever empirical demonstrations that are available to proceed toward them.

72. Zhangsan keneng [qu Taipei le]
 Zhangsan be-likely-to go Taipei PRF
 'Zhangsan may have gone to Taipei.'
73. *Zhangsan [[keneng qu Taipei] le]
 Zhangsan be-likely-to go Taipei PRF
 Intended: *'It has become possible that Zhangsan goes to Taipei.'*
74. Zhangsan [[neng qu Taipei] le]
 Zhangsan be-able-to go Taipei prf
 'It has become the case that Zhangsan is able to go to Taipei.'
75. *Zhangsan neng [qu Taipei le]
 Zhangsan be-able-to go Taipei PRF
 Intended: *'Zhangsan is able to have gone to Taipei.'*

Specifically, Lin believes that the finite vs. non-finite contrast should be a legitimate domain⁹ in Chinese grammar as it might be linked with a division about whether 'modals' outscope the sentence-final 'perfective particle' *le* in interpretation in Chinese, as shown in (72) – (75) above (see also Aoun and Li 1989, 1993). Lin says, the division reflects modals' opposite selectional properties for their 'complements', and he ties it to the opposition in finiteness on the clausal

⁹ Within the generative framework, there are some debates about the existence of the finite vs. non-finite contrast in Chinese (see Grano 2017), but as is stressed repeatedly in this thesis, no argument, either for or against that, is based on knowing what the real finite vs. non-finite contrast is, but only theoretical considerations.

level: in Chinese, finiteness and non-finiteness correspond respectively to the presence and the absence of the perfective particle *le* that is outside the scope of a modal. That is, *keneng* in (72) selects a finite clause since its scope includes that of the sentence-final *le* and *neng* in (74) a non-finite one with the reverse scopal relation detected. Primarily, it is mysterious how the opposition of finiteness in Chinese hinges on the so-called perfective particle *le* and how it is safely the same phenomenon in nature as that involving the infinitive particle *to* in English. The connection between English and Chinese, concerning the notion of finiteness, does not help define it in any useful way but only increases its vagueness (there could be more conceptual grounds that enables one to claim the existence of the finite vs. non-finite contrast).

One characteristic in Lin's construction of the finite vs. non-finite contrast in Chinese is that without justification, many identities, important in Lin's argument, are simply assumed and automatically considered universal. In that, labels that are quoted above, such as *modal*, *clause*, and *perfective*, are applied on inexplicable grounds, and this is problematic for one cannot use unproven universality to prove another universality. That is, Lin must guarantee that any single label used to connect two languages, in the hope of introducing another putative universal label, is identical in essence not merely in name. Apparently, the recognition of *modal* is the starting point of Lin's argument, and Lin applies it implicitly on a semantic basis: any word expressing modality (however one understands this term) is a modal, the same kind of words invoked in the Tense account in English (by which standard *maybe* can be said to be a modal), as in (54) and (55). Pan and Paul (2014) argue that *keneng* is an adverb (see also Grano 2017), and in that case, the finite vs. non-finite contrast would not be necessary at all (because obviously *maybe* and *may* 'select' different 'complements'). To clarify, I do not necessarily favor this view on a universal level, but this is a possibility that Lin cannot neglect since he does not truly spell out what modals are as a universal (I call Lin's effort in proving Tense strenuous partly because in line with his reasoning, modals themselves are hint of Tense, see 54, and thus he could just say that Chinese has Tense for having modals, see Stowell 2004).

Also, as has been seen with Arabic, once a label is used, Lin takes it for granted that he should be able to appeal to a function that has been associated with it elsewhere or to invent something new for it, in line with his theoretical needs. For instance, upon labelling the sentence-final *le* as marking the Chinese perfective aspect, Lin immediately associates it with the English perfect aspect (see Xiao and McEnery 2014 for a comparison) and applies what can be linked with the English perfect to the Chinese *le*, and meanwhile Lin entitles himself to being innovative where necessary. As Lin equates a finite clause in Chinese with what he calls a perfective clause, he introduces Tense with the assumption that modals' complements are TPs in Chinese (note that as in 96, modals are considered Tense heads in English and their complements cannot be TPs, and clearly Lin assumes that to be able to mention Tense). Also, Lin argues that the expression of the perfective aspect requires a reference time, an idea that he links to Reichenbach (1947), and that in English, the tense morphemes on the perfective auxiliary reflect the reference time exactly. Lin defends his statements with the following illustration in (117) and (118) (see Grano 2017 for a rebuttal; again, my focus is on the arbitrary connections and disconnections between English and Chinese that Lin makes only to advance his argument).

76. John *has* arrived. Tense = present; reference time = present

77. John *had* arrived. Tense = past; reference time = past

Given what is aforesaid, Lin assigns the Chinese Tense with the function of either providing or not providing the reference time for the perfective aspect which is assumed to necessitate it. This is Lin's contribution to enlarging Tense manifestations. Specifically, when Tense provides

a reference time, Lin says, a sentence is ‘valued’, in that, the perfective aspect is semantically complete and the occurrence of the sentence-final particle *le* is allowed, rendering a sentence as finite; if the perfective aspect does not receive a reference time **necessarily** from Tense, however, a sentence is non-finite with the absence of the sentence-final particle *le*. Hence, the Chinese Tense according to Lin’s account also has a completely different theme from English or Arabic, in that, it is mainly needed to express the perfective aspect – note that Lin indicates that the reference time is essential only for the interpretation of the perfective aspect. It is hardly convincing that the three syntactic accounts that I have demonstrated herein are centred on one syntactic unit.

What is outlined above is the syntactic inexplicability of Tense locally and cross-linguistically. In addition to that, there is some uncertainty about the interpretation of the supposedly binary tense valuing (i.e., past vs. non-past) in English, as is stated in (58) above. Clearly, this binary tense valuing serves as a meaningful ground for the formal alternation in English. But this is a greatly idealized or simplified process in generative grammar. That is because, in accordance with the functional design of generative grammar (see below), the syntactic component must be able to pick out pastness and non-pastness so that they can be interpreted by the semantic component. However, it is not known how objectively (or syntactically) defining pastness and non-pastness can be accomplished. Furthermore, since Tense account in neither Chinese nor Arabic is based on the formal alternation, tense valuing becomes completely opaque in them. Overall, this is an issue of unjustifiably using a concept that can only be loosely understood in a theoretical model that requires rigidity.

4.6.A ‘relaxed’ tense and a (supposedly) ‘tense’ Tense

To repeat, the grammatical tradition *tense* is the original motivation of the significant syntactic category Tense. Under Universal Grammar, it is reinforced in syntax to become a derivational pivot bearing much of the well-formedness of sentence (Chomsky 1986; Radford 1988; Pollock 1989; Adger 2003; Radford 2004; 2009; Radford *et al.* 2009, among many others; see also Chapter Three) – a functional category differentiated from a contentive one (Chomsky 1995: 6). Commonly, generative linguists think it necessary to syntactically account for tense because it has salient manifestations. As complicated as it may be, it is nothing but a contingent marking tradition observable in some languages (who could guarantee that *tense* must be actual in every possible world?). And what else? What about it suggests the necessity of a ‘deep’ representation? If tense is contingent, so must Tense. A general problem in generative grammar is thus that it is indeterminate what on the surface must be registered underlyingly and how. The line between descriptive tradition and truthful reflection of the deep structure is never clearly drawn. Other problems ensue when the loosely understood concept *tense* is entered into the syntactic domain in generative grammar where its boundaries need to be rigid.

4.6.1. Descriptive tradition or mental necessity?

Basically, there is not an unequivocal definition of tense, nor that of tenselessness. Famously, Comrie (1986: 9) thinks that it is appropriate to define tense as a grammatical means of locating events on the time axis. This might not be improper, but one important point to note is that this is a *post hoc* description, rather than a diagnosis. Specifically, as Comrie suggested tense to be grammaticalized location of time, he must have based that on some cases of languages in which the presence of tense would be minimally controversial. Therefore, this definition serves the purpose of guaranteeing that the tenses that we have already been familiar with do not fall out of the box; but with that, one shall not be able to predict a tense in a language which does not

incorporate tense as a grammatical tradition. In practice, the ground for defending tense is only the cases where it does exist as an ‘authentic’ grammatical tradition. There can be two ways of defending tense based on that. First, imaginably, there might be objections that certain means of locating events are not exactly **grammatical** ones, for that must involve, say, morphological alternation of verbs. Clearly, this is a more obvious ground to report one ‘false’ tense (see Lin 2013). Or there might be divergence on the meaning of time location, as that should consist in the classical contrasts between past, present, and future. This is a tricky ground to defend the ‘pure’ tense because it is extremely difficult to differentiate the denotation of past, present, and future from the implication of them. The entanglement of what is called tense, aspect, or mood (perhaps modality as well) is certainly not news (see Hewson 2011). Note that the entanglement is never one-directional. In this connection, it seems unreasonable to suggest that one meaning must be denoted by a linguistic form, and yet another must be implied by it (cf. Bahloul 2008). If a linguistic form can express a meaning, then it is a function of this linguistic form, without further discrimination. As is shown below in (84), the Chinese sentence is usually considered as containing the aspectual marker *le*, which is generally said to denote the completion of an action (see Lin 2003, 2006; Smith & Erbaugh 2005; Xiao & McEnery 2004), and completion tends to be associated with pastness (see Comrie 1976: 83). Thus, with no other information provided, the sentence in (78) below is *perhaps* an expression of a so-called past event. The question is, how can one in principle tell apart an inherent meaning and an implied one? If one does need to express pastness (whatever it means), what would s/he do in the case of (78)?

78. Lili mai-le shu.
 Lili buy-le book
 ‘Lily has bought a book (or books).’ Or ‘Lily bought a book (or books).’

If the distinction between inherent and implied meaning is real, can one claim that either the speaker or the listener does not have the direct access to the meaning of pastness as s/he utters or hears (78)? That is, unlike the languages where there are tense morphemes rather than aspect ones, the meaning of pastness is a secondary one in Chinese. This ought not to be the case since Chinese speakers do not have an understanding about pastness any less authentic than English speakers. With no doubt, the need to express pastness in Chinese must be just as real as that in English (Chinese and English do not need to share the same pastness), and when this need does emerge, Chinese speakers know this as a fact that (84) is a way to meet that. This should be the common situation for both Chinese and English speakers. Some might argue that the past tense morpheme in English invariably denotes pastness, while the Chinese aspectual marker is subject to its contexts in terms of temporal ‘implications’. But keep in mind that pastness is not primitive, and a closer investigation can show that there is in fact no invariable pastness associated with the past tense morpheme in English (details below). A serious problem of the study of tense is that many authors presuppose that there is a one-to-one correspondence between meaning and form. That is, when a form is used, one should be able to lay out a temporal configuration unique to it. Thus, many are devoted to the study of tense with the goal of objectively formalizing the process of ‘calculating’ temporality, as if it were some natural laws, with relevant linguistic items as operators in it. Hewson (2011: 508) points out that:

It must be observed that language is a mental phenomenon, and cannot be adequately described as a physical or behavioral phenomenon, as in the definitions of early to mid-twentieth century positivists. **Nor is it correct to reduce it to an abstract algebra that supposedly exists independently of the speaker** [emphasis mine]. A language does not exist independently of those who speak it, and the scientific investigation of linguistic phenomena cannot ignore the speakers mentally stored knowledge, without which there would be no language.

Under the supposition that tense ‘should’ be exactly like how it is empirically framed in English or other related languages, Arabic and Chinese are cited alongside as tenseless languages in Binnick (1991), which means that both languages line up on the same morphological footing for attempting to establish Tense. However, the tenselessness, another vague concept, may have distinct senses in the two languages as they show distinct degrees of morphological richness (corresponding to what is outlined above). On one side, Chinese seems to be an ‘indisputable’ case of a tenseless language as far as its scarce morphology can offer (Lin 2010). Put in another way, tense can be denied in Chinese immediately because overall, inflection, with reference to the way that it is basically conceived with Western languages, is not a common grammatical means in Chinese and thereby no one is prompted to seek out an element corresponding to the English *-ed*, for example. To illustrate, (79) is a Chinese sentence without signal of time, and it affords general adaptability in time, which means, it may not need to change its form when its temporal reading changes (for instance, whether 79 is true for the moment being or not, it can remain the same form, in which case, an English sentence may require a formal alternation).

79. zhangsan zhu zai zher.
 Zhangsan live in here
 ‘Zhangsan used to live/lives/is going to live here.’

The tenseless status in Arabic, on the other side, is perhaps less straightforward than that in Chinese, considering that Arabic offers formal clues of time. Morphologically, a verb is subject to a two-way opposition in Arabic, involving two stems customarily termed as perfective and imperfective (or perfect and imperfect). Note that I adopt the distinction of perfective vs. imperfective as an effective way of telling them apart, not as an essential identification. As shown in (80) and (81) below, both with the basic notion of ‘writing’, the construction of the perfective form *kataba* and that of the imperfective form *yaktubu* share the same ternary consonantal root *k-t-b*, yet with distinct vocalic templates applied to them: *katab_* (*CaCaC_*) vs. *_ktub_* (*CCuC_*); in addition, agreement morpheme is realized differently on different stems: it is a suffix in *katab-a* (perfective) whereas it is added on both sides in *ya-ktub-u* (imperfective). Obviously, Tense may be anticipated therein (there is a future time indicator in Arabic, *sa-* or *sawfa-*, which is prefixed to an imperfective verb, see 15 below). As is with (86) and (81), without entangling ourselves into issues about what past or non-past (present) genuinely is, it is understandable if one claims that some intuitive sense of pastness or non-pastness is obtained in (80) or (81) respectively¹⁰. The empirical basis for customarily not calling the verbs in (80) and (81) as past and non-past respectively is that some ‘counterintuitive’ uses of imperfective and perfective verbs can be detected, in the sense that they do not conform to how the ‘real’ past or non-past verbs would be used in a Western tensed language (see Binnick 1991). Accordingly, one challenge for the tense-based view of the verbal opposition, raised by Fassi Fehri (1993), can be the difficulty in accounting for the so-called “complex tense”. As shown in (82) and (83), it is a structure where a regular verb, either perfective or imperfective, combines with a semantically insufficient verb *kaana/yakuunu*¹¹ ‘be’ or ‘exist’. In that, contrary to (80) and (81), the perfective is not rejected in non-past time, and neither is the imperfective in past time.

80. **kataba** zajdun r-risaalata (ʔamsi).

¹⁰ Note that the past reading in (14) and non-past reading in (15) can obtain with or without temporal adverbials.

¹¹ The verb itself is not morphologically different from any other regular verb and its distinctiveness is that since its lexical meaning is rather empty, it often needs semantic supplement from either nominals or verbs that follow. On this basis, it can be said to have developed into an “auxiliary” or even a “copula”, and for that the construction of the so-called “complex tense” can be an illustration.

- write.PRF.3SM Zayd DEF-letter (yesterday)
'Zayd wrote the letter (yesterday).'
81. **yaktubu** zajdun r-risaalata (l-ʔaana).
 write.IMP.3SM Zayd. DEF-letter. (now)
'Zayd is writing the letter (now).'
82. **sa-yakuunu** zajdun **kataba** r-risaalata yadan.
 fut-be.IMP.3SM Zayd. write.PRF.3SM DEF-letter tomorrow
'He will have finish writing the letter by tomorrow.'
83. **kaana** zajdun **yaktubu** r-risaalata ʔamsi.
 be.PRF.3SM Zayd. write.imp.3sm DEF-letter yesterday
'He was writing the letter yesterday.'

Holes (2004: 235) observes that once a past time reference is established in Arabic, presumably with perfective verbs¹², it does not need to be overtly restated or agreed with in subsequent expressions with imperfective verbs. The observation can be illustrated through the comparison between English and Arabic, as shown below. In (84) and (85), the forms of the verb *like* alternate in accordance with its temporal references (whatever they are), and in (86) and (87), the form of *tuhibbu* 'like' remains the same although the time reference shifts from (assumed) non-past in (86) to past in (87). That is, the imperfective form absorbs the temporal reference rising externally.

84. She **likes** dancing.
85. He **had/used to have** a girlfriend. She **liked** dancing.
86. hiya **tuhibbu** r-raqsa.
 she like.IMP.3SF DEF-dance
'She likes dancing.'
87. **kaanat** la-hu ʔadiiqatun. hiya **tuhibbu** r-raqsa.
 be.PRF.3SF for-him friend she like.IMP.3SF DEF-dance
'He had a girlfriend. She liked dancing.'

Moreover, perfective verbs are commonly used in subordinate clauses that set out conditions with either past or non-past references. For instance, in the cases of (88) and (89), the perfective verbs all have non-past temporal orientation in interpretation, and it further disproves a categorical link of perfective forms with pastness (if we assume that we know what pastness is). Notably, the connected main clauses may employ perfective forms as well, and therefore the main clause of (88) and that of (89), though contrasting in verb forms, share the same temporal reference. Clearly, the Arabic perfective and imperfective verbs are not distributed in pure past or non-past contexts respectively.

88. ʔadʔiiʔu-ka ʔiða ʔihmarra l-buʔru.
 come.IMP.1S-you when ripen.PRF.3SM DEF-unripe date
'I shall come to you when the unripe dates ripen.' (Comrie 1976: 79)
89. ʔin **darasta** **nadʔahta**.
 If study.PRF.2SM succeed.PRF.2SM
'If you study, you will succeed.'

¹² The tendency of perfective verbs being associated with pastness can be widely observed among languages (Comrie 1976: 82), but it does not confirm that, as we are arguing herein, pastness is an integral part of perfective verbs.

Again, the empirical demonstration of the tenselessness in Arabic amounts to how the language differs from English in expressing time. To be clear, it is only when Western scholars noticed such differences (i.e., what can be traditionally called a past tense verb in Arabic does not show the values that it is ‘supposed’ to have, see Binnick 1990: 434), Arabic began to bear witness to debates about the nature of the formal binary division visible on Arabic verbs, mainly whether it is a temporal one or an aspectual one (or a mixture of them both), which has become a prominent topic in Arabic linguistics as the ‘proper’ description of the verbal opposition depends on that (see Bahloul 2008). According to Ouali (2018), it seems to be a more favoured view in recent literature that Arabic does not have tense as a morphological category (but he insists on that Arabic is syntactically tensed). However, it is hard to say that those debates are finally settled in any heuristic way, because the demonstration above about the non-tense nature of the Arabic verbal distinction is based on two assumptions, one is that we truly know what *tense* is and the other is that we truly know what past or non-past is. Clearly, neither is the case. Primarily, the boundary between *past* and *non-past* is extremely difficult to draw as it is not necessarily consistent even in a ‘proper’ tensed language (see below). Also, the denial of the morphological presence of tense is, to repeat, based on the plain observation that the formal alternation of Arabic verbs is not operated exactly in line with that of a Western language, such as English or French verbs (the two of which, imaginably, are unlikely to agree completely with each other in tense uses), where tense is supposed to be morphologically ‘authentic’. But eventually, *tense* is merely a descriptive label out of a grammatical tradition, and it cannot be shown to have rigid boundary. In this sense, calling Arabic or Chinese a tenseless language is tantamount to saying that they are different from a Western language in certain aspects, which is only expected.

The understanding of *tense* may not be that different a process from the understanding of *game*, both calling for not so much precision as cooperation. Specifically, it is pointless to rigidify the boundaries of them. One bad example of *game* or *tense* merely refers to a bad use of it, i.e., not conforming to some established convention. In announcing either a good or a bad example of *game* or *tense*, there is nothing else for one to rely on except the actual use of it, that is, one’s ability to access a successful communication. This is the only force that maintains the transient existence and intension of it. However, the actual use of a term cannot but be proven to be contingent, meaning that the existence and intension of it **will** be unstable (for terms like *game* its existence is prior to its intension). There is a difference between *game* and *tense*, though. The case with *game* is that there is no common ground for all the instantiations of it, but English speaker may more or less agree on the proper use of *game*, and thus it is likely to enumerate more or less all the instantiations of *game*. But the case with *tense* is that one does not even know what counts as an instantiation of tense. The reason for the difference is that it is never a question that *game* is an item belonging to the English vocabulary, but *tense*, on the hand, is often taken out of its original context (the tradition that it is part of) to be discussed on a global stage. Any attempt to define *tense* (this will involve more family resemblance concepts and suffer from a definition regress) and, on that basis, to differentiate tenseless languages from tensed ones from will be dull, not unlike when one draws a line between *game-less* languages and *gamed* languages. In that, crucially, no one can have a more epistemologically significant definition of *tense* than others. At best, one can claim that s/he manages to well summarize the tenses that we can be sure of, but the term itself is free. As is suggested, the major problem is, how can such a casually understood concept be given so much significance? Again, this is a common problem in generative grammar: freely applying labels in a supposedly essentially bound syntactic account.

Another crucial thing to reiterate about the contingency of *tense* or Tense is that neither ought to be the reason for the interpretation of time. For instance, Giorgi and Pianesi (1997) base their syntactic account of Tense on the computation of temporality, which, they suggest, would be impossible without formal representation (see also Ouali 2018 and Sybesma 2007). However, how could we define objectively (independently of its uses) a tense that underlies its linguistic manifestations? More vitally, how could we restrict the syntactic component if interpretations must be rooted in it?

As time is intrinsically woven into our experience, we are guaranteed to detect the reflections of time (including the distinctions about time) in languages, and tense **can** be one of them. This applies to anything that we can know about our universe – there is no semantic void in language. With this said, whether *tense* is a reality or not, we perceive time. In a discussion of tense within a broad frame of the philosophy of language, Ludlow (2012: 59) asks what kinds of things can be tensed (see the citation below). Simply, he intends to interrogate where *tense* comes from.

Is tense, as some contend, merely a feature of language (linguistic tense) but not of thought or the world, or are thoughts and facts about the world tensed as well tensed facts being examples of what we could call "metaphysical tense"? Many have argued that a proper analysis of linguistic tense would say that the tense operators in natural language express non-tensed features of the world - that past and future linguistic tense are just used to express static universal relations between events or times.

Tensors and detensors are split on precisely this point: The tensors take tense to be an irreducible and real feature of the world, and the detensors think it is a superficial property of language or thought that can be regimented away in terms of other (more scientifically legitimate) primitives. A more precise way to put it is this: The tensor thinks that linguistic tense is used to express tensed thoughts and to describe tensed facts about the world. The detenser may allow that linguistic tense can express tensed thoughts, but will reject the idea that it can be used to express tensed facts, because the detenser believes there are no such things (see, for example, Melo, 1981 and Oaklander and Smith, 1994 for discussion)

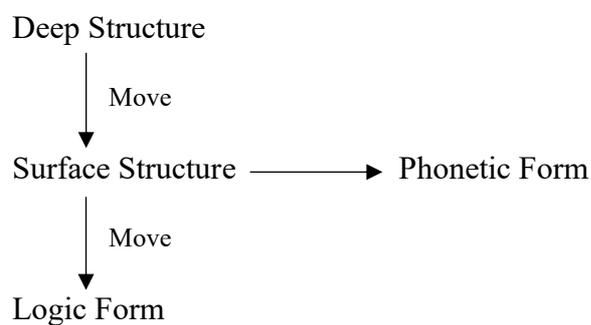
I would suggest that the starting point for any attempt to address such a topic is to keep in mind that tense is a linguistic element, whose presence is contingent on our perception like any other one. That is, we need to attend to the consequence of adopting a particular philosophical view about it, since that should be generalizable. In this sense, we might not need to overthink about the occurrence of tense as a meaningful and/or formal distinction, so that we do not ask about metaphysical tense or any metaphysical item lexically or grammatically available in a language. Simply, *tense* is possible because it represents some distinctions whose recognition is possible to us and remains so even if tense had not happened. This holds true for any other grammatical marking system, which is certainly not surprising in any way. But for generative grammar, it must be stressed because invisible entities are allowed in syntax, and if one maintains that formal signals should be the reason that interpretation is possible, then syntax would become boundless. There cannot be a language that manifest all the detectable grammatical markers in this actual world of ours (let alone *all* the possible grammatical markers ever, and it is hard to know what the term *all* means), which does not make a language (or its speakers' understanding of the world) deficient, and more importantly, this should not render a language syntactically incomplete. On this basis, the distinction between tensed and tenseless languages can only be conventional, affording no more significance than saying that, for example, in English there is not a single word to express *gege* (a Chinese word for *elder brother*).

4.6.2. Some problems with interpretation

4.6.2.1. A causal relation between syntax and semantics

Crucially, the overall functional design of generative grammar suggests that ‘well-formedness’ is the prerequisite for interpretation. In other words, syntax must occur prior to semantics. This is grounded by what Chomsky (2000: 11-17) lays out as legibility conditions, supposing that ‘uninterpretable formal features must be erased in a local relation with a matching feature, yielding the displacement property required for semantic interpretation at the interface’ (ibid. p. 15). (But it is never clarified how one can set apart interpretable and uninterpretable features in principle, and thus the distribution of them is also *ad hoc*.) In any event, the cause-and-effect relation between syntax and semantics is often schematically illustrated in the so-called T-model, as shown below (adapted from Hornstein et. al [2005: 23]; see also Al-Mutairi 2014: 37; Seuren 2004: Section 3.2). Different details might be added to Figure 1 below, but the syntactocentric view does not vary.

Figure 1



What lies in the core of Figure 1 is Surface Structure in a complete status (with grammaticality fulfilled), without which the interface between form and meaning and that between form and sound would not be activated. This means, the syntactic component in the overall architecture about language function is in fact ‘omnipotent’, since it is responsible of assembling the needed materials for interpretation, as well as phonetic spell-out. Moreover, as interpretation is carried out on the basis of well-formedness, that is, the semantic component (i.e., Logical Form) takes Surface Structure as the input to yield interpretation, a meaning must be able to correspond to a formal element. There could be some undesired outcomes of what is aforesaid. By and large, the design of Figure 1 is to warrant the necessity of a syntactic component, which encompasses the major theorization of generative grammar in modelling grammaticality. But this comes at the cost of economy, because a sentence would be ‘understood’ twice, first by the syntactic component and then by the semantic component. What seems speciously mysterious is that ‘I’ (consciousness) do not access what is ‘understood’ by the syntactic component, but only that by the semantic component. Put in another way, there appears to be a rigid separation between the syntactic component and ‘me’, so that ‘I’ am not allowed to deal with *form* directly, but only *interpretation* outputted by the semantic component. This gives rise to an asymmetric and circuitous utterance-reception pattern between the speaker and the listener. See Figure 2.

Figure 2

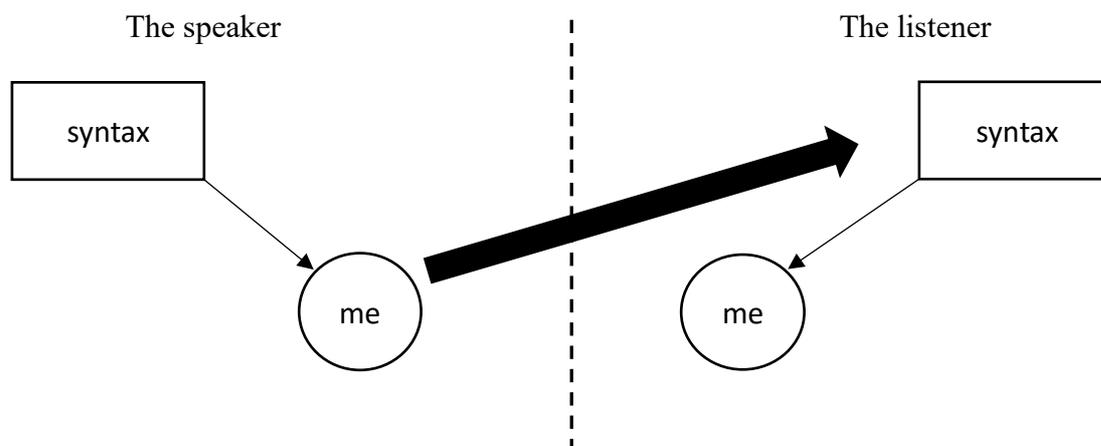


Figure 2 shows that the utterance that the speaker delivers is not directly received by her or his interlocutor. This is a corollary to the syntactocentric view because only after the full unfolding of the syntactic structure of the uttered sentence can its interpretation be initiated and becomes available to the listener. This model idealizes the interface between syntax and semantics. In that, syntax must be ‘omnipotent’, because it must ‘know’ how and what items to assemble for a sentence to express what is intended. Regarding Tense, as is suggested, its account is centered on the formal alternation of tense morphemes. This means that the syntactic component must ‘know’ what results in the alternation, i.e., each tense morpheme will correspond to a sufficient reason. What is that?

4.6.2.2. How does syntax ‘know’?

Specifically, Tense node in (90) and (91) below is theorized to be responsible for the realization of the correct tense morphemes as picked out by the syntactic component (however that could be accomplished), in that, temporal interpretation is supposedly transparent as either [past] or [non-past]. In other words, (90) and (91) are thought to have essentially definable tense values, as invariably specified by tense morphemes (a one-to-one correspondence). For that, semantic computation is maximally excluded from derivation, whereby all one needs to say is that the syntactic component picks out a correct tense value and delivers it to the semantic component, by means of showing formal alternations. In sum, the form-meaning transparency (again, this is unwarranted) is the premise for the certainty and the independence of the derivation of a sentence in a tensed language. We may call this *analytic* temporal interpretation.

- 90. Lily liked Jay. -ed → pastness
- 91. Lily likes Jay. -s → non-pastness

To be clear, analytic temporal interpretation indicates a unique correspondence between form and meaning. In that, time references must be formally specified in a fixed manner, and without the specific form, a certain time reference would not be delivered. That is, a present (non-past) morpheme in (91), i.e., the suffix -s on the verb (or a null one if the subject is not third-person singular), is a compulsive and exclusive signal of non-pastness, and a past morpheme in (90) is that of pastness – the difference between a non-past and a past morpheme remains unvaried. By contrast, temporal interpretation in a tenseless language can be *synthetic*. See the sentence below from Chinese for comparison.

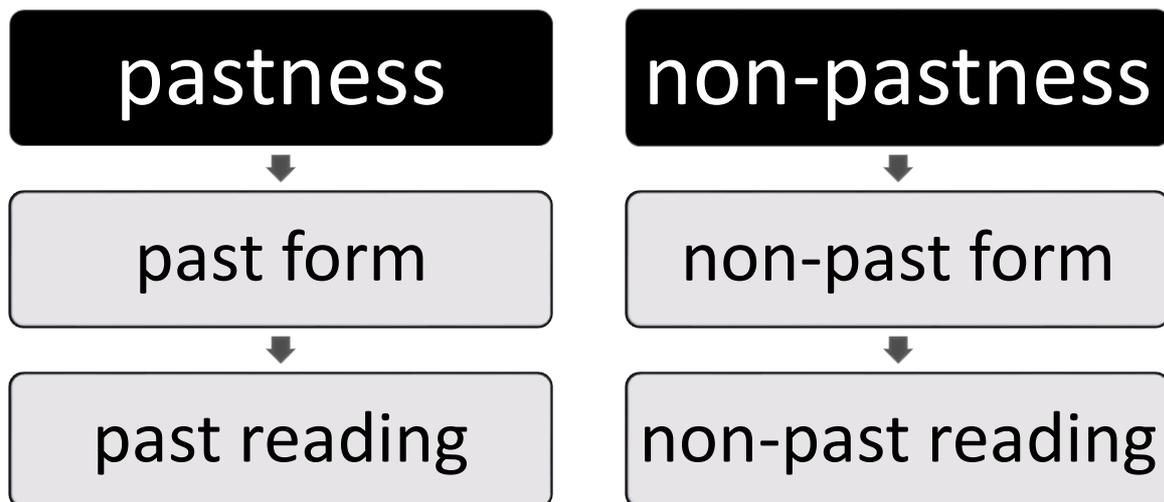
92. zhangsan zhu zai zher.
 Zhangsan live in here
 ‘Zhangsan lives here.’

Synthetic temporal interpretation means that there must be a process of semantic calculation of temporality since that cannot be formally traced down to a particular element. Plainly, in the semantic calculation of temporality, a time reference does not need to be tied up to a certain form. For (92), if treated as a context-free utterance, it **can** be understood as currently true, i.e., the extension of *Zhangsan’s living here* includes the current moment (yet whether this should render 92 as having an objective value of present remains unverifiable, see below). This non-pastness is not obtained from any (overt) formal signal in the sentence.

For generative grammar, the assumption about the self-evident and stable distinction of past vs. non-past is the core of the syntactic transition from tense to Tense in languages such as English. In that, the derivation of a sentence can dispense with the calculation of temporality but paves the way for it. In that, semantic is maximally simplified and marginalized in the overall design of the language system, as meaning is packed in a formal signal as a primitive and interpretation can only be reduced to the unpacking of formal signals and the straightforward adding of them. In practice, past and non-past are alternative values somehow attached to the categorial feature [tense] (it is unknown how this might be real mentally), i.e., [tense: past] vs. [tense: non-past]. In other words, any explanation about past or non-past can only be trivial: commonly, an event is in the past tense as it happens in the past, and similarly, a non-past event happens in the non-past to be in non-past tense.

Basically, in generative grammar, the theorization of tense/Tense conforms to the causality as shown in Figure 3. Primarily, there are ‘tensed facts’ on the syntactic level, which is put on the highest level in Figure 3 as the necessarily rigid distinction of pastness vs. non-pastness. Vitaly, this suggests that the syntactic component must ‘know’ exactly how pastness and non-pastness correspond to the states of affairs in reality to be able to pick out ‘right forms’ from the lexicon. In this connection, the role of the syntactic component must be underlined as the ‘first cause’ of linguistic generations – a major implication of *syntactocentrism* (see van Valin and LaPolla 1997). In other words, there must be a sufficient reason for the selection of the past or the non-past form respectively. As no one knows how the syntactic component judges invariantly past and non-past events, this is a process ‘blackboxed’ (to borrow the term from Boeckx 2014) in generative grammar. Subsequently: past form mediates between the syntactic pastness as its cause and the past reading in the interpretation (the semantic component is responsible for this) as its effect, and non-pastness form does between non-pastness and non-past reading (see Jackendoff 1972). In that, pastness, past form, and past reading must be equivalent, so must non-pastness, non-past form, and non-past reading.

Figure 3



In general, any placement of a separation of time seems unnatural, since the boundary between past and non-past (or any other time intervals) may always be negotiable due to the continuity of time. Plainly, there is not truly a point of time at which past and non-past must cease to extend towards each other. A non-past event can usually be inferred to begin in (from) the past as well, see the following examples.

- 93. Lily goes to work at 7 am.
- 94. Lily likes drinking coffee.
- 95. Jay is now speaking to his supervisor on the phone.

Obviously, the unstoppable flow of time suggests that a non-past event cannot be determined by not taking place prior to now. In (93), *Lily's going to work at 7 am* must occur repeatedly in a period covering all the 'three times' that one customarily calls past, present, and future, and in both (94) and (95), it is obtainable that *Lily's liking drinking coffee* and *Jay's speaking on the phone* do not just begin at a second that is legitimately *now* but are spreadable into the past and the future. By the same logic, a past event may as well easily reaches the moment of now, see the following examples.

- 96. Jay arrived (so he is present).
- 97. Lily knew Jay's secret (so he does not need to tell her about it now).

Both (96) and (97) are events whose interpretation must have the temporal extensibility (through the elapse of time) taken into consideration, i.e., inevitably, the completion of something must be the beginning of something else, in which case it is an occurrence of change, and a change thus links up two states exactly because any moment must be the continuation of the last one, otherwise it is pointless for expression such as (96) and (97) to confine our attention to an instant where an action takes place without affording any affect. In this sense, the exact event time is hard to define as past and non-past must be able to extend to each other. Notably, if we only focus on situating an event on the time axis in terms of where its beginning point and ending point can be, then (93) – (95) (in non-past tense form) and (96) – (97) (in past tense form) are not different in having a beginning point somewhere in the past and possibly extending into the future.

Often, an assumption about the past and non-past distinction is that a non-past form is an event that is currently in effect, whereas a past form gives rise to a sense of 'not anymore', i.e., an

end of an event is placed in front of the current moment. Indeed, a sense of ‘not anymore’ is a salient usage of past tense, as that is perhaps when the past and the non-past tenses can be most straightforwardly told apart, see the sentences shown below.

98. Jay was a funny man (and he passed away).
99. Lily thought Jay was the one for her (she was wrong).
100. Lily thought Jay was the one for her (they remain happily married till now).

Note that (98) and (99) are exactly the opposite of (96) and (97), for unlike the latter, in the former, what is intended is discontinuity rather than continuity (vitaly, this opposition is not subject to syntactic conditioning as 99 can yield both readings, see 100), but even discontinuity is based on the entirety of time. Certainly, it is correct to claim that the contrast between past and non-past tenses in English can implicate that something has come to an end, but this is hardly essentially involved in the definition of the past tense. As is shown in the following example of (107), *Lily’s liking of the lecture* is unlikely to end exactly as the lecture does.

101. Lily **liked** the lecture that Jay gave last night.

At this point, we may attempt to pin down what is invariably expressed by the form of a past tense verb, for example. Consider the following sentences and the possible meanings and contexts of it.

102. The door was open.
103. The door is open.

Basically, the *door’s being open* in (102) occurs from a moment in the past, but that is obviously not sufficient for the use of the past form *was*, as the same can be said for (103). Alternatively, if one points out that (110) can hint at a contrast between then and now, i.e., the door is closed at the present, one realizes that it is not necessarily the case. Note that (104) can describe the same event as (108) does.

104. The door was open (when I knocked on it), and it can still be open.

Finally, one might keep on saving the integrity of the past tense by saying that (102) leaves its ending point indeterminate in connection with the current moment, thus differing from the non-past tense which seems to express the current validity of an event. For that, we can imagine a situation in which someone knocks on a door, but no one answers, and she enters it as it is not locked; immediately as she does so, she sees the owner of the house who stares at her with a shock, and at this time, she explains pointing to the opening door and says: ‘sorry, the door was open.’ Even in this simple case, it is demonstrable that the understanding of a tense is premised on the connectivity of time, rather than the division of it. Above, it is a demonstration about a non-rigid boundary between past and non-past in English, which raises questions about in what principle the syntactic component mechanically determines the realization of tense morphemes. Moreover, the assumption that different temporal readings are linked with different derivations greatly renders the syntactic representation in a tenseless language as untransparent.

4.6.2.3. Structure collapse

In a tenseless language, the sentence derivation cannot be ascertained on its own, because the tense readings cannot be ascertained on its own, in contrast with the supposedly self-sufficient derivation in any tensed language.

If a sentence in a tenseless language can only be specified in its temporal reading in connection with its contextual information, the theorization of its derivation is confronted with the problem of structure collapse. That is because a sentence may have more than one derivation in line with the changeable temporal readings which are not syntactic properties of the sentence itself. Note that this is not an issue of ambiguity, but an issue of incongruence, because the sentence derivation in a tenseless language disagrees with that in a tensed language where a certain tense form is believed to have a unique tense value, thus a unique derivation. The problem of structure collapse is linked to the incapability of incorporating external contextual properties as internal ones of derivation, but eventually it points to the false assumption about the one-to-one correspondence between form and derivation.

By way of illustration, (105) is one of the so-called “performative sentences” (Fassi Fehri 2004: 245) and considered as a case of perfective form giving rise to present reading. To be clear, the present reading in (105) is only defensible on the basis that the event of *being hungry* can be presently true, but this is an unwarranted surmise of the essence of pastness and that of non-pastness, because first, as is shown above, the past tense is compatible with an event that has current validity, and secondly, the actual internal structure of the event in (105) is more complicated than a stable state¹³.

105. $\widehat{d}zu\text{ʕtu}$.
 hunger.PRF.1S
 ‘*I am hungry.*’ (Fassi Fehri 2004: 245)

The present reading of (105) is only a contingent implication allowed by its non-verbal context as nothing from it deduces the termination of *being hungry*. As a result, in (105), the implication that the state of *being hungry* is valid for the current moment can be suspended as shown below in (106) and (107). That is, neither (106) nor (107) has a definite derivation, under the syntactic division view, until it is confirmed whether the state of *being hungry* extends to the current moment or not.

106. $\widehat{d}zu\text{ʕtu}$ fa ʔakaltu.
 hunger.PRF.1S so eat.PRF.1S
 ‘*I was hungry so I ate (and now I may not be).*’
107. $\widehat{d}zu\text{ʕtu}$ fii s-saaʕati s-saabiʕati.
 hunger.PRF.1S at DEF-hour def-seventh
- a. ‘*I got hungry at seven o’clock (but I am not now).*’
 b. ‘*I have been hungry since seven o’clock (and I still am).*’

The problem of structure collapse also threatens the analysis of Sybesma (see Chapter One). By way of illustration, (108) and (109) contain the same sentence with distinct temporal readings for they are put in varied contexts. In line with Sybesma, the derivation of (108) must differ from that of (109) in that it has an additional covert past tense morpheme, which reflects nothing inherent to the sentence but a contextual addition. Consequently, similar to what we have seen with Arabic, with context unspecified, neither (108) nor (109) has a determinate

¹³ The event of (105) contains, more essentially, a change of state, because of which a stable state may occur.

derivation. Not to mention that no temporal adverbial appears to trigger the Tense agreement process in (109), which is supposed to be a necessary condition for the presence of a covert past tense morpheme in Sybesma's analysis.

108. wo hen lei.
 I very tired
 '*I am tired.*'
109. wo hen lei, zou de zao.
 I very tired leave RES early
 '*I was tired and left early.*'

In addition, Sybesma's analysis assumes that temporal adverbials, as "objects of agreement", are inherently oriented with a determinate temporal distinction, either past or non-past. It is not the case that, to take (110) as an example, the term *1989 nian* 'the year of 1989' has the specification of *being past* as part of its lexical meaning, but rather *being past* is contextually imparted to it on the basis of the knowledge about what the current year is. In (111), for example, the term *1989 nian* 'the year of 1989' is used to indicate a future time.

110. 1989 nian, wo ceng zhu zai lutedan.
 1989 year, I used-to live in Rotterdam
 '*I used to live in Rotterdam in 1989.*'
111. mingnian, 1989 nian, wo zhu zai lutedan.
 next-year 1989 year I live in Rotterdam
 '*Next year, the year of 1989, I am going to live in Rotterdam.*'

In addition, as is suggested, if any interpretation needs to be syntactically ascribed, then there is no way to 'fully' account for the syntactic composition of a sentence since its interpretation can be open to multiple possible 'filters'. This can be shown in the following Chinese sentence.

112. Lili xihuan shuxue.
 Lili like mathematics
 '*Lili likes mathematics.*'

In (112), a simple event of *Lili's liking mathematics* is reported, without much grammatical limit imposed on it. This means that there can be many grammatical distinctions 'hidden' in (112) that would be 'switched on' in appropriate contexts. For instance, one can talk about (112) either as a present or a past event (in the sense regarding whether (112) still holds as of now), as a real or an unreal event, as an evidential or a non-evidential one ... In sum, (112) embraces, in its unvarying form, all the opposing possibilities that would be grammatically set apart in certain languages. The point is not to exhaust the possibilities, which is extremely challenging as there will be no overall semantic frame formulable to constrain the proposal of them. Instead, the point is that meaning is a 'fluid matter' that is not confined by the (relatively) rigid formal space of lexical or grammatical items. Surely, the example in (112) capitalizes on the scarce morphological means available in Chinese, but no matter how densely marked a language would be, it could always be said to 'lack' something that is detected elsewhere. Therefore, the only generalization about grammatical marking is that, to reiterate, it draws on possibilities afforded by our capability of perceiving our universe. That is, in the case of (112), the understanding of it fundamentally does not amount to the strict adding of modules which are represented by forms.

In this connection, there is no principled way of determining the presence of a covert syntactic head in generative grammar, because, as is said, there is no way to define the fullest semantic representation possible. In practice, it is a matter of setting a reference, which is fundamentally unjustifiable. An intriguing observation is that there is barely any covert syntactic head that is proposed on account of comparison with other languages. By contrast, the idea about a possibly ‘missing’ Tense in Chinese or Arabic is only conceivable with the English derivation template taken as a standard.

Apart from structure collapse, there is also an issue of the unknowability about a correct tense value in a sentence with a corresponding signal.

4.6.2.4. Unverifiable tense valuing

From the demonstration of English above, one point that must be stressed is that the differentiation in tense valuing, i.e., past vs. non-past, is a result of backward inference from the surface distinction of tense forms (as is shown in Figure 3, it is called backward because tense valuing by the syntactic component is supposed to be the reason for the formal tense opposition). In other words, one can only ascertain where the boundary between past and non-past lies when formal alternation occurs. Thus, the past tense and the non-past tense in English mark pastness and non-pastness that are conventionally defined in English. In saying so, we know that a language is entitled to its own version of pastness or non-pastness, since it cannot be the case that all languages have the same boundary set up between past and non-past. In this connection, any attempt to reproduce a Tense node in a so-called tenseless language, mainly following the lead of Western languages within the framework of generative grammar, shall be confronted with an awkward situation due to the lack of tense signals: how does one know what tense a sentence is in a sentence if it is not overtly marked? See the Chinese sentence below in (119).

113. Lili zao jiu **zhidao** ni-de mimi.
 Lily early then know you-de secret
 ‘Lily always knew/knows/has known your secret.’

If a sentence needs to have a tense value so that it is temporally interpretable, then what might it be in (113)? Plainly, if no other contextual information is added, (113) shall be understood to be a status, due to a change (from not knowing to knowing), that begins at some time prior to the current moment but must have remained true on the time axis through the present and into the future. Then, what about the foregoing statement can be useful for our attempt to temporally identify (113)? Clearly, the event expressed by (113) does not bear any inherent quality of pastness or non-pastness by itself. As said, the cross-linguistic variations in tense uses suggest that an individual language is not forced to abide by one unifiable set of criteria about temporal divisions (whatever labels one uses in that), and thus, the question would not be settled, unless eventually one could know what temporal division had been truly adopted in the language at issue, or in terms of generative grammar, how the syntactic component had defined it even though it would not be formally demonstrated. This does not sound feasible. However, for all the believers of a Tense in Chinese, in answer to the implicit call of generative grammar to base the building materials of a non-Western language on a Western one, the burden of setting out the universal boundary between past and non-past must exist on the shoulders of them, because one cannot take advantage of an essentialist assumption about the stable definability of past or non-past, which is the foundation of the generative theorization, and refuse to corroborate it.

Obviously, the same problem occurs in Arabic, where no formal boundary of time intervals can be found so that one can only resort to unreliable ‘intuitive’ judgements. In contrast to the case in (105), a so-called performative sentence with perfective verb, Ouali (2018) considers the sentence in (114) as having a past reading with perfective verb, as it occurs in the past. However, there is no reason why the same reasoning, as Fassi Fehri suggests for (105), might not apply in (114).

114. ḥaḍara zayd-un
 come.pef.3rd Zayd-nom
 ‘Zayd arrived.’

One can easily say that (114) is more concentrated on a current state, i.e., *Zayd’s presence*, than a past action. Again, the point is that a non-formally grounded temporal division gives rise to endless controversy regarding what tense a sentence is with, because no one will be able to say that her or his proposal is part of the innateness of the syntactic component. Also, according to Bahloul (2007: 66-68), the perfective verbs of Arabic are possibly translated with either the simple past or the present perfect in English, see the following sentences.

115. rasam-tu daaʔiratan
 draw.Pf-1.s circle.acc
 ‘I have drawn a circle.’
116. ʂanaʕ-tu kursiyyan
 make.Pf-1.s chair.acc
 ‘I made a chair.’

Clearly it is pointless to argue whether it is correct to translate (115) and (116) with the present perfect or the simple past in English as a general rule, but if a perfective verb might correspond to both tenses in English, it could mean that an Arabic verb has two values.

4.7. Conclusion

In this chapter, I have laid out the unknowability of Tense as an element supposedly configured in the generative derivation of a sentence. The establishment of Tense as a unifiable entity is far from a principled process (we do not even need to ask whether it is innate!). There is hardly anything constantly preserved of it with the shifts of the theoretical models employed to derive a sentence in generative grammar, and there is no conceptual core of Tense that can empirically ground it to guarantee the presence of it. Unable to revolve around necessity, any Tense account will be arbitrary statements about random connections and disconnections between linguistic items, either in a specific language or cross-linguistically. In general, as much as abstractness is valued by generative linguists (see Baker 2010; D’Alessandro 2019) in building up Universal Grammar, a model of metalanguage, what keeps being overlooked, especially regarding the revelation of the substantive universals (or items in lexicon), is the rigidity of the results in it. A theory of metalanguage is not superior because it is abstract – though metalanguage is necessarily expressed in abstractness – but because the abstractness is derived from the mental reality that it stands for. Of that, rigidity is a necessary sign. Or else, the theory is a castle in the air, with its abstractness groundless. Regarding categories, I believe, it is more feasible to treat them as part of the freedom that individual languages are entitled to. In that, the task for us is to deduce how the structure of the metalanguage ‘allows’ that freedom.

5. Studying language as a natural object

The field of linguistics is in urgent need of rigorization. In terms of presenting innateness, this means that foremost, we must **axiomatize** our grammatical intuition, that is, capturing what is **intuitively obvious** in our knowledge of grammar. Therefore, this must be differentiated from what results from the generative theorization, where our grammatical intuition is said to be tacit only because it is opaque (to use Chomsky's [1986] term, it is *cognized* in our brain, so that we do not realize the proposed procedures, and yet they happen to us). The opaqueness is a sign that the innateness is nowhere to be tested. As is argued throughout this thesis, it is an unfulfilled task in generative grammar to bear out the containment of their proposed procedures in the notion of innateness. Only by laying down an undeniable basis for grammatical intuition can we begin establishing a strictly derivational system out of our grammatical intuition and inspecting inside of it. Thus, we will be able to draw the determinate line between necessity and possibility in deriving a sentence (rather than deeming derivation indiscriminately as the sufficient reason for how a sentence is on the surface). Practically, the axiomatization should be concentrated on the direct portraying of linguistic combinatoriality, which is the most salient property of linguistic items. As with categories, I will argue, a better treatment of them is to assign them to the possibility domain, not the necessity domain, in that, a grammatical category is an arbitrary (conventional) realization of connections and disconnection of entities by their similarities and differences – there is no essence to be sought out on an abstract level. However, we need to account for how the necessity of our grammatical intuition allows the freedom of categorization.

Specifically, Section 5.1 provides a clarification of the structure of our linguistic intuition or innateness. In that, emphatically, grammaticality is only a value of it in a much narrower sense, because there is an overlooked distinction between actual and non-actual forms, both of which, however, can be possible. Therefore, an innate grammar lays out the necessity in language's being and spells out the derivation of freedom from it. In this connection, Section 5.2 will suggest that the explication of the necessary basis of language depends on stating the obviousness about linguistic elements' combinatoriality. Primarily, it resides in the completion or fullness of the construction of a sentence, whose achievement can be formally represented as two sets' union (and the union is invariable). The combination of the two sets amount to the necessary core of a sentence, and the internal analyzability of the two opposing sets constitutes the structural hierarchy of a sentence. Moreover, in Section 5.3, it is argued that categories (i.e., sets) are extensional rather than intensional when taking part in sentence combination. That is, what matters is there exist boundaries that separate categories, not where boundaries lie (which will be a free domain). As there is no abstract level that governs the instantiation of a category, it is hoped that a pre-determined lexicon can be eliminated from grammar.

5.1. A goal for a rigid logic entity

An innate grammar must be a direct portrait of the intuition relevant to governing our linguistic activities. However, the intuition that we rely on to judge grammaticality can be a broad term. It does not merely mean necessity but also possibility. In that, it can consist of two layers. One of them is conventional, which is a free domain (unpredictable), in other words, grammaticality contains conformity. The other is its restricting base – what I mean by the undeniable ground. Naturally, the former is the consequence of the latter. Therefore, to establish the logicity of grammatical intuition, any attempt at an innate grammar ought to lay out the undeniable ground and derive the freedom from it.

Specifically, see the simple sentence in (1) below. An English native speaker's 'intuition' would approve its grammaticality, and the grammaticality is twofold. Fundamentally, (1), or any other sentences, must be the involuntary reflection of the deepest restriction about what a 'rightful' sentence can be, in the sense that it is not something that one need pay attention to, but insofar as a sentence exists, it must be so. In other words, sentences that break away from the restricting base do not exist, since the latter is the cause of the former. Figuratively, this is not unlike when a triangle is made (on a plane), whether one has this in mind or not, its internal angles will add up to 180 degrees, which cannot be violated (even if one actively attempts to). What this means is, the restricting base is not something that one can ignore either accidentally or purposefully. In addition, (1) must also meet some conventional expectations, because communication calls for conformity. As is suggested, the grammaticality of (1) contains a contingent aspect. It means, there would be other ways of expressing (1) which, however, are not actual. Clearly, the pairing between (phonological) form and meaning is not derivable from any necessity. For instance, in (2), I make up the word *xie* to replace the actual one *tall*, which would be unacceptable by others since it does not conform, but (2) does not break away from the undeniable ground. And what else? It is possible for us to imagine that in English, the verb *be* did not inflect for number anymore, and remained invariantly as *be*, as is shown in (3). Or even, we might imagine that the verb *be* just disappeared from English and were no longer needed in a circumstance like (1), hence (4). The point is that if (1-4) are all alternations of (1) in possible worlds, we must account for how.

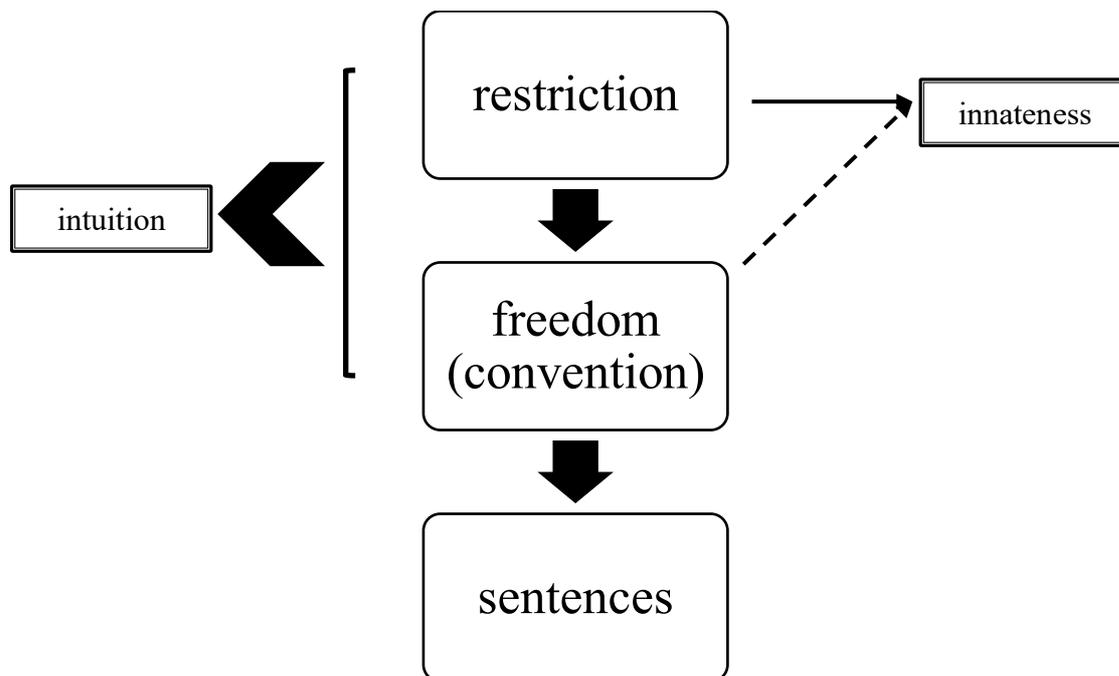
1. Jay is tall.
2. Jay is *xie*.
3. Jay be tall. (We/He/They/You be tall.)
4. Jay tall.

Before further discussion, it is vital to differentiate some terms that have been mentioned above and can be confounding. First, grammaticality (or ungrammaticality) is the value that linguistic intuition points to, which concerns both necessity and possibility. What I call innateness refers to the restricting base about language and the way how it gives rise to freedom (i.e., it does not contain the content of freedom). This can be seen in Figure 1 below.

As said above, all sentences are constructions compulsively reflecting the same restricting core, regardless of the specific constituents in them, simple or complicated – it is this restriction that determines the freedom. An innate grammar specifies the derivation of freedom from necessity. This is entirely carried out on an abstract level. Apart from this, an innate grammar must contain a concrete level as well, so that, to use the antithesis that is customarily mentioned in generative grammar, the mapping from *finite* to *infinite* can be realized. Nonetheless, it must be underlined that *infinite* is not invoked with its strict mathematical sense, but with a rhetorical one: simply great in number (because of strong generativity). In line with this, an innate grammar also must be delivered in such a way that concreteness can correspond to abstractness, i.e., elements on the surface can be registered, via categorization, on an abstract level (but not through essence). In generative grammar, the line between grammatical and ungrammatical sentences marks the boundary of the notion of innateness, which is in turn a synonymy of linguistic intuition. There is an equation between innateness and linguistic intuition. Specifically, one's linguistic intuition is thought to identify all possible linguistic forms, by means of valuing them with grammaticality, and those intuitively approved forms are supposedly, through abstraction, the content of innateness. Two problems will ensue. Primarily the line between grammaticality and ungrammaticality is in fact the division between actualness and non-actualness, but both can be possible forms. Therefore, grammaticality is a **narrower** index of intuition or innateness.

Secondly, as grammaticality is intuitively available, it is an object of explanation and evidence of that at the same time. That is, when an expression is judged by our intuition as grammatical or ungrammatical, a generative linguist knows the right outcome of her/his design of a sentence derivation, and thus a sentence derivation will be deliberately conducted towards that outcome predetermined. In other words, as a generative linguist attempts to break down our intuition of grammaticality, s/he needs to formally express the content of it (what exists or happens in it?); but in doing so, s/he has no independent criterion(a) of innateness but a value of grammaticality as evidence of her/his analysis. This affords much freedom for generative linguists in terms of proposing what the faculty of language must naturally contain, because the syntactic operations envisioned as fulfilling grammaticality cannot/do not need to be borne out in their innateness. As a result, what the faculty of language naturally contains might turn out to be what is theory-internally useful. In that, our grammatical intuition might remain unexplained/unanalyzed. As discussed in Chapter Three, this, I believe, underlies Haspelmath's (2021c: 16) claim about the generative style analysis of sentence derivation being a mere repetition of the surface form with highly technical terms.

Figure 1



5.2. Stating the obviousness

As is said, the notion of grammatical intuition that I am attempting to sketch out is something necessarily present in any sentence, and freedom arises above it, so that concretization becomes possible. Thus, we must determine what the unquestionable **obviousness** in the construction of sentences can be. This is the foundation for an innate grammar to be a rigid 'logical entity' whose expansion is only permissible by derivation. For that, I suggest two points in bringing out the obviousness.

The thing that one will not deny is that linguistic items combine to form larger units in syntax. Thus, it is plausible to pin down the obviousness by focusing on combinatoriality of linguistic items. Tentatively, that linguistic items combine is the necessity and with what they combine (to be valued with grammaticality) is the freedom. This process certainly needs to be spelt out. With this said, linguistic combinatoriality must be limited, which would involve the abstraction of what we call *sentence*.

Customarily, we use the term *sentence* to refer to arguably the most important unit of linguistic construction. But not unlike other ‘less important’ ones, the term itself is extremely challenging to define. This holds true not only cross-linguistically but also for any individual languages. It seems that we do ‘intuitively’ realize it when we have made a sentence, and the frustration lies in that we fail to identify what the necessary ingredients are for a sentence, without reference to any specific instance of it in a specific language. If insisting on that, one always encounters this failure, since grammatical categories are only locally obtainable. Thus, it is imperative to clarify at the onset that the definability of sentence does not consist in the specific constituents of it, but the completion of it, a sense of fullness. In other words, a sentence in a language can have its composition of categories, which entirely falls within the free domain, but the abstract addition of them is the same one for all languages, for it stands for the same sense of fullness. It should be noted at this point that the description of an individual category in a language will be discussed in a completely essence-free setting.

5.2.1. Fullness of sentence

As is mentioned briefly above, it is taken as a truism that when one speaks, s/he knows exactly the point where the construction of a sentence is completed. This should be so no matter which language one speaks. Accordingly, the sentences in (5–7) below, in three different languages, namely, English, Chinese, and Arabic, are equally complete. This equal completeness is not, however, a result of the correspondence of each lexical part in them. That is, it is not the case that each of (5–7) is composed of the same ingredients, thus adding up to the same whole. For instance, both the emboldened words in (6) and (7) can be translated as *tall*, and in the sense of describing, it is possible and practical to call both *adjective*. But this does not amount to the equation of any of them to its semantic counterpart *tall* in (5). All that can be said is that the word *tall* is part of the completion that (5) stands for, and so are *gao* ‘tall’ in (6) and *ṭawiila* ‘tall’ in (7). This means, first, the label *adjective* is defined locally – obviously, the three adjectives in three languages have varying formal properties in distribution and morphology, which is beyond predictable. Thus, it is unnecessary to extract, based on whatever similarity(ies) that the three of them happen to have, a higher-level representation. More importantly, what (5–7) share is a sense of fullness resulting from the combination of the lexical items specified differently in (5–7). This can be schematically shown as (8).

5. Lily is **tall**.

6. Lili hen **gao**.

Lili very tall

‘Lily is tall.’

7. Layla **ṭawiila**

Layla tall

‘Layla is tall.’

8. $a_1 + a_2 + a_3 = b_1 + b_2 + b_3 = c_1 + c_2$

In (8), a represents the lexical elements of (5), b (6), and c (7), and what ‘=’ denotes is that the equal state of the full extension of the three sentences, without any correspondence between a , b , and c . In this sense, the equation is extensional (as opposed to intensional). That is, how a sentence of a language is composed in terms of its lexical ingredients can change, for instance, it can be $a_1 + a_2 + a_3 + a_4$, or simply $a_1 + a_5$, but the addition of them altogether will always be the same fullness. This can be illustrated in (9) below.

$$9. a_1 + a_2 + a_3 = a_1 + a_2 + a_3 + a_4 = a_1 + a_5,$$

As a first step of formalization, I will denote that universal fullness with U , and a combination with the symbol ‘+’. Importantly, I will continue to adopt the long-standing assumption of the binary nature in sentence construction, which gives rise to its hierarchical structure (certainly, a sentence can have more than two linguistic items, but that only derive from a binary addition, see below). Thus, on the most fundamental level, any sentences of any languages boil down to the formula below:

$$10. S_1 + S_2 = U$$

Specially, S_1 and S_2 represents two sets, which will contain members so that (10) is amenable to concretization. Since U is constant, S_1 and S_2 will always be two ‘fundamentally opposing’ sets, i.e., complementary and both being the subsets of U . It follows that what drives linguistic combinatoriality is difference, that is,

- Linguistic items that can combine with one another are syntactically different.

Hence, all sentences contain a fundamental binary division. In that, it should be explicated in (11-12) that:

$$11. S_1 \cup S_2 = U$$

$$12. S_1 \cap S_2 = \emptyset$$

To illustrate the concretization, see the following sentences in (13-14) with straightforward divisions:

$$13. \text{Jay}/S_1 \mid \text{left}/S_2 = U.$$

$$14. \text{Lily}/S_1 \mid \text{fell}/S_2 = U.$$

As a sentence is formally equivalent to a binary complementation, it means that categorization is made possible since there needs to be a line that marks the fundamental opposition between linguistic items. As is noted, this is pure conventional, and basically, the syntactic membership of one set is extensional not intensional, and it is determined solely by the test of substitution, that is:

- Linguistic items that can replace one another are syntactically the same thing.

5.2.2. The importance of sentence

That all sentences whatsoever represent the same sense of full complementation will be the basis of the discussion about the universal linguistic intuition. However, in the latest version of

generative grammar, *sentence* is a notion that falls out of use¹, as is said by Chomsky et. al (2019: 232):

The first property [discrete infinity] is the technical statement of the traditional observation that “there is no longest sentence,” the informal notion “sentence” now abandoned in favor of hierarchically structured objects.

The reason for the abandonment of sentence is that since all linguistic units are subject to Merge, i.e., always likely to combine or be combined with others, there will not be a limit imposed on syntactic extension. In this connection, a sentence is not essentially different from any other linguistic unit. Especially, an independent sentence is thought to be the same as an embedded sentence, which can be the main force that drives the unlimited extension of a sentence. To be sure, although the term *infinite* or *infinity* is often encountered in generative literature, it is not clarified in what sense it is used: rhetorically or strictly mathematically (just like an extremely huge number does not mean infinity). One might agree that a sentence could be exceptionally long, but whether that would reach infinity calls for strict proof. With this set aside, the *longest* is not the same as the *fullest*. In that, a sentence’s being full has nothing to do with the number of elements in it. Particularly, addition of elements does not necessarily extend the fullness of a sentence.

15. Lily gave up **the idea of moving back with Jay**.
16. Lily gave up.
17. Jay lived **alone** in London **very happily**.
18. Jay lived in London.

Visibly, (15) and (17) are longer than (16) and (18), but not fuller, since with the emboldened items either added or eliminated, the quality of being a sentence is not affected. To repeat, the central idea is that (15–18) are equal in being the fullest linguistic construction, and we need the notion of sentence to stand for the fullness. Technically speaking, the acknowledgement of the fullness of a sentence is the premise for the performance of substitution, in which the syntactic sameness (i.e., categorial identity) is borne out. See the following examples that each contain a so-called modal (see also Chapter Four).

19. Jay **must** leave now.
20. Jay **should** leave now.

A very straightforward test for *must* and *should* playing the same syntactic role in (19) and (20) respectively is that *must* and *should* replace each other, without affecting how other elements are syntactically identified. Emphatically, the syntactic equivalence between *must* and *should* is exactly based on the equal fullness of (19) and (20). That is because one can never correspond elements from non-equivalent structures, and this structural equivalence can only be shown by means of determining the fullest point of a linguistic construction. For instance, (21) and (22) are clearly not structurally equivalent, and thus *some* and *drinking* are not syntactically parallel

¹ This contrasts with a previous view held among generative linguists. For instance, Radford et al. (2009: 245) say: *With many linguists, we share the view that sentences constitute the ‘largest’ objects which fall under the generative approach to linguistics we are pursuing and that the structure of phrases and sentences is revealing of important aspects of human cognition. Of course, this is not to say that there are no ‘larger’ linguistic objects worth studying, nor that the use of sentences in interaction is not of intrinsic interest. Such larger objects as conversations, discourses, stories and texts are, without doubt, structured, and, indeed, research into these areas has sometimes assumed that some notion of ‘grammar’ is applicable to them. This may be so, but we believe that any such ‘grammar’ will have a very different form to what we are considering here and will have to take account of a wide range of factors which extend beyond the knowledge of language.*

with each other. By contrast, (21) and (23) **can** be proven to be syntactically identical, as shown in (24) and (25).

21. ... (he needs) **some** water
22. ... (he is) **drinking** water
23. ... (he needs) **little** water
24. Lily drank **some** water.
25. Lily drank **little** water.

Appropriately, this sameness can be rigidly ‘calculated’. Let us continue using U to denote the fullest point that a sentence’s composition can reach, the ‘to-be-determined’ elements *some* and *little* are expressed as x and y respectively, and the other three given elements as a₁, a₂, and a₃ in (24) and (25) (i.e., *Lily*, *drank*, and *water*). Thus, it is obtained in (26) below that:

26. $a_1 + a_2 + x + a_3 = U$, and
 $a_1 + a_2 + y + a_3 = U$, hence
 $x = U - (a_1 + a_2 + a_3)$, and
 $y = U - (a_1 + a_2 + a_3)$, hence
 $x = y$.

Undoubtedly, the key to the proof above is that (24) and (25) instantiate the same fullness. This holds true for (19) and (20) as well, i.e., we must be able to ascertain the structural equivalence of them, otherwise, the comparison of (24) and (25) is not unlike that of (21) and (22). Thus, it is necessary to uphold the notion of *sentence* as the starting point of linguistic comparison. Not to mention sentence is a vital part of our linguistic intuition that cannot be ignored. Eventually, the structural status of a linguistic unit is determined by its part in achieving the fullness. Thus, an independent sentence must be distinguished from an embedded one as the former is saliently full, whereas the latter is only viewed in the associativity of it as a whole. Empirically, this can be seen via the substitutions that can involve it and other elements.

27. Jay believes **that Lily is willing to go**.
28. Jay believes **that/it**.
29. Jay believes **the rumor**.

Analogous to (26), the emboldened parts in (27 – 29) can prove to be syntactically equivalent. In this connection, an independent sentence cannot be substituted with an embedded sentence. The following sentences in (30– 33) show that an independent sentence and an embedded one can be (overtly) grammatically separated. Specifically, an independent sentence will not follow a so-called (indicative) complementizer (a covert one seems *ad hoc*), as in (31), and auxiliaries must always precede subjects in questions, as in (33). The possibility of an embedded sentence being marked out signals that it is not the same thing as an independent sentence, in terms of its fullness.

30. Jay believes **that Lily is willing to go**.
31. *That Lily is willing to go.
32. Jay asks Lily **where she is going**.
33. *Where she is going?

It must be clarified that speakers do not depend on formal signals to know how a syntactic item stands in relation to others. Instead, it is because a speaker knows how a unit plays a different

role in achieving the determinate fullness that grammatical marking becomes **possible**. Thus, with or without the omission of *that* in (30), one would know all the same the incompleteness of the embedding clause.

34. Lily wen Xiaojie zai nali.
 Lily ask Xiaojie at where
 'Lily asked where Xiaojie is.'
35. Xiaojie zai nali?
 Xiaojie at where
 'Where is Xiaojie?'
36. Lily shuo Xiaojie buzhi zai nali
 Lily say Xiaojie unknown at where
 'Lily said (that) no one knows where Xiaojie is.'
37. Xiaojie buzhi zai nali.
 Xiaojie unknown at where
 'No one knows where Xiaojie is.'

As seen in (34 – 37), an independent clause does not display any formal alternation from when it is embedded in Chinese. Unlike that in English, this is the only option, i.e., there is no formal way in telling apart an independent and an embedded sentence. This, however, does not mean that the embedded clauses in (34) and (36) are exact copies of (35) and (37), merely occurring in different environments. To repeat, what a linguistic unit is only depends on what role it plays in achieving the determinate fullness. Therefore, an embedded sentence is differentiated from an independent one in that it is subject to hierarchical extension due to its incompleteness. In sum, formal coincidence does not necessarily suggest intentional sameness.

5.2.3. Hierarchical structure as set operations

Crucially, for a specific formulation of a sentence, each element stands in a **complementation** relation to others eventually but perhaps not immediately. E.g., if a sentence is schematized as $a_1 + (a_2 + a_3)$, then a_1 and $a_2 + a_3$ complement each other (details below). In this case, $(a_2 + a_3)$ forms a secondary level of the sentence structure. Thus, it is necessary to relate the secondary level to the root one.

When a sentence becomes complicated, that division will be drawn strictly in accordance with results of substitution. See the instances in (38) and (39).

38. Jay likes skiing.
 39. Lily is a successful scientist.
 40. || Jay |left ||
 | |likes skiing ||
 41. || Lily |fell ||
 | | is a successful scientist ||

(40) and (41) show that what comes after *Jay* and *Lily* can replace each other while maintaining the fullness of a sentence (which is indicated by ||), and therefore, it is where the binary division is drawn. In addition, freedom also arises regarding the internal composition of S_1 and S_2 where the hierarchical structure of a sentence can be further laid out. That is, S_1 and S_2 are analyzable with their own subsets. Observe the following sentences in (42) and (43).

42. Jay showed Lily (a [photo]).
 43. Jay showed Lily (a [beautiful photo]).

By substitution, it is obtained that the bracketed parts replace each other in a sentence. Specially, *photo* in (42) and *beautiful photo* in (43) are syntactic equivalent. What this means is that the extension from *photo* to *beautiful photo* does not have any impact on the syntactic status of the original word *photo* in the sentence, i.e., the extension is an **internal** one. Surely, this can hardly count as anything new, and the intention is to pave the way for the formalization of an internal extension. Suppose that the elements taking part in the internal extension belong to two sets a_1 and a_2 (in the case of (43), corresponding to *beautiful* and *photo* respectively), then it follows that:

$$44. a_1 \cup a_2 = a_2$$

This amounts to saying that a_1 is a subset of a_2 , that is:

$$45. a_1 \subset a_2$$

By contrast, the combination between the article *a* and *photo* or *beautiful photo* can be **external**, since only as a unit can the term *a photo* or *a beautiful photo* be allowed to occur in the positions as seen in (42) or (43). Then it is possible to postulate that the combination results in a new union, differing from (44). Suppose that the term *photo* or *beautiful photo* belongs to a set x , and the article *a* belongs to a set y , and their combination creates the new set z , then it follows that:

$$46. x \cup y = z$$

$$47. x \cap y = \emptyset$$

5.3. Categorization

To repeat, all sentences are instantiations of the same fullness. Formally speaking, the fullness is equivalent to two complementary sets' union, that is:

$$48. S_1 \cup S_2 = U$$

$$49. S_1 \cap S_2 = \emptyset$$

S_1 and S_2 are internally analyzable as well, which amounts to the hierarchical structure of the entire sentence. In that, suppose S as a general sentence constituent, and T as its subset, then to shed light on the two possible ways of presenting the composition of S (the alternation of which, as is said, partially comprises the freedom that arise from 48 and 49):

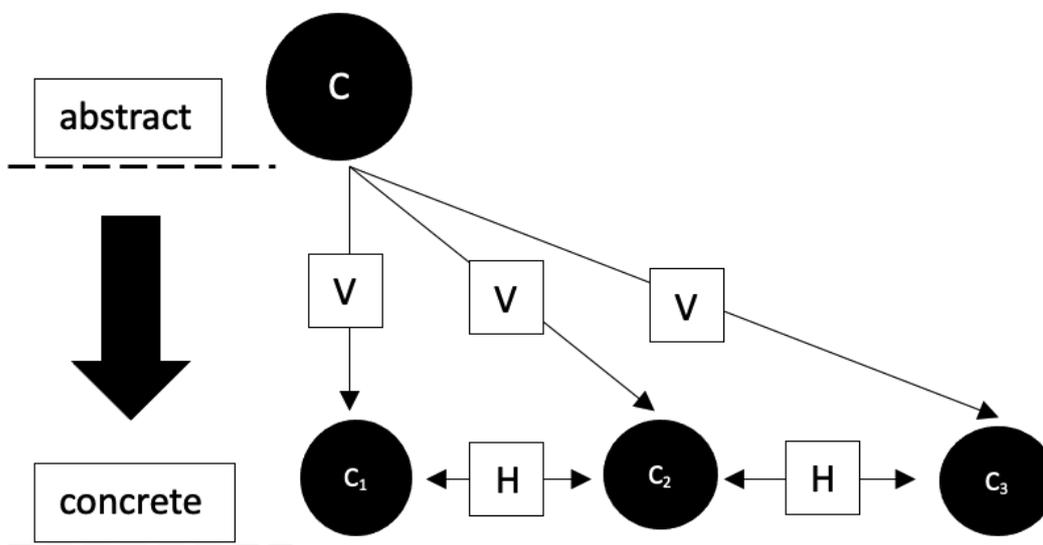
$$50. S = T_1 \cup T_2, \text{ in that, } T_1 \cup T_2 = T_2, \text{ i.e., } T_1 \subset T_2 = S$$

$$51. S = T_1 \cup T_2, \text{ in that, } T_1 \cup T_2 = S \text{ and } T_1 \cap T_2 = \emptyset$$

Above, the set operations are expected to structurally characterize a sentence. But as suggested, it is required that the relationship of '*belonging to*' which holds between a set and its members be illustrated. As shown in the previous chapters, for generative linguists, the composition of a universal grammar presumes a common substantive basis, on which syntactic rules are laid out. This common substantive basis is a limited set of universal categories or a predetermined

lexicon. Thus, the completion of Universal Grammar must be premised on the determination of the fixed inventory. Although flexibility is allowed in it (the actual manifestation of the lineup of categories, as chosen from the inventory, is individualized in a language), basically it still must depend on drawing rigid lines between the categories proposed for the inventory. Theoretically, the difficulty lies in that there needs to be an abstract level on which essences of all categories are clarified. In practice, however, categories used in generative grammar are barely definable, and the essences of them are only maintained loosely by the acceptable uses of them. In that, an essence may just as well be an illusion. On one hand, eventually, it is the supposedly rigid lines between categories that corroborates the systematicity of all the categories and assemble them into the metalanguage. On the other, the presence of a category in the inventory must be borne out by its derivability from the metalanguage. As such, a rather paradoxical situation is created: the metalanguage is nowhere to be seen as the categories are not definable and unifiable, and due to that, proposals of categories are not constrained – the inventory just expands randomly. The following figure shows the **ideal** conception of a grammatical category.

Figure 2



Specifically, C represents a category, and c_1 , c_2 , and c_3 are its members. For generative grammar, the rigidity of a category greatly composes the rigidity of a grammar, and it resides in that, first, the essence of C on the abstract level determines the instantiation of it on the concrete level. V represents the vertical force that is imposed from the abstract level to the concrete level, and as a result, between any members of C , i.e., c_1 , c_2 , and c_3 , there is also a horizontal force that binds them together, and it is the common ground that all members must converge on. The model in Figure 2 shows an essentialist conception about the formation of a category in the sense that V is the cause of (prior to) H , and $V=H$. In a nutshell, in generative grammar, similarity cannot be free (neither can difference).

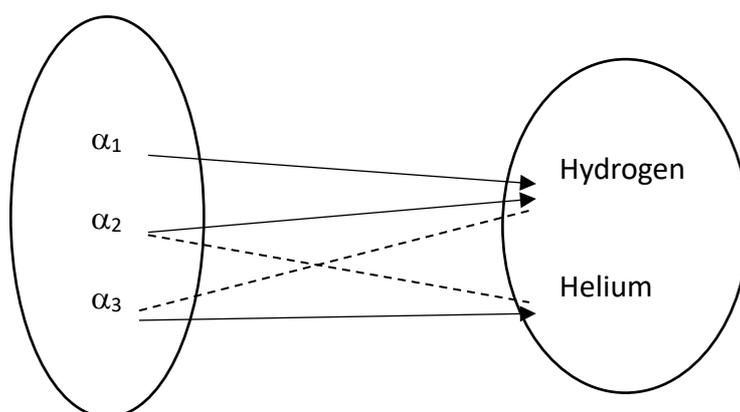
For clarification, we may consider the categorization of chemical elements, which generative grammar should be in parallel with (but fails to). Suppose that there are three atoms which I label as α_1 , α_2 , and α_3 and specify their proton numbers (P) and their neutron numbers (N) of them as seen in Table 1:

Table 1

	α_1	α_2	α_3
P	1	1	2
N	0	2	2

According to Table 1, we can find a similarity and a difference between α_1 and α_2 , and likewise between α_2 and α_3 : α_1 and α_2 have the same proton number but different neutron numbers, and α_2 and α_3 have the same neutron number but different proton numbers. Letting the similarities and differences that we identified to freely connect and disconnect, we would obtain from this simplistic scenario some undesired outcomes. Specifically, there would be a reason to draw a line between α_1 and α_2 on one side and α_3 on the other (according to the proton numbers), or α_1 on one side and α_2 and α_3 on the other (according to the neutron numbers), or to draw lines to separate each of them (because each of them differs from one another in a certain way), or to draw no line at all to make all three of them one category, which, intriguingly, is a family resemblance model. But it is immediately evident that out of the four possibilities set out, we are not allowed to embrace but the first one. That is, the three atoms shown in Table 1 must belong to two kinds of elements: α_1 and α_2 are hydrogen while α_3 is helium, which is solely determined by their proton numbers: 1 for hydrogen and 2 for helium. It means that importantly, similarities and differences are not free in this scenario to connect and disconnect. α_1 and α_2 must connect because of the same proton number (despite the different neutron number), which must serve as a strict boundary, so that α_3 , having a different proton number, must disconnect. In categorizing chemical elements, we must be conscious of the limitation that confines us, and the explication of that limitation is what we cite as proof of our achievement in our scientific pursuit. In this case, for atoms, there is a similarity that *compulsively* connects whatever shows it and maps them to one category, and the boundary between any two elements is impenetrable, as each must uniformly correspond to a unique proton number. For this, the identification of chemical elements can be perfectly likened to a function² (of proton number), as seen in Figure 3. Mainly, an atom with one proton, α_1 or α_2 , cannot be identified otherwise but as hydrogen, which is indicated by the arrows in Figure 3, and an atom whose proton number is not one cannot be identified as hydrogen, which is indicated by the dash line.

Figure 3

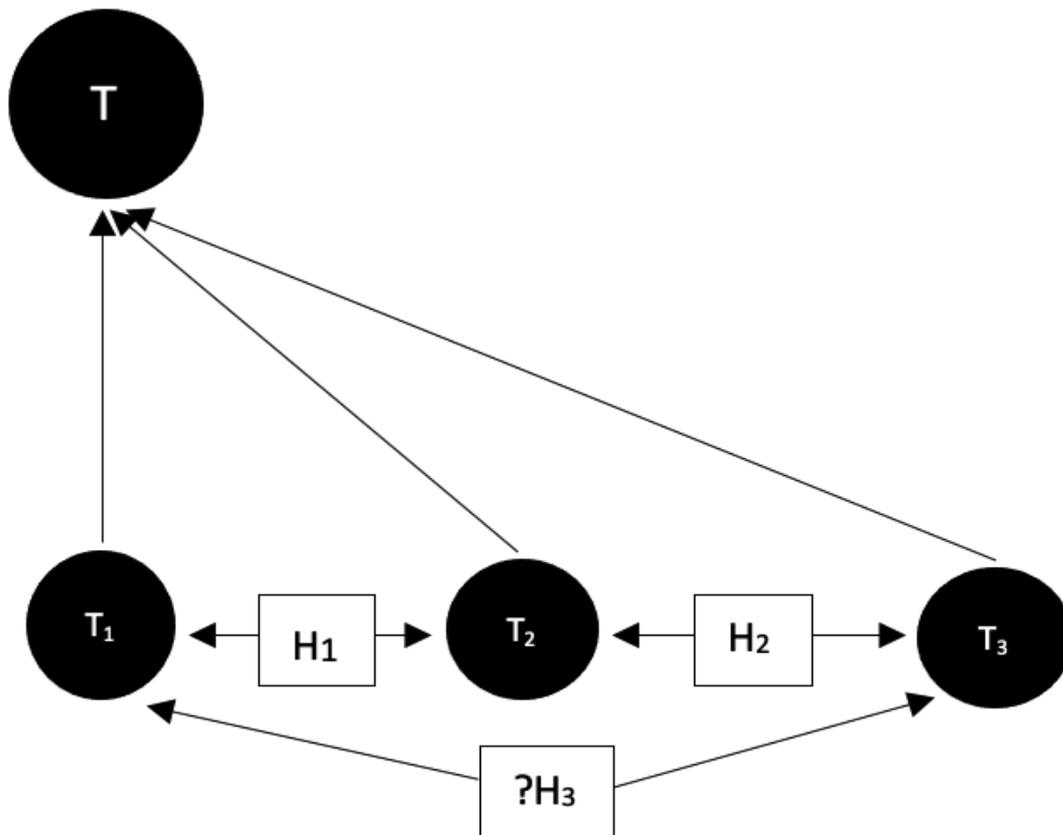


As is stated in Chapter One, since similarity in generative grammar must not be free, then it is a requirement that when a linguistic entity is registered into the deep structure of derivation, it

² This function is a mode of categorization, and thus must be differentiated from the propositional function in the sense of analytic philosophy. The latter is aimed at representing the structure of proposition.

is identified as a necessary truth. This is however not the case with generative grammar. Thus, it is suggested in the current thesis that a predetermined lexicon be eliminated from an innate grammar. In line with what is said above, categories are needed since set operations will assume set divisions, but the intensions of them are determined in individual languages. That is, for a universal grammar, categories are extensional rather than intensional. Specifically, it is utterly unnecessary to link a particular category's intension to the abstract universal grammar, and as opposed to Figure 2 and 3, similarities are free to connect entities³. This can be illustrated in Figure 4.

Figure 4



³ Suppose five entities *j*, *k*, *l*, *m*, and *n*, which can be said to variously relate to one another by similarities A, B, C, D, and E (obviously, they are differences simultaneously). Specifically, just as shown in Table 2, *j* is described by similarities A, B, and C, *k* by C and D, *l* by D and E, *m* by A, C and D, and finally *n* by B, C and E.

Table 2

j	k	l	m	n
A B C	C D	D E	A C D E	B C E

Clearly, the five objects in Table 3 altogether form a possible family resemblance category, for one can map out more than one resemblance route connecting all of them, e.g., *j*'s C – *k*'s C/*k*'s D – *l*'s D/*l*'s E – *m*'s E – *n*'s E, or *k*'s D – *m*'s D/*m*'s A – *j*'s A/*j*'s B – *n*'s B/*n*'s E – *l*'s E (this may be a criss-crossing example of family resemblance, see also Forster [2010: 67]). Note that this category retains its validity and remains the same as long as a continuum exists, regardless of how it is realized exactly. In another extreme scenario, the five objects in Table 2 do not need to form any connection at all, since all of them differ from one another in a certain way. In between, there are still many ways of dividing the five objects to create categories.

Unlike the model in Figure 2, the force that binds a category's members is only horizontal, i.e., there is no essence that predetermines the presence of the category. Instead, it is the connections (similarities) between entities that realize a category, and entities do not need to be connected via the same similarities. Specifically, as shown above, the existence of category T is contingent on the connections between t_1 , t_2 , and t_3 . In that, the connection between t_1 and t_2 does not need to coincide with that between t_2 and t_3 , and there may not even be a (direct) connection between t_1 and t_3 . With this said, a linguistic category is organized as a family resemblance concept, which will be the principle in understanding a linguistic category. That is, one cannot predict a linguistic category's behavior but only summarizes it *post hoc* according to how it is used, since for a family resemblance concept there is no essence whatsoever on an abstract level that binds it *a priori*.

5.4. Conclusion

In this chapter, I suggest that an innate grammar should start with stating what is obvious about our grammatical intuition, which can reside in the most basic characteristic of linguistic entities, i.e., combinatoriality. When the obviousness can be set out, an innate grammar can be fulfilled with rigor. Specifically, I argue that universality lies in the same **fullness** that underlies the construction of sentences in all languages, i.e., we know indiscriminately when a sentence is complete. Thus, the fullness is formalized as one universal set U obtained as the union of two complementary sets. That is, a sentence will always contain a binary division, and the hierarchical structure of a sentence will be unfolded via the internal composition of the two complementary sets. That can be realized by internal extension, i.e., a union of one set with its subset, or external extension, i.e., a union of two complementary sets. Another point is that boundaries of categories are said to be extensional rather than intensional. It means, categories are needed (as they set up the structural composition of a sentence) but how they are described falls completely in the free domain of individual languages. In other words, what is important is the boundaries of categories but not where the boundaries lie. Thus, a pre-determined lexicon can be eliminated from an innate grammar. Admittedly, though, this chapter contains some of my preliminary suggestions about building up an innate grammar, in the light of the issues that have been specified in this thesis, and many detailed questions about the vast grammatical phenomena are left out. However, I do believe that it is necessary to approach to an innate grammar through the truthful depiction of innateness, which must serve as the real frame of the theoretical expansion of an innate grammar. In this sense, we must put language in parallel to mathematics, in that, it needs an axiomatic foundation, so that rigidity can be guaranteed.

6. Conclusion

To begin the conclusion, I cite, again, the first paragraph of Edelman and Christiansen's (2003: 60) article '*How seriously should we take Minimalist syntax?*':

Lasnik's review of the Minimalist program in syntax offers cognitive scientists help in navigating some of the arcana of the current theoretical thinking in transformational generative grammar. One might observe, however, that this journey is more like a taxi ride gone bad than a free tour: it is the driver who decides on the itinerary, and questioning his choice may get you kicked out. Meanwhile, the meter in the cab of the generative theory of grammar is running, and has been since the publication of Chomsky's *Syntactic Structures* in 1957. The fare that it ran up is none the less daunting for the detours made in his *Aspects of Theory of Syntax* (1965), *Government and Binding* (1981), and now *The Minimalist Program* (1995). Paraphrasing Winston Churchill, it seems that never in the field of cognitive science was so much owed by so many of us to so few (the generative linguists). (Edelman and Christiansen 2003: 60)

Centrally, it is not easy to follow generative grammar, which, meanwhile, cannot be overlooked by anyone who studies language. This is why I feel sympathetic to the statements that Edelman and Christiansen put so penetratingly and amusingly. To be clear, however, this is not so much about generative grammar's being intellectually challenging, but about failing to find necessity in following generative grammar. Indeed, there can be separate worlds in the field of linguistics, especially regarding the construction of a universal grammar (that has implications on language acquisition). Just like Haspelmath (2021c) describes it, generative linguists are building up **walls** with their unique fashion of analyzing sentences or languages, which might not turn out to be beneficial for linguists practicing non-generative traditions. This is one crucial point because, to benefit from (or at least, understand) a generative syntactic account, one needs to subscribe to a series of assumptions with one based on another. On one hand, generative linguists view their achievements from the past as an encouragement for adhering to their basic assumptions (see Chomsky et al. 2019; D'Alessandro 2019) – though the reforming of generative grammar towards an ideally restricted 'computational system' is constantly in progress, and Chomsky is especially enthusiastic about it. Clearly, based on their common belief, generative linguists can justify their success. On the other hand, however, since the divergence is rooted rather deeply, non-generative linguists can only find the appreciation of generative linguists' achievements a demanding process. This thesis has been, first of all, an expression about some of my confusion about generative grammar.

As has been said throughout the thesis, the confusion concentrates on the notion of innateness, which generative grammar is believed to be revealing. But how reliable is that? And what do we learn finally about innateness? To be clear, innateness is how generative grammar can obtain its explanatory adequacy. That is because equated with innateness, generative grammar stands for the fundamental metaphysical and epistemological ground of language, and it simply boils down to language's *being as such*. In this sense, generative grammar, apart from an account of grammaticality, is thought to shed light on language acquisition as well, in that, it is the mental facts of the generation of expressions. Without a doubt, the metaphysical and epistemological significance of generative grammar hinges on the verification of the innateness of it, and only because of that can generative grammar be said to explain grammaticality as how it is *naturally* and coincide with the way how humans learn language. However, innateness is only trivially involved in the theorization of generative grammar, for it is assumed as a self-evident property by generative linguists. That is, an innate grammar seems to be necessary (language acquisition requires more than receiving linguistic data) and generative grammar must be innate to qualify as a theory of language acquisition, and therefore whatever comes up in it ought to be innate. Eventually, innateness is never truthfully presented, because the main body of its theorization, i.e., the formalization of sentence derivation, has not been subject to the constraint of innateness.

In view of this, generative grammar is unable to draw the line between possible and impossible linguistic patterns, as that should only depend on the analyzability of innateness. Specifically, a grammatical sentence is one that, on one hand, has a core of necessity instantiating the notion of innateness, and on the other hand, shows the freedom allowed by innateness, and generative grammar can never explicate that process. For generative grammar, the sentence derivation is a formalization of a value (grammatical or ungrammatical), that is, it finally leads to that value but never independently explain it. This said, generative grammar's formalization is basically a free domain, a repetition (Haspelmath 2021c) or a translation (Tallman 2021) of what we can see on the surface. A major manifestation of the freedom is the randomly composed *lexicon* in generative grammar, which must be assumed before derivation and functions as the reference for grammaticality or ungrammaticality. Nonetheless, no one seems to care about justifying the use of lexical or grammatical labels configured in generative grammar's 'ideal computational system'. That is, anything must be compatible with it metaphysically and epistemologically to be permitted in it.

Just as has been demonstrated with the construction of a syntactic node called *Tense* in English, Chinese, and Arabic, which is a process of verifying the universality of Tense, it is carried out without knowing what Tense is and how it can be related to innateness. Hence, not unlike other categories in generative grammar, freedom arises in the application of it. In particular, the way how similarities or differences are treated to induce the presence of Tense is unprincipled. The original establishment of Tense draws on language-specific considerations (mainly English and other Western languages), and it is unclear what the conceptual core of Tense is and how that can be empirically manifested. Without warrant of sameness, Tense can be evidenced by any arbitrary connection between two languages. Ominously, using arbitrary similarities as cross-linguistic 'inspirations' is a convenient way for generative linguists to extend their theorization (the ability to 'predict'), especially under the scheme of Principles and Parameters. As has been repeatedly stressed, a connection is always available, but the difficulty lies in finding sameness. Appropriately, sameness of linguistic entities only amounts to the derivability of them from the notion of innateness, so that any concept that appears in the ideal computational system can be properly integrated in the overall conceptual structure of innateness.

Finally, the current thesis is a call for the justification of innateness, that is, an innate grammar should be one that truly 'knows' innateness. As has been specified, an innate grammar is first a metaphysical commitment to the being of language, which means the explication of the way that language is allowed to be present in the universe. This metaphysical commitment will thus spell out the invariant core of necessity for all languages, as that is essential to the presence of language. Equally importantly, an innate grammar clarifies how possibilities are allowed in the realization of the necessary core, i.e., all the various linguistic phenomena must be tied to the fundamental being of language by rigid derivation. As such, an innate grammar can be called a logical entity, which resides in the necessity in its basis and the rigidity in its expansion. This is certainly an extremely challenging intellectual quest, whose completion is far beyond a thesis, but it should be initiated, and the first step is to contemplate what innateness truly is.

Bibliography

- Adger, David. 2003. *Core syntax: A minimalist approach*. Oxford: Oxford University Press.
- Adger, David, Daniel Harbour, and Laurel J. Watkins. 2009. *Mirrors and microparameters: Phrase structure beyond free word order*. Cambridge: Cambridge University Press.
- Adger, David. 2007. Three domains of finiteness: A minimalist perspective. In Irina Nikolaeva (ed.), *Finiteness: Theoretical and empirical foundations*, 23–58. Oxford: Oxford University Press.
https://scholar.google.co.uk/scholar_url?url=https://ling.auf.net/lingbuzz/000296/current.pdf&hl=en&sa=X&ei=ixQxYfzBJ-uNy9YP8aigsAg&scisig=AAGBfm0MZnfur2mmdMkWLRx0kek3touHgQ&oi=scholar
- Adger, David. 2010. A minimalist theory of feature structure. In Anna Kibort & Greville G. Corbett (ed.), *Features: perspectives on a key notion in linguistics*, 155–218. Oxford: Oxford University Press. DOI: <http://doi.org/10.1093/acprof:oso/9780199577743.003.0008>
- Adger, David. 2015a. More misrepresentation: A response to Behme and Evans 2015. *Lingua* 162. 160–166.
- Adger, David. 2015b. Mythical myths: Comments on Vyvyan Evans' *The Language Myth*. *Lingua* 158. 7–80.
- Adger, David. 2021a. Are generative grammarians abandoning innateness? *David Adger: syntax and other stuff*. <https://davidadger.org/2021/04/08/are-generative-grammarians-abandoning-innateness/> (08 April 2021.)
- Adger, David. 2021b. On doing theoretical linguistics. *Theoretical Linguistics*. 2021, 47(1-2): 33-45. <https://doi.org/10.1515/tl-2021-2003>
- Adger, David, Daniel Harbour & Laurel J. Watkins. 2009. *Mirrors and microparameters: Phrase structure beyond free word order*. Cambridge: CUP.
- Anderson, Stephen R. 2004. *Doctor Dolittle's Delusion*. New Haven, CT: Yale University Press.
- Al-Mutairi, Fahad Rashed. 2014. *The minimalist program: the nature and plausibility of Chomsky's biolinguistics*. Cambridge: Cambridge University Press.
- Aoun, Joseph E., Elabbas Benmamoun & Lina Choueiri. 2010. *The syntax of Arabic*. Cambridge: Cambridge University Press.

- Aoun, Joseph, and Yen-Hui Audrey Li. 1989. Scope and constituency. *Linguistic Inquiry* 20: 141–172.
- Allott, Nicholas, and Georges Rey. 2017. The many errors of Vyvyan Evans' *The Language Myth*. *The Linguistic Review* 2017, 34(3), 1-20.
<https://doi-org.ezphost.dur.ac.uk/10.1515/tlr-2017-0011>
- Aoun, Joseph, and Yen-Hui Audrey Li. 1993. *Syntax of Scope*. Cambridge: MIT Press.
- Aronoff, Mark. 2016. Unnatural kinds. In Ana R. Luís & Ricardo Bermúdez-Otero (eds.), *The morpheme debate*, 11–32. Oxford: Oxford University Press.
- Asher, Nicholas. 1993. *Reference to Abstract objects in discourse*. Dordrecht: Kluwer.
- Antony, Louise M., and Norbert Hornstein. 2003. *Chomsky and his critics*. Oxford: Blackwell.
- Bahloul, Maher. 2008. *Structure and function of the Arabic verb*. London: Routledge.
- Baker, Mark. 2001. *The atoms of language*. New York: Basic Books.
- Baker, Mark. 2003a. *Lexical categories: Verbs, nouns, and adjectives*. Cambridge: Cambridge University Press.
- Baker, Mark. 2003b. Linguistic differences and language design. *Trends in Cognitive Science* 7:349–353.
- Baker, Mark. 2008. The macroparameter in a microparametric world. In Theresa Biberauer (ed.), *The limits of syntactic variation*. 351-373. <https://doi.org/10.1075/la.132.16bak>
- Baker, Mark. 2009. Language universals: abstract but not mythological. *Behavioral and Brain Sciences*, 2009, 32(5): 448-449. <http://doi.org/10.1017/S0140525X09990604>
- Baker, Mark. 2010. Formal generative typology. In Bernd Heine and Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis*, 285–312. Oxford: Oxford University Press.
<http://doi.org/10.1093/oxfordhb/9780199544004.013.0012>
- Baker, Mark & Jim McCloskey. 2007. On the relationship of typology to theoretical syntax. *Linguistic Typology* 11. 285–96. <https://doi.org/10.1515/LINGTY.2007.023>
- Barker, S. 1961. On Simplicity in Empirical Hypotheses. *Philosophy of Science* 28: 162–171.
- Bambrough, Renford. 1960. Universals and Family Resemblances. *Proceedings of the Aristotelian Society*, 61, 207–222. <http://www.jstor.org/stable/4544648>

- Behme, Christina, and Vyvyan Evans. 2015. Leaving the myth behind: A reply to Adger (2015). *Lingua* 162. 149–159.
- Biberauer (ed.), *The limits of syntactic variation*, 351-373. Amsterdam: Benjamins.
<https://doi.org/10.1075/la.132.16bak>
- Bickel, Balthasar. 2021. Beyond universals and particulars in language. *Theoretical Linguistics* 2021, 47(1-2): 47-52. <https://doi.org/10.1515/tl-2021-2004>
- Bird, Alexander. 2018. The metaphysics of natural kinds. *Syntheses*. 195: 1387-1426.
<https://doi.org/10.1007>
- Bird, Alexander, and Emma Tobin. 2024. Natural Kinds. *The Stanford Encyclopedia of Philosophy* (Spring 2024 Edition), Edward N. Zalta & Uri Nodelman (eds.), forthcoming
<https://plato.stanford.edu/archives/spr2024/entries/natural-kinds>
- Bellaimey, James E. 1990. Family resemblance and the problem of the under determination of extension. *Philosophical Investigations* 13 (1): 31-43.
- Belletti, Adriana. 1990. *Generalized verb movement: aspects of verb syntax*. Turin: Rosenberg & Sellier.
- Belletti, Adriana (ed.). 2004. Structures and Beyond. *The Cartography of Syntactic Structures, Volume 3*. Oxford University Press, New York.
- Belletti, Adriana. 2004. Aspects of the low IP area. In Luigi Rizzi (ed.), *The Structure of IP and CP. The Cartography of Syntactic Structures*, vol. 2, 16–51. Oxford: Oxford University Press.
- Benmamoun, Elabbas. 2000. *The feature structure of functional categories: a comparative study of Arabic Dialects*. New York: Oxford University Press.
- Berwick, Robert C. & Noam Chomsky. 2016. *Why only us: Language and evolution*. Cambridge, MA: MIT Press.
- Bever, Thomas. 1970. The Cognitive basis for linguistic structures. In John Hayes (ed.), *Cognition and the Development of Language*. New York: John Wiley and Sons.
- Bezuidenhout, Anne L. 2008. Language as internal. In Ernest Lepore and Barry C. Smith (ed.), *The Oxford handbook of philosophy of language*, 100-109. Oxford: Oxford University.
<http://doi.org/10.1093/oxfordhb/9780199552238.003.0005>

- Bianchi, Valentina. 2003. On finiteness as logophoric anchoring. In *Temps et Point de Vue/Tense and Point of View*, ed. Jacqueline Guerón, and Liliane Tasmowski, 213–246. Nanterre: Université Paris X.
- Binnick, Robert. 1991. *Time and the verb*. New York: Oxford University Press.
- Bittner, Maria. 2014. *Temporality: Universals and Variation*. Oxford: Wiley Blackwell.
- Bloomfield, Leonard. 1933. *Language*. New York: Henry Holt.
- Boeckx, Cedric. 2006. *Linguistic Minimalism: Origins, Concepts, Methods, and Aims*. New York: Oxford University Press.
- Boeckx, Cedric. 2014. What Principles and Parameters got wrong. In Carme Picallo (ed.), *Linguistic variation in the minimalist framework*. 155-178. Oxford: Oxford University Press. <http://doi.org/10.1093/acprof:oso/9780198702894.001.0001>
- Boghossian, Paul., 1992. Externalism and inference. *Philosophical Issues* 2: 11–28.
- Borsley, Robert D. & Stefan Müller. 2021. HPSG and Minimalism. In Stefan Müller, Anne Abeillé, Robert D Borsley and Jean-Pierre Koenig (eds.), *Head-Driven Phrase Structure Grammar: The handbook*, 805-876. Berlin: Language Science Press. <https://langsci-press.org/catalog/book/259>
- Bresnan, Joan. 1976. Nonarguments for Raising. *Linguistic Inquiry* 7(3). 485-501. <http://www.jstor.org/stable/4177936>
- Bresnan, Joan, and Ronald M. Kaplan, 1982. Introduction: Grammars as Mental Representations of Language. In Joan Bresnan (ed.), *The Mental Representation of Grammatical Relations*. Cambridge, MA: MIT Press, xvii–lii.
- Brown, Keith & Jim Miller. 2016. *A critical account of English syntax*. Edinburgh: Edinburgh University Press.
- Bruening, Benjamin. 2020. The head of the nominal is N, not D: N-to-D Movement, Hybrid Agreement, and conventionalized expressions. *Glossa: a journal of general linguistics* 5(1): 15. 1-19. <http://doi.org/10.5334/gjgl.1031>
- Burgess, John. 2003. Basic tense logic. In Dov Gabbay and Franz Guenther (eds.), *The handbook of philosophy of logic*. Dordrecht: Kluwer.
- Burton-Roberts, Noel. 2016. *Analysing sentences: an introduction to English syntax*. London: Routledge.

- Cable, S. 2007. *The grammar of Q: Q-particles and the nature of Wh-fronting, as revealed by the Wh-questions of Tlingit*. Doctoral dissertation, Massachusetts Institute of Technology. <http://ling.auf.net/lingbuzz/000553>
- Cable, S. 2008. Q-particles and the nature of wh-fronting. In: *Quantification: A crosslinguistic perspective*, ed. L. Matthewson, 105–78. Elsevier. <http://people.umass.edu/scable/papers/Q-Particles-and-Wh-Fronting.pdf>.
- Carnie, Andrew. 2002. *Syntax: a generative introduction*. Oxford: Blackwell.
- Chomsky, Noam. 1957. *Syntactic structures*. The Hague: Mouton.
- Chomsky, Noam. 1959. Review of B. F. Skinner, *Verbal behavior*. *Language* 35. 26–58.
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1972. *Language and mind*, 2nd edn. New York: Harcourt, Brace & World.
- Chomsky, Noam. 1977. *Essays on form and interpretation*. Amsterdam: North Holland.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Knowledge of Language*. New York: Praeger.
- Chomsky, Noam. 1993. A minimalist program for linguistic theory. In Kenneth Hale and Samuel Keyser (ed.), *The view from building 20*, 1-52. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. *New Horizons in the Study of Language and Mind*. Cambridge: Cambridge University Press.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 1-52. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/4056.001.0001>
- Chomsky, Noam. 2005. Three factors in language design. *Linguistic Inquiry*, 2005, 36(1), 1-22. <https://www.jstor.org/stable/4179307>
- Chomsky, Noam, Ángel J. Gallego & Dennis Ott. 2019. Generative grammar and the faculty of language: Insights, questions, and challenges. *Catalan Journal of Linguistics* 2019. 229–261. <https://doi.org/10.5565/rev/catjl.288>.

- Chomsky, Noam & Morris Halle. 1968. *The sound pattern of English*. New York: Harper & Row.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads: A cross-linguistic approach*. New York: Oxford University Press.
- Cinque, Guglielmo (ed.). 2002. *The Structure of CP and DP: The Cartography of Syntactic Structures*, Vol. 1. Oxford: Oxford University Press.
- Cinque, Guglielmo. 2004. 'Restructuring' and functional structure. In Adriana Belletti (ed.), *Structures and Beyond: The Cartography of Syntactic Structures*, Vol. 3, 132–191. New York: Oxford University Press.
https://www.ling.upenn.edu/~kroch/courses/lx550/readings/restructuring/cinque2004_restructuring.pdf
- Cinque, Guglielmo. 2006. *Restructuring and Functional Heads: The Cartography of Syntactic Structures*, Vol. 4. Oxford: Oxford University Press.
- Cinque, Guglielmo & Luigi Rizzi. 2009. The cartography of syntactic structures. In Bernd Heine and Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis*, 80-95.
<http://doi.org/10.1093/oxfordhb/9780199544004.013.0003>
- Coates, Jennifer. 1983. *The Semantics of Modal Auxiliaries*. London: Croom Helm.
- Comrie, Bernard. 1976. *Aspect*. Cambridge: Cambridge University Press.
- Comrie, Bernard. 1985. *Tense*. Cambridge: Cambridge University Press.
- Comrie, Bernard. 1981. *Language universals and linguistic typology: Syntax and morphology*. Oxford: Blackwell.
- Comrie, Bernard. 1999. Reference-tracking: Description and explanation. *Sprachtypologie und Universalienforschung* 52(3–4). 335–346.
- Cristofaro, Sonia. 2009. Grammatical categories and relations: Universality vs. language-specificity and construction-specificity. *Language and Linguistics Compass* 3(1). 441–479.
- Croft, William. 2001. *Radical construction grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press.
- Croft, William. 2003. *Typology and universals*, 2nd edn. Cambridge: Cambridge University Press.

- Croft, William. 2009. Methods for finding universals in syntax. In Sergio Scalise, Elisabetta Magni & Antonietta Bisetto (eds.), *Universals of language today*, 145–164. Dordrecht: Springer.
- Croft, William. 2010. Relativity, linguistic variation and language universals. *CogniTextes* 4.303 <http://cognitextes.revues.org/303/>
- Croft, William. 2016. Comparative concepts and language-specific categories: theory and practice. *Linguistic Typology*. 2016, 20(2): 377-393 <http://doi.org/10.1515/lingty-2016-0012>
- Croft, William, and D. Alan Cruse. 2004. *Cognitive linguistics*. Cambridge: Cambridge University Press.
- Crowley, Terry. 2002. *Serial verbs in Oceanic: A descriptive typology*. Oxford: Oxford University Press.
- Cottingham, John. 1984, *Rationalism*, London: Paladin Books.
- Cowie, Fiona. 2017. Innateness and Language. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2017 Edition), <https://plato.stanford.edu/archives/fall2017/entries/innateness-language>
- D'Alessandro, Roberta. 2019. The achievements of Generative Syntax: a time chart and some reflections. *Catalan Journal of Linguistics* 2019. 7–26. <https://doi.org/10.5565/rev/catjl.232>.
- D'Alessandro, Roberta. 2021. Not everything is a theory. *Theoretical Linguistics* 2021, 47(1-2): 53-60. <https://doi.org/10.1515/tl-2021-2005>
- Dabrowska, Ewa. 2015. What exactly is Universal Grammar, and has anyone seen it? *Frontiers in Psychology* 6. 1-17. <https://doi.org/10.3389/fpsyg.2015.00852>
- Dahl, Östen. 2016. Thoughts on language-specific and crosslinguistic entities. *Linguistic Typology* 20 (2). 427–437.
- Dowty, David. 1982. Tenses, time adverbs, and compositional semantic theory. *Linguistics and philosophy*, 5: 23-55.
- de Villiers, Jill. 2007. The Interface of Language and Theory of Mind. *Lingua* 117: 1858–1878.
- DeCaen, Vincent. 1995. Tenseless languages in light of an aspectual parameter for Universal Grammar: a preliminary cross-linguistic survey. *Toronto Working Papers in Linguistics* 14. <https://twpl.library.utoronto.ca/index.php/twpl/article/view/6326>.

- Devitt, Michael. 2006. *Ignorance of Language*. Oxford: Oxford University Press.
- Dryer, Matthew S. 2006. Descriptive theories, explanatory theories, and basic linguistic theory. In Felix K. Ameka, Alan Dench and Nicholas Evans (eds.), *Catching language: The standing challenge of grammar writing*, 207–234. Berlin: Mouton de Gruyter. <https://doi.org/10.1515/9783110197693.207>
- Dryer, Matthew S. 1997. Are grammatical relations universal? In Joan L. Bybee, John Haiman & Sandra A. Thompson (eds.), *Essays on language function and language type: Dedicated to T. Givón*, 115–143. Amsterdam: Benjamins.
- Dryer, Matthew S. 2005. Order of subject, object and verb. In Martin Haspelmath, Matthew S. Dryer, David Gil & Bernard Comrie (eds.), *The World Atlas of Language Structures*, 330–333. Oxford: Oxford University Press. <https://wals.info/chapter/81>.
- Dryer, Matthew S. 2016. Crosslinguistic categories, comparative concepts, and the Walman diminutive. *Linguistic Typology* 20(2). 305–331. <https://doi.org/10.1515/lingty-2016-0009>.
- Edelman, Shimon and Morten H. Christiansen. 2003. How seriously should we take Minimalist syntax? *Trends in cognitive sciences*, 2003, 7(2): 60-61.
- Epstein, Samul, and Daniel Seely. 2006. *Derivations in Minimalism*. Cambridge: Cambridge University Press.
- Evans, Vyvyan. 2014a. *The Language Myth: Why Language is Not an Instinct*. Cambridge University Press, Cambridge.
- Evans, Vyvyan. 2014b. There is No Language Instinct. *Aeon*. <http://aeon.co/magazine/culture/there-is-no-language-instinct>
- Evans, Vyvian & Melanie Green. 2006. *Cognitive linguistics: an introduction*. Edinburgh: Edinburgh University Press.
- Evans, Nicholas & Stephen Levinson. 2009. The myth of language universals. *Behavioral and Brain Sciences* 32. 429–492. <http://doi.org/10.1017/S0140525X0999094X>
- Everett, Daniel. 2005. Cultural constraints on grammar and cognition in Pirahã. *Current Anthropology* 46(4). 621–646.
- Fassi Fehri, Abdelkader. 1993. *Issues in the structure of Arabic clauses and words*. Dordrecht: Kluwer Academic Publishers.

Fassi Fehri, Abdelkader. 2004. Temporal/aspectual interaction and variation across Arabic heights. In Jacqueline Gueron & Jacqueline Lecarme (ed.). *The syntax of time*. 235-258. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/6598.003.0012>

Fitch, W. Tecumseh & Hauser, Marc D. & Chomsky, Noam. 2005. The evolution of the language faculty: Clarifications and implications. *Cognition* 97(2). 179–210. <http://dx.doi.org/10.1016/j.cognition.2005.02.005>

Forker, Diana. 2021. General linguistics and the nature of human language. *Theoretical Linguistics*, 2021, 47(1-2): 61-74. <https://doi.org/10.1515/tl-2021-2006>

Forster, Micheal. 2010. Wittgenstein on Family Resemblance Concepts. In Arif Ahmed (ed.), *Wittgenstein's Philosophical Investigations: A Critical Guide*. Cambridge: Cambridge University Press, pp. 66–87.

Fuchs, Susanne and Paschen, Ludger. 2021. (Non)conventional aspects of language and their relation to general linguistics. *Theoretical Linguistics*, 2021, 47(1-2): 75-84. <https://doi.org/10.1515/tl-2021-2007>

Gert, Heather J. 1995. Family Resemblance and Criteria. *Synthese* 105: 177–190. <http://dx.doi.org/10.1007/BF01064217>

Giorgi, Alessandra and Fabio Pianesi. 1997. *Tense and aspect: from semantics to morphosyntax*. Oxford: Oxford University Press.

Glock, Hans Johann. 1996. *A Wittgenstein Dictionary*. Oxford: Blackwell.

Griffin, Nicholas. 1974. Wittgenstein, Universals and Family Resemblances. *Canadian Journal of Philosophy*, 3 (4): 635-651.

Haegeman, Liliane. 1997. Elements of grammar. In Liliane Haegeman (ed.), *Elements of Grammar: Handbook of Generative Syntax*. 9-80. Dordrecht: Kluwer Academic Publishers. http://doi.org/10.1007/978-94-011-5420-8_1

Haegeman, Liliane. 2006. *Thinking syntactically: a guide to argumentation and analysis*. Oxford: Blackwell.

Haegeman, Liliane, and J. Guéron. 1999. *English Grammar: A Generative Perspective*. Oxford: Blackwell.

Haider, Hubert. 2019. An anthropic principle in lieu of a “Universal Grammar.” In Jessica M. M. Brown, Andreas Schmidt, and Marta Wierzba (eds.), *Of trees and birds: A festschrift for Gisbert Fanselow*, 363–381. Potsdam: Universitätsverlag Potsdam. <http://doi.org/10.25932/publishup-42654>

Halle, Morris. 1961. On the Role of Simplicity in Linguistic Description. *Proceedings of Symposia in Applied Mathematics* 12: 89–94.

Hanson, Norwood R. 1958. *Patterns of Discovery*. Cambridge: Cambridge University Press.

Harlow, Stephen J. 1995. Evolution of Transformational Grammar. In Koerner, E. F. K., & Asher, R. E. (eds.), *Concise history of the language sciences: From the sumerians to the cognitivists*. Elsevier Science & Technology.

Haspelmath, Martin. 2004. Does linguistic explanation presuppose linguistic description? *Studies in Language* 28. 554–579.
<https://doi.org/10.1075/sl.28.3.06has>.

Haspelmath, Martin. 2008. A frequentist explanation of some universals of reflexive marking. *Linguistic Discovery* 6(1). 40–63.
<https://doi.org/10.1349/PS1.1537-0852.A.331>.

Haspelmath, Martin. 2007. Pre-established categories don't exist: consequences for language description and typology. *Linguistic Typology* 11, 119–132.
<http://doi.org/10.1515/lingty.2007.011>

Haspelmath, Martin. 2010. Comparative concepts and descriptive categories in crosslinguistic studies. *Language* 86(3). 663–687. <https://doi.org/10.1353/lan.2010.0021>.

Haspelmath, Martin. 2016. The challenge of making language description and comparison mutually beneficial. *Linguistic Typology*. 2016, 20(2): 299–303.
<http://doi.org/10/1515/lingty-2016-0008>

Haspelmath, Martin. 2018. How comparative concepts and descriptive linguistic categories are different. In Daniël Van Olmen, Tanja Mortelmans & Frank Brisard (eds.), *Aspects of linguistic variation: Studies in honor of Johan van der Auwera*, 83–113. Berlin: De Gruyter Mouton.

Haspelmath, Martin. 2020b. Human linguisticity and the building blocks of languages. *Frontiers in Psychology* 10(3056). 1–10. <https://doi.org/10.3389/fpsyg.2019.03056>.

Haspelmath, Martin. 2021a. Some (ex-)generative grammarians who are abandoning innateness. *Hypotheses*. <https://dlc.hypotheses.org/2481> (05 April, 2021)

Haspelmath, Martin. 2021b. On David Adger on reduced innateness and “placeholders for a better understanding”. *Hypotheses*. <https://dlc.hypotheses.org/2490> (12 April, 2021.)

Haspelmath, Martin. 2021c. General linguistics must be based on universals (or general aspects of language). *Theoretical Linguistics*. 2021, 47(1-2): 1-31. <https://doi.org/10.1515/tl-2021-2002>

Haspelmath, Martin. 2021d. How to tear down the walls that separate linguists: continuing the quest for clarity about general linguistics. *Theoretical Linguistics*. 2021, 47(1-2): 137-154 <https://doi.org/10.1515/tl-2021-2011>

Hauser, Marc D., Noam Chomsky & W. Tecumseh Fitch. 2002. The faculty of language: What is it, who has it, and how did it evolve? *Science* 298(5598). 1569–1579. <https://doi.org/10.1126/science.298.5598.1569>.

Higginbotham, James. 1995. Tensed thoughts. *Mind and Language*, 10: 226-249.

Hinzen, Wolfram & Michelle Sheehan. 2013. *The philosophy of universal grammar*. Oxford: Oxford University Press.

Hinzen, Wolfram. 2016. Is our mental grammar just a set of constructions? Commentary on Evans (2014). *Language* 92(1). 203–207

Hoji, Hajime. 2015. *Language faculty science*. Cambridge: Cambridge University Press.

Holmberg, Anders. 2016. Linguistic typology. In Ian Roberts (ed.), *The Oxford handbook of Universal Grammar*, 355–376. Oxford: Oxford University Press. <http://doi.org/10.1093/oxfordhb/9780199573776.013.15>

Holes, Clive. 2004. *Modern Arabic: structures, functions, and varieties*. Washington, DC: Georgetown University Press.

Hornstein, Norbert. 1995. *Logical Form: From GB to Minimalism*. Oxford: Blackwell.

Hornstein, Norbert. 2013. Three Grades of Grammatical Involvement: Syntax from a Minimalist Perspective. *Mind & Language*, 2013, 28(4): 392–420.

Hornstein, Norbert. 2014. *The Verdict is in Regarding Evans Book*. Blogpost. <http://facultyoflanguage.blogspot.ca/2014/12/the-verdict-is-in-regarding-evans-book.html>

Hornstein, Norbert. 2015. Quotational Dyslexia: Thank you Masked Man. Blogpost. <http://facultyoflanguage.blogspot.ca/2015/01/quotational-dyslexia-thank-you-masked.html>

Hornstein, Norbert, Jairo Nunes and Kleanthes K. Grohmann. 2005. *Understanding Minimalism*. Cambridge: Cambridge University Press.

Hu, Jianhua, Haihua Pan, and Liejiong Xu. 2001. Is there a finite vs. nonfinite distinction in Chinese? *Linguistics* 39: 1117–1148.

Huang, C.-T. James & Ian Roberts. 2016. Principles and parameters of Universal Grammar. In Ian Roberts (ed.), *The Oxford handbook of Universal Grammar*, 307-354. Oxford: Oxford University Press. <http://doi.org/10.1093/oxfordhb/9780199573776.013.14>

Hudson, Richard. 1999. Grammar without functional categories. In Robert Borsley (ed.), *The Nature and Function of Syntactic Categories*, Vol. 32, 7–35. San Diego: Academic Press. https://doi.org/10.1163/9781849500098_003

Jaber, Aziz. 2014. *On genericity and definiteness in Modern Standard Arabic*. Chapel Hill: University of North Carolina dissertation.

Jaeger, T. Florian & Elisabeth J. Norcliffe. 2009. The cross-linguistic study of sentence production. *Language and Linguistics Compass* 3(4). 866–887. <https://doi.org/10.1111/j.1749-818X.2009.00147.x>.

Jackendoff, Rey. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.

Jackendoff, Ray. 1977. *X-Bar Syntax*. Cambridge, MA: MIT Press.

Jackendoff, Ray. 2002. *Foundations of language: Brain, meaning, grammar, evolution*. Oxford: Oxford University Press.

Jacob, Pierre. 2010. The scope and limits of Chomsky's naturalism. In Jean Bricmont and Julie Franck (eds.), *Chomsky's Notebook*, 211-234. New York: Columbia University Press. <https://doi.org/10.7312/bric14474-011>

Hewson, John. 2011. Tense. In Robert I. Binnick (ed.), *The Oxford Handbook of Tense and Aspect*, 507-535. Oxford: Oxford University Press.

Kayne, Richard. 2005. Some notes on comparative syntax, with particular reference to English and French. In Guglielmo Cinque and Richard. S. Kayne (eds.), *The Oxford Handbook of Comparative Syntax*, 3–69. Oxford: Oxford University Press. <http://doi.org/10.1093/acprof:oso/9780195179163.003.0012>

Khalidi, Muhammad Ali. 2023. *Natural kinds*. Cambridge University Press, Cambridge.

Kiss, Katalin. 1995. *Discourse Configurational Languages*. Oxford: Oxford University Press.

Klein, Wolfgang. 1994. *Time in language*. London: Routledge.

Klein, Wolfgang. 2018. Finiteness, universal grammar and the language faculty. In *Looking at Language*. Berlin, Boston: De Gruyter Mouton, 385-402.
<https://doi.org/10.1515/9783110549119-015>

Kment, Boris. 2021. Varieties of modality. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Spring 2021 Edition).
<https://plato.stanford.edu/archives/spr2021/entries/modality-varieties/> (15 March, 2021)

Krazter, Angelika, and Irene Heim, 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.

Kripke, Saul. 1980. *Naming and Necessity*. Cambridge, MA: Harvard University Press.

Lambrecht, Knud. 1994. *Information structure and language form*. Cambridge: Cambridge University Press.

Langacker, Ronald. 1987. *Foundations of Cognitive Grammar*, Volume I. Stanford, CA: Stanford University Press.

Langacker, Ronald. 1999. *Grammar and Conceptualization*. Berlin: Mouton de Gruyter.

Larson, Richard. 2010. *Grammar as science*. Cambridge, MA: MIT Press.

Lasnik, Howard. 2002. The minimalist program in syntax. *Trends in cognitive sciences*, 6(2002): 432-437.

Lasnik, Howard & Jeffrey L. Lidz. 2016. The argument from the poverty of the stimulus. In Ian G. Roberts (ed.), *The Oxford handbook of universal grammar*. Oxford: Oxford University Press. <http://doi.org/10.1093/oxfordhb/9780199573776.013.10>

Lasnik, Howard, and Mamoru Saito. 1992. *Move α* . Cambridge: MIT Press.

Lasnik, Howard & Jeffrey L. Lidz. 2016. The argument from the poverty of the stimulus. In Ian G. Roberts (ed.), *The Oxford handbook of universal grammar*. Oxford: Oxford University Press.

Lazard, Gilbert. 2005. What are we typologists doing? In Zygmunt Frajzyngier, Adam Hodges & David S. Rood (eds.), *Linguistic diversity and language theories*, 1–23. Amsterdam: Benjamins.

Levinson, Stephen C. & Nicholas Evans. 2010. Time for a sea-change in linguistics: Response to comments on ‘The myth of language universals.’ *Lingua* 120(12): 2733–2758.

- Lieber, Rochell. 2016. *Introducing to morphology*. Cambridge University Press, Cambridge.
- Lin, Jo-Wang. 2003. Temporal reference in Mandarin Chinese. *Journal of East Asian Linguistics* 12: 259–311.
- Lin, Francis Y. 2016. A refutation of Universal Grammar. *Lingua* 193. 1-22.
<https://doi.org/10.1016/j.lingua.2017.04.003>
- Lin, Jo-Wang. 2006. Time in a language without tense: The case of Chinese. *Journal of Semantics* 23: 1–56. <https://doi.org/10.1093/jos/ffh033>
- Lin, Jo-wang. 2012. Tenselessness. In Robert I. Binnick (ed.). *The Oxford handbook of tense and aspect*. 669-695. Oxford: Oxford University Press.
<http://doi.org/10.1093/oxfordhb/9780195381979.013.0023>
- Lin, Jo-wang. 2010. A tenseless analysis of Mandarin Chinese revisited: a response to Sybesma 2007. *Linguistic Inquiry* 41. 305-329. <https://doi.org/10.1162/ling.2010.41.2.305>
- Lin, Tzong-Hong Jonah. 2011. Finiteness of clauses and raising of arguments in Mandarin Chinese. *Syntax* 14: 48–73. <https://doi.org/10.1111/j.1467-9612.2010.00145.x>
- Lin, Tzong-Hong Jonah. 2012. Multiple-modal constructions in Mandarin Chinese and their finiteness properties. *Journal of Linguistics* 48: 151-186.
<https://doi.org/10.1017/S0022226711000272>
- Lin, Tzong-Hong Jonah. 2015. Tense in Mandarin Chinese sentences. *Syntax* 18: 320–342.
<https://doi.org/10.1111/synt.12032>
- Lohndal, Terje & Juan Uriagereka. Principles and Parameters/Minimalism. In Andrew Carnie, Yosuke Sato, and Daniel Siddiqi (eds.), *The Routledge Handbook of Syntax*, 509-525. London: Routledge.
- Lorenzo, Guillermo, and Victor M. Longa. 2003. Minimizing the genes for grammar: The minimalist program as a biological framework for the study of language. *Lingua* 113: 643–57.
- Lorenzo, Guillermo, and Victor M. Longa. 2009. Beyond generative geneticism: rethinking language acquisition from a developmentalist point of view. *Lingua* 119: 1300–15.
- Ludlow, Peter. 1999. *Semantics, tense and time: an essay in the metaphysics of natural language*. Cambridge: MIT Press.
- Ludlow, Peter. 2002a. *Externalism, Logical Form, and Linguistic Intentions*. In A. Barber (ed.), *The Epistemology of Language*. Oxford: Oxford University Press, 132–168.

- Ludlow, Peter. 2002b. LF and Natural Logic. In G. Preyer (ed.), *Logical Form, Language and Ontology: On Contemporary Developments in the Philosophy of Language and Linguistics*. Oxford: Oxford University Press.
- Ludlow, Peter. 2011. *The philosophy of generative linguistics*. New York: Oxford University Press.
- Ludlow Peter. 2012. Philosophy of language. In Robert I. Binnick (ed.), *The Oxford handbook of tense and aspect*. 59-74. Oxford: Oxford University Press.
- Lü, Shuxiang. 1999. *Xiandai hanyu babai ci [800 words of Modern Chinese]*. Beijing: Shangwu Yinshuguan.
- Ma, Lin and Jaap van Brakel. 2015. Revisiting Wittgenstein on family resemblance and color(s). *Philosophical investigations*, 39(3): 254-280. <http://dx.doi.org/10.1111/phin.12109>
- Mathewson, Lisa. 2006. Temporal semantics in a superficially tenseless language. *Linguistics and Philosophy* 29. 673-713. DOI: <https://doi.org/10.1007/s10988-006-9010-6>
- Markie, Peter and M. Folescu. 2023. Rationalism vs. Empiricism. *The Stanford Encyclopedia of Philosophy* (Spring 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.), <https://plato.stanford.edu/archives/spr2023/entries/rationalism-empiricism>
- Marmorstein, Michal. 2016. *Tense and text in Classical Arabic: a discourse-oriented study of the Classical Arabic tense system*. Leiden: Brill.
- Medin, Douglas L. and William D. Wattenmaker. 1987. Family resemblance, conceptual cohesiveness, and category construction. *Cognitive Psychology* 19, 242-279.
- Mendívil-Giró, José-Luis. 2021. On the innate building blocks of language and scientific explanation: A reply to Haspelmath. *Theoretical Linguistics*, 2021, 47(1-2): 85-94 <https://doi.org/10.1515/tl-2021-2008>
- Mendívil-Giró, José-Luis. 2019. How much data does linguistic theory need? On the tolerance principle of linguistic theorizing. *Frontiers in Communication* 3. <https://doi.org/10.3389/fcomm.2018.00062>.
- Menzel, Christopher. 2021. Possible Worlds. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Fall 2021 Edition), <https://plato.stanford.edu/archives/fall2021/entries/possible-worlds>
- Mielke, Jeff. 2008. *The emergence of distinctive features*. Oxford: Oxford University Press.

- Moravcsik, Edith. 2013. *Introducing language typology*. Cambridge University Press, Cambridge.
- Moravcsik, Edith A. 2011. Explaining language universals. In Jae Jung Song (ed.), *The Oxford Handbook of Language Typology*, 69–89. Oxford: Oxford University Press.
- Moravcsik, Edith. 2016. On linguistic categories. *Linguistic Typology* 20(2). 417-425.
- Newmeyer, Fredrick J. 1996. *Generative linguistics: an historical perspective*. Taylor & Francis Groups.
- Newmeyer, Frederick J. 2005. *Possible and probable languages: A generative perspective on linguistic typology*. Oxford: Oxford University Press.
- Newmeyer, Frederick J. 2008. Universals in syntax. *Linguistic Review*. 25, 35–82.
<http://doi.org/10.1515/TLIR.2008.002>
- Newmeyer, Fredrick J. 2008. *A Review of Linguistic Minimalism: Origins, Concepts, Methods, and Aims*. by Cedric Boeckx, *Language* 84: 387–395.
- Nevins, Andrew, David Pesetsky & Cilene Rodrigues. 2009. Pirahã exceptionality: A reassessment. *Language* 85(2). 355–404.
- Ogihara, Toshiyuki, and Yael Sharvit. 2012. Embedded Tenses. In Robert I. Binnick (ed.). *The Oxford handbook of tense and aspect*. 669-695. Oxford: Oxford University Press.
- Ouali, Hamid. 2018. The syntax of tense in Arabic. In Elabbas Benmamoun & Reem Bassiouney (eds.). *The Routledge handbook of Arabic linguistics*. 89-103. London: Routledge. <http://doi.org/10.4324/9781315147062-6>
- Ouhalla, Jamal. 1991. *Functional Categories and Parametric Variation*. London: Routledge.
<https://doi.org/10.4324/9780203412015>
- Pan, Victor J., and Waltraud Paul. 2014. *Finiteness in Mandarin Chinese and the basic syntax of keneng*. Unpublished ms., Paris.
- Papineau, David. 2021. Naturalism. In Edward N. Zalta (ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2021 Edition),
<https://plato.stanford.edu/archives/sum2021/entries/naturalism>
- Paul, Waltraud. 2005. Low IP area and left periphery in Mandarin Chinese. *Recherches Linguistiques de Vincennes* 33: 111–133.
- Paul, Waltraud. 2015. *New Perspectives on Chinese Syntax*. Paris: Mouton De Gruyter.

Pesetsky, David. 1999. Linguistic universals and Universal Grammar. In R. A. Wilson, and F. C. Keil (eds), *The MIT Encyclopedia of the Cognitive Sciences*. Cambridge, MA: MIT Press.

Pesetsky, David. 2009. Against taking linguistic diversity at “face value”. (Commentary of Evans and Levinson’s *The myth of language universals*). *Behavioral and Brain Sciences*, 2009, 32(5): 464-465. <http://doi.org/10.1017/S0140525X09990562>

Pinker, Steven. 1994. *The language instinct*. London: Penguin.

Pollock, Jean.-Y. 1989. Verb movement, UG and the structure of IP. *Linguistic Inquiry* 20. 365–424. <https://www.jstor.org/stable/4178634>

Pompa, L. 1967. Family resemblance: a reply. *Philosophical Quarterly* 17 (66): 63-69. <https://philpapers.org/go.pl?id=POMFR&proxyId=&u=https%3A%2F%2Fdx.doi.org%2F10.2307%2F2218366>

Popper, Karl. 1963. Science: Problems, Aims, Responsibilities. *Federation Proceedings (Baltimore)*, *Federations of American Societies of Experimental Biology*, 22.4: 961–972.

Preminger, Omer. 2020. Functional structure in the noun phrase: revisiting Hebrew nominals. *Glossa: a journal of general linguistics* 5(1). 68. <http://doi.org/10.5334/gjgl.1244>

Radford, Andrew. 1988. *Transformation grammar: a first course*. Cambridge: Cambridge University Press.

Radford, Andrew. 2004. *Minimalist syntax: exploring the structure of English*. Cambridge: Cambridge University Press.

Radford, Andrew. 2009. *Analyzing English sentences: a minimalist approach*. Cambridge: Cambridge University Press.

Radford, Andrew, Martin Atkinson, David Britain, Harald Clahsen & Andrew Spencer. 2009. *Linguistics: an introduction*. Cambridge: Cambridge University Press.

Recanati, François. 2005. Literalism and contextualism: some varieties. In Gerhard Preyer (ed.), *Contextualism*. Oxford: Oxford University Press. https://jeannicod.ccsd.cnrs.fr/ijn_00000371

Reichenbach, Hans. 1947. *Elements of symbolic logic*. New York: The Macmillan Company.

Rey, Georges. 2018. The analytic/synthetic distinction. In Edward N. Zalta (ed.). *The Stanford encyclopedia of philosophy*. <http://plato.stanford.edu/archives/fall2018/entries/analytic-synthetic>

- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.
- Rizzi, Luigi. 2013. The functional structure of the sentence, and cartography. In Marcel den Dikken (ed.), *The Cambridge handbook of generative syntax*, 425-457. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511804571.016>
- Roberts, Ian. 2019. *Parameter hierarchies and universal grammar*. Oxford: Oxford University Press.
- Rodrigues-Pereyra, Gonzalo. 2000. What is the Problem of Universals? *Mind* 109 (434): 255-273. <http://www.jstor.org/stable/2660134>
- Roeper, Tom. 2005. *The Prism of Language: How Child Language Illuminates Humanism*. Cambridge, MA: MIT Press.
- Rosch, Eleanor and Carolyn B. Mervis. 1975. Family Resemblances: Studies in the Internal Structure of Categories. *Cognitive Psychology* 7 (4): 573–605. [https://doi.org/10.1016/0010-0285\(75\)90024-9](https://doi.org/10.1016/0010-0285(75)90024-9)
- Rosch, Eleanor. 1975. Cognitive representations of semantic categories. *Journal of Experimental Psychology: General*, 104(3): 192–233. <https://doi.org/10.1037/0096-3445.104.3.192>
- Round, Erich & Greville G. Corbett. 2020. Comparability and measurement in typological science: The bright future for linguistics. *Linguistic Typology* 24(3). 489-525. <https://doi.org/10.1515/lingty-2020-2060>
- Ryding, Karin C. 2005. *A reference grammar of Modern Standard Arabic*. Cambridge: Cambridge University Press.
- Scholz, Barbara C., Francis Jeffrey Pelletier, Geoffrey K. Pullum, and Ryan Nefdt. 2023. Philosophy of Linguistics, *The Stanford Encyclopedia of Philosophy* (Fall 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.), <https://plato.stanford.edu/archives/fall2023/entries/linguistics>
- Seuren, Pieter A. M. 2004. *Chomsky's Minimalism*. Oxford: Oxford University Press.
- Simon, Michael A. 1969. When is a resemblance a family resemblance? *Mind* 78 (311): 408-416. <https://www.jstor.org/stable/2252255>
- Sharvit, Yael. 2003. Embedded tense and universal grammar. *Linguistic Inquiry*, 2003, 34(4): 669-681.

- Shlonsky, Ur. 2010. The cartographic enterprise in syntax. *Language and Linguistic Compass*, 4. 417–429. <https://doi.org/10.1111/j.1749-818X.2010.00202.x>
- Slater, Matther H. 2015. Natural kindness. *The British Journal for the Philosophy of Science*. 66(2): 375-411.
<https://www.jstor.org/stable/24562939>
- Sluga, Hans. 2006. Family Resemblance. *Grazer Philosophische Studien* 71: 1–21.
<https://philpapers.org/go.pl?id=SLUFR&proxyId=&u=https%3A%2F%2Fdx.doi.org%2F10.1163%2F18756735-071001003>
- Smirnova, Anastasia & Ray Jackendoff. 2017. Case assignment and argument realization in nominals. *Language* 93. 877–911.
- Smith, Neil. & Ann Law. 2009. On Parametric (and Non-Parametric) Variation. *Biolinguistics* 3. 332–43.
<https://ispan.waw.pl/ireteslaw/bitstream/handle/20.500.12528/1479/115-Article%20Text-595-1-10-20091213.pdf?sequence=1&isAllowed=y>
- Smith, Edward E. and Douglas Medin. 1981. *Concepts and Categories*. Cambridge, MA: Harvard University Press.
- Smith, Carlota & Mary Erbargh. 2005. Temporal interpretation in Mandarin Chinese. *Linguistics* 20. 713-756. DOI: https://doi.org/10.1007/978-90-481-2617-0_13
- Sohn, Ho-Min. 1994. *Korean*. Routledge, London.
- Song, Jae Jung. 2018. *Linguistic typology*. Oxford: Oxford University Press.
- Soltan, Usama. 2011. On issues of Arabic syntax: an essay in syntactic argumentation. *Brill* 3. 236-280. <https://doi.org/10.1163/187666311X562486>
- Spike, Matthew. 2020. Fifty shades of grue: Indeterminate categories and induction in and out of the language sciences. *Linguistic Typology* 24. 465–488.
- Stowell, Tim. 1982. The tense of infinitives. *Linguistic Inquiry* 13. 561–570.
<https://www.jstor.org/stable/4178293>
- Stowell, Tim. 2004. Tense and modals. In Jacqueline Gueron & Jacqueline Lecarme (ed.). *The syntax of time*. 235-258. Cambridge, MA: MIT Press.
- Sybesma, Rint. 2007. Whether we tense agree overtly or not. *Linguistic Inquiry* 38. 580-587.
<https://doi.org/10.1162/ling.2007.38.3.580>

- Tallman, Adam J. R. 2021. Analysis and falsifiability in practice. *Theoretical Linguistics*, 2021, 47(1-2): 95-112. <https://doi.org/10.1515/tl-2021-2009>
- Taylor, John. 1994. *Linguistic Categorization*. Oxford: Oxford University Press.
- Tonhauser, Judith. 2015. Cross-linguistic temporal reference. *Annual Review of Linguistics* 1: 129–154.
- Tomasello, Michael. 1995. Language is not an instinct. *Cognitive Development*. 10, 131–156. [http://doi.org/10.1016/0885-2014\(95\)90021-7](http://doi.org/10.1016/0885-2014(95)90021-7)
- Tomasello, Michael. 2003. *Constructing a language: a usage-based theory of language acquisition*. Harvard University Press. Cambridge, Massachusetts, and London, England.
- Tomasello, Michael. 2005. Beyond formalities: the case of language acquisition. *The Linguistic Review* 22. 183–197. <https://psycnet.apa.org/doi/10.1515/tlir.2005.22.2-4.183>
- Tomasello, Michael. 2009. Universal Grammar is dead. (Commentary/Evans and Levinson's The myth of language universals). *Behavioral and Brain Sciences*, 2009, 32(5): 470-471. <http://doi.org/10.1017/S0140525X09990744>
- Tomlin, Russell S. 1990. Functionalism in second language acquisition. *Studies in Second Language Acquisition*, 12: 155–177.
- Travis, Charles. 1989. *The Uses of Sense: Wittgenstein's Philosophy of Language*. Oxford: Oxford University Press.
- Travis, Lisa DeMena. 2014. The integration, proliferation, and expansion of functional categories: an overview. In Andrew Carnie, Yosuke Sato, and Daniel Siddiqi (ed.), *The Routledge Handbook of Syntax*. 42-64. London: Routledge. <https://doi.org/10.4324/9781315796604>
- Tsai, Wei-Tien Dylan. 2008. Tense anchoring in Chinese. *Lingua* 118. 675–686. <https://doi.org/10.1016/j.lingua.2007.09.002>
- Uriageraka, Juan. 1998. *Rhyme and reason*. Cambridge, MA: MIT Press.
- Van Valin, Robert. 1991. Functionalist linguistic theory and language acquisition. *First Language*, 11: 7–40.
- Van Valin, Robert D. Jr. & Randy J. LaPolla. 1997. *Syntax: Structure, Meaning and Function*. Cambridge: Cambridge University Press.

Vendler, Zeno. 1957. Verbs and times. *Philosophical Review* 56. 143-160.
<http://doi.org/10.2307/2182371>

Versteegh, Kees. 2014. *The Arabic language*. Edinburgh: Edinburgh University Press.

Ura, Hiroyuki. 2000. *Checking theory and grammatical functions in Universal Grammar*. New York: Oxford University Press.

Watson J. 2007. *The phonology and morphology of Arabic*. Oxford University Press, Oxford.

Wekker, Herman & Liliane Haegeman. 1985. *A modern course in English syntax*. London: Routledge.

Wittgenstein, Ludwig. 1958. *Philosophy investigations*, 2nd edn. G.E.M. Anscombe (trans.), Oxford: Blackwell.

Zaefferer, Dietmar. 2021. Beware of the emperor's conceptual clothes: general linguistics must not be based on shaky dichotomies. *Theoretical Linguistics*, 2021, 47(1-2): 113-135.
<https://doi.org/10.1515/tl-2021-2010>