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Chapter 1

The Minimalist Project

1.1. The Point of this Book

This book is an introduction to the art of minimalist analysis. What we mean by this is that it aspires to help those with an interest in minimalism to be able to “do” it. Partly this involves becoming acquainted with the technology that is part and parcel of any specialized approach. Partly it involves absorbing the background assumptions that drive various aspects of the enterprise. However, in contrast to many earlier approaches to grammar, we believe that “doing minimalism” also involves developing an evaluative/aesthetic sense of what constitutes an interesting problem or analysis and this is not a skill that one typically expects a text to impart. So, before we begin with the nitty gritty nuts and bolts of diverse minimalist analyses, we intend to spend some time trying to explain what we take the minimalist project to be and why its ambitions have come to prominence at this time.

1.2. Some Background

Since the beginning, the central task of generative grammar has been to explain how it is that children are able to acquire grammatical competence despite the impoverished nature of the data that is input to this process. How children are able to do this, dubbed *Plato’s problem* (see Chomsky 1986b), can in retrospect be seen as driving research in modern generative linguistics since its beginnings in the mid 1950s.

The problem can be characterized abstractly as follows. Mature native speakers of a natural language have internalized a set of rules, a *grammar*, that is able to generate an unbounded number of grammatical structures. This process of grammar acquisition is clearly influenced by the linguistic data that the native speaker was exposed to as a child. It is patently obvious to the most casual observer that there is strong relation between growing up in Montreal, Conceição das Alagoas, or Herford, for instance, and speaking (a variety of) English, Brazilian Portuguese, or German. However, slightly less casual inspection also

reveals that the grammatical information that can be gleaned from the data that the child has access to, the *primary linguistic data (PLD)*, is insufficient to explain the details of the linguistic competence that the mature native speaker manifests. In other words, the complexity of the attained capacity, the speaker’s grammatical competence, vastly exceeds that of the input to the process, the linguistic information available to and taken in by the child in the environment in which he/she grows up.

To bridge this gap, generative grammarians have postulated that children come biologically equipped with an innate dedicated capacity to acquire language – they are born with a language faculty.¹ The last 40 years of research can be seen as trying to provide a description of this faculty that responds to two salient facts about human natural language: its apparent surface diversity and the ease with which it is typically acquired despite the above noted poverty of the linguistic stimulus. In the last two decades, the following consensus description of the language faculty has emerged which is believed to adequately address these twin properties.

Kids come biologically equipped with a set of principles for constructing grammars — principles of *Universal Grammar (UG)*. These general principles can be thought of as a recipe for “baking” the grammar of a particular language by combining, sifting, sorting and stirring the primary linguistic data in specifiable ways. Or, to make the same point less gastronomically, they can be thought of as functions that take PLD as input and deliver particular grammars (e.g. of English, Brazilian Portuguese, German etc.) as output, as illustrated in (1):

$$(1) \text{ PLD} \rightarrow \text{UG} \rightarrow G_L$$

Or, to return to a gastronomical comparison, we can think of it in terms of a meat grinder, representing UG. It takes the raw meat, our PLD, as its input, thus setting the initial stage. It then grinds it well, i.e. acquires the language by setting all the parameters in the learner’s language faculty. Finally (namely, after some four to six years), our grammatical meat grinder spits out the complete grammar *G* of a particular language *L* — the final stage.

Thus, the principles of UG can be thought of as general conditions on grammars with open parameters that can be set based on linguistic experience. These open parameters function as “on/off” switches, i.e. a parameter may be set “on” and apply, or “off” and not apply. As such, we can visualize grammar as setting these switches to “on/off” (“I/O”), very much like a switchboard, given a universal base setting (viz. the principles of UG), illustrated in Figure 1. Note that not all settings available in theory are necessarily relevant for all grammars: setting the value of a particular parameter *P* to “on” in one language may not influence other parameter settings in that language, namely the settings of those parameters whose values don’t depend on *P*. In another language, this could be different, that is here the “on/off” setting of *P* could well have an effect on other parameter settings (and vice versa).

This is a very substantive assumption. Its reasonableness stems from the fact that, to date, only P&P-architectures have provided a way of addressing Plato's problem in the domain of language. Minimalists accept that any adequate theory of UG must be of the P&P-variety. In effect, minimalism assumes that having a P&P-architecture is a boundary condition on any adequate characterization of UG. Adopting this assumption has one particularly noteworthy consequence. It changes both the sorts of questions it is worthwhile focusing on and the principles in terms of which competing proposals should be evaluated. Let us explain.

As in any other domain of scientific inquiry, proposals in linguistics are evaluated along several dimensions: naturalness, parsimony, simplicity, elegance, explanatoriness, etc. Though all these measures are always in play, in practice some dominate others during particular periods. In retrospect, it is fair to say that explanatory adequacy, i.e. the ability to cast some light on the linguistic version of Plato's problem, has carried the greatest weight when alternatives were considered. In effect, given the centrality of Plato's problem, research in the last decades has focused on finding grammatical constraints of the right sort. By *right sort* we mean tight enough to permit grammars to be acquired on the basis of PLD, yet flexible enough to allow for the observed variation across natural languages. In short, finding a suitable answer to Plato's problem has been the primary research engine and proposals have been primarily evaluated in terms of whether they satisfactorily meet its demands. This does not mean to say that other methodological standards have been irrelevant. Simplicity, parsimony, naturalness, etc. have also played a role. However, as a practical matter, these benchmarks of theory evaluation have been rather weak and have been swamped by the need to develop accounts with a reasonable stab at addressing Plato's problem.

The consensus that P&P-style theories offer a solution to Plato's problem necessarily affects how one will rank competing proposals from here on. Put boldly, if P&P-theories are assumed to solve Plato's problem, the issue now becomes which of the conceivable P&P-models is best and this question is resolved using conventional criteria of theory evaluation. In other words, once explanatory adequacy is bracketed, as happens when only accounts that have P&P-architectures are considered, an opening is created for simplicity, elegance and naturalness to emerge from the long shadow cast by Plato's problem and become the critical measures of theoretical adequacy. The minimalist program aims to consider the properties of UG in light of these evaluative criteria. But this is no easy task. To be able to move in this direction, minimalism must address how to concretize these evaluative notions — simplicity, naturalness, elegance, parsimony, etc. — in the research setting that currently obtains. Put another way, the problem is to find a way of taking the platitudes that simpler, more elegant, more natural theories are best and giving them some empirical bite.

To recap. Once P&P-theories are adopted as boundary conditions on theoretical adequacy, the benchmarks of evaluation shift to more conventional criteria such as elegance, parsimony etc. The research problem then becomes figuring out how to interpret these

Figure 1. *Parameter switchboard*

Specific grammars arise once values are assigned to these parameters. On this view, acquiring a natural language thus amounts to assigning values to these open parameters, i.e. “setting” these parameters. It is further assumed that children set parameter values on the basis of the primary linguistic data that they have access to in their linguistic environments.

Observe two important features of this proposal. First, the acquisition process is sensitive to the details of the linguistic/environmental input as it is the PLD that provides the information on the basis of which parameter values are fixed. Second, the shape of the knowledge attained is not restricted to whatever information can be garnered from the PLD, as the latter exercises its influence against a rich backdrop of fixed general principles that UG makes available.²

Observe further that each characteristic of this model responds to one of the two basic features noted above. First, the fact that particular grammars are the result of setting parameter values in response to properties of the PLD allows for considerable diversity among natural languages. This is especially so if the principles of UG have a tight deductive structure, for in this case even a change in the value of a single parameter can have considerable ramifications for the structure of any particular output grammar. Second, since learning is restricted to setting parameter values, the fine details of a native speaker's linguistic competence are not limited to whatever structural information the PLD may provide. This is even more evident in the case of the drastically impoverished linguistic environment that serves as the basis for the emergence of creoles.³ A speaker's linguistic capacities are thus a joint function of the environmental input *and* the principles of UG. These principles can be quite complex. However, by assumption, they need not be learned as they form part of the innately endowed language faculty.

This picture of the structure of the language faculty has been dubbed the *Principles and Parameters (P&P) Theory*.⁴ To repeat, it now constitutes the consensus view of how best to describe the overall structure of the language faculty. The minimalist program adopts this consensus view. It thus incorporates the claims that the initial state of the language faculty should be characterized as a set of general principles with open parameters, and that specific grammars can be identified with a set of parameter values that are set based on primary linguistic data.

general evaluative measures in the particular domain of linguistic research. As we concentrate on syntax in what follows, one important item on the minimalist agenda is to find ways of understanding what constitutes a more or less natural, more or less parsimonious, or more or less elegant syntactic account. Note that there is little reason to believe that there is only one way (or even just a small number of ways) of putting linguistic flesh on these methodological bones. There may be many alternative ways of empirically realizing these notions. If so, there will be no unique minimalist approach but a family of minimalist programs each animated by similar general concerns but developing accounts that respond to different specific criteria of evaluation or even to different weightings of the same criteria.

It would be very exciting if minimalism did in fact promote a research environment in which various alternative, equally minimalist yet substantially different, theories of grammar thrived as it would then be possible to play these alternatives off against one another to the undoubted benefit of each. This possibility is worth emphasizing for it highlights an important feature of minimalism. Minimalism is not a theory so much as a program for research. The program is successful just in case trying to work out its leading ideas leads to the development of interesting analyses and theory. In this sense there is no unique minimalist theory though there may be a family of approaches that gain inspiration from similar sources. Theories are true or false. Programs are fecund or sterile. Minimalism aims to see whether it is possible to interpret the general methodological benchmarks of theory evaluation in the particular setting of current syntactic research in ways that lead in fruitful and interesting directions. The immediate problem, however, is not to choose among competing implementations of these methodological yardsticks but to develop even a single non-trivial variant.

One last point. There is no a priori reason to think that approaching grammatical issues in this way is guaranteed success. It is possible that the language faculty is just “ugly,” “inelegant,” “profligate,” “unnatural” and massively redundant. If so, the minimalist project will fail. However, one cannot know if this is so before one tries.⁵

1.3. Some Economy Notions

The question before us now is how to implement notions like elegance, beauty, parsimony, naturalness, etc. in the current linguistic context. One way into this question is to recruit those facts about language, the “big facts” that any theory worthy of consideration must address. We can then place these as further boundary conditions on theoretical adequacy. We already have one such big fact, viz. that the theory have a P&P-architecture.

Other “obvious” features of language and linguistic competence afford additional boundary conditions to structure a minimalist inquiry into the properties of UG. Here are six of them:

- (F1) Sentences are basic linguistic units.
- (F2) Sentences are pairings of form (sound/signals) and meaning.
- (F3) Sentences are composed of smaller expressions (words or morphemes).
- (F4) These smaller units are composed into units with hierarchical structure, i.e. phrases, larger than words and smaller than sentences.
- (F5) Sentences show displacement properties in the sense that expressions that appear in one position are interpreted in another.
- (F6) There is no upper bound on the length of sentences in any given natural language.

These properties are completely uncontroversial. They are properties that students of grammar have long observed characterize natural languages. Moreover, as we will see, these facts suggest a variety of minimalist projects when coupled with the following two economy conditions. The first type of economy considerations are the familiar methodological “Occam’s razor” sort that relate to theoretical parsimony and simplicity: all things being equal, two primitive relations are worse than one, three theoretical entities are better than four, four modules are better than five. In short, more is worse, fewer is better. Let’s call these types of considerations principles of *methodological economy*.

There is a second set of minimalist measures. Let’s dub these principles of *substantive economy*. Here a premium is placed on least effort notions as natural sources for grammatical principles. The idea is that locality conditions and well-formedness filters are reflections of the fact that grammars are organized frugally to maximize resources. Short steps preclude long strides, derivations where fewer rules apply are preferred to those where more do, movement only applies when it must, no expressions occur idly in grammatical representations (i.e. Full Interpretation holds). These substantive economy notions generalize themes that have consistently arisen in grammatical research. Just think of the A-over-A Condition (Chomsky 1964), the Principle of Minimal Distance (Rosenbaum 1970), the Subadjacency Condition (Chomsky 1973), the Superiority Condition (Chomsky 1973), the Relativized Minimality Condition (Rizzi 1990), or the Minimal Binding Requirement (Aoun and Li 1993). It is natural to reconceptualize these in least effort terms. Minimalism proposes to conceptually unify all grammatical operations along these lines.

These two economy notions coupled with the six “big facts” mentioned above promote a specific research strategy: look for the simplest theory whose operations have a least effort flavor and that accommodates the big facts noted above. This proposal actually has considerable weight. Consider some illustrative examples of how they interact to suggest various minimalist projects.

The fact that the *length* of sentences in any given natural language is essentially infinite (cf. (F6)) implies that there is an infinite *number* of sentences available in any given natural language: for instance, you can always create another sentence by embedding it, and embed it recursively. This, in turn, implies that grammars exist, i.e. rules that can apply again and

again to yield an unbounded number of different structures. The fact that sentences have both sound and meaning properties (cf. (F2)) implies that the outputs of grammars “interface” with systems responsible for the articulatory and perceptual (A-P) features of a sentence and those that provide a conceptual and intentional (C-I) interpretation for sentential objects.⁶ More specifically, if one is considering a theory with levels, e.g. a GB-style theory, this implies that there must exist grammatical levels of representation that interface with the cognitive systems responsible for A-P and C-I properties. In effect, the levels LF and PF must exist if any levels exist at all.⁷ In this sense, their existence is conceptually necessary. Given this, methodological economy states that there is a premium on grammatical theories that can make do with these two levels alone. In other words, one minimalist project would be to show that levels other than LF and PF can be dispensed with.

In the context of a GB-style theory, for example, this would amount to showing that D-Structure (DS) and S-Structure (SS) are in principle eliminable without any significant empirical loss. This in turn requires reconsidering (and possibly reanalyzing) the evidence for these levels. For instance, in GB-style theories recursion is a defining characteristic of DS. Given (F6), a mechanism for recursion must be part of any grammar; thus, if DS is to be eliminated, this requires rethinking how recursion is to be incorporated into grammars. We do this in chapter 2.

Consider a second minimalist project. The above considerations lead to the conclusion that grammars must interface with the C-I and A-P systems. Given this, there is a premium on grammatical principles that originate in this fact. For example, if some sorts of grammatical objects are uninterpretable by the C-I or A-P interfaces, then grammatical structures (e.g. phrase markers) that contain these will be illegible to (i.e. non-readable by) these interfaces unless these wayward objects are dispatched before interpretation at these interfaces. In effect, the interfaces impose bare output conditions that the objects which the grammar generates must conform to. Given least effort criteria favored by principles of substantive economy, favored accounts will exploit bare output conditions in limiting grammatical structures. See chapter XXX for more elaboration.

Substantive economy further prompts us to consider how strings are to be generated, in which case economy of derivational resources is the key, or how they are to be interpreted, in which case economy of representational resources (i.e. Full Interpretation) is highlighted.⁸ Thus, we would be looking for derivations that have a least effort flavor in producing the objects that the interfaces interpret. For example, we should consider theories that employ natural locality conditions (e.g. require that derivations be short, or movements be local or operations be simple). In sum, given the general setting outlined above, we will begin to look for two kinds of conditions on grammars: conditions that correspond to the filtering effects of the interfaces (bare output conditions) and conditions that correspond to the derivational features of the grammar (economy conditions). Filtering mechanisms that resist interpretation in one of these ways are less favored. See chapters XXX.

Consider another set of questions minimalist considerations lead to. What are the basic primitives of the system, i.e. the basic objects, relations, and operations? If phrases exist and if they are organized in an X'-format, as standardly assumed, then a set of privileged relations is provided. In X'-theory, phrases have (at least) three parts — heads, complements, and specifiers — and invoke two relations, head-complement and specifier-head. Given the obvious fact that natural languages contain phrases (cf. (F4)), UG should make reference to phrases and the pair of relations phrase structure exploits. Therefore, parsimony counsels that at most these objects and relations should be part of UG. This implies, for example, that sentences be analyzed as types of phrases and not as idiosyncratic structures. This is essentially the conclusion GB has already drawn. Labeling sentences as IPs or CPs embodies this consensus. See chapters XXX.

The recognition that phrases are a minimally necessary part of any theory of grammar further suggests that we reexamine whether we need government among the inventory of basic grammatical relations. Methodological simplicity urges doing without this extra notion given that we already have two others. All things being equal, we should adopt government only if the X'-theoretic relations we already have prove empirically inadequate.

Rethinking the structure of UG without government constitutes a vast project all by itself. As the reader already knows (and will soon be reminded of again), every module of grammar within GB exploits the government relation in stating its operative procedures and principles; government is implicated in Case and θ -role assignment, trace licensing, in establishing binding domains, and in determining the distribution of PRO. In short, it is the relation that unifies these otherwise diverse modules.

Dispensing with this key relation in line with our methodological reflections involves revisiting each module of grammar to see how (and if) the empirical virtues government affords can be attained without its use. In particular, we consider replacing government by accounts that use only “natural” relations made available by the conceptually necessary (cf. (F4) above) theory of phrases embodied in X'-theory. We reconsider Theta Theory in chapter 3, Case Theory in chapter 4, the PRO Theorem in chapter XXX, Binding Theory in chapter XXX, etc.

We can, of course, go further still. We can reconsider the status of X'-theory itself. How natural is this? The fact that phrases exist does not imply that they have an X'-structure. Thus, we should investigate what features of phrasal organization follow from the mere fact that they exist and which ones require more elaborate justification. For example, are bar-levels basic features of phrases or simply the reflections of something more basic? Is the fact that heads take maximal projections as complements and specifiers a primitive principle or the reflection of something more primitive? How much of X'-theory needs to be assumed axiomatically and how much results from the fact that phrases must be constructed and interpreted? We review these issues in chapter XXX.

Consider one last illustrative example. (F5) notes that displacement is an obvious fact

about natural languages. Assume, for sake of argument, that displacement is due to the fact that grammars have movement rules like those assumed in typical GB-accounts, such as *w/h*-movement in questions or NP-movement in passives. We can then ask how much of the GB-theory of movement is motivated on minimalist grounds. In standard GB, movement is defined as an operation that leaves traces. Are traces conceptually required? In part perhaps, insofar as they simply model displacement and provide a mechanism for coding the fact that expressions can be interpreted as if in positions distinct from the ones they overtly appear in. But does displacement *by itself* motivate the GB-view that traces are indexed categories without lexical content (i.e. [*e*])? Or does the existence of displacement phenomena suffice to ground the claim that traces are subject to special licensing conditions (such as the Empty Category Principle (ECP)) that do not apply to lexical items more generally? This is far less clear.

Traces in GB are grammar-internal constructs with very special requirements that regulate their distribution. Historically, the main motivation for traces was their role in constraining overgeneration in the context of a theory where movement was free, not in providing vehicles for interpretation. The primary service traces and the conditions on them provided was to filter unwanted derivations that resulted from a grammar based on a rule like Move- α . Why assume that such entities exist, especially in the context of the least effort guidelines discussed above, according to which movement is not free (as it is in GB) but only occurs if it must, i.e. only if needed to produce an object that the interpretive interfaces can read? Methodologically, we should resist postulating traces as grammatical formatives unless strong empirical reasons force this conclusion. On conceptual grounds, traces are of dubious standing.

What could replace traces? Well, we independently need words and phrases (see (F3) and (F4)). Why not assume that they are used by the grammar to accommodate displacement? In other words, assume that traces are not new kinds of expressions, but that they are copies of expressions that are already conceptually required. This seems simpler than postulating a novel construct if one's main goal is to accommodate displacement. In short, GB-traces must earn their keep empirically: all things being equal, a copy theory of traces is preferable. We elaborate this argument in chapter XXX.

What holds for traces holds for other grammar internal formatives as well: PRO, null operators and chains to name three more. It also brings into question the value of modules like the ECP, control theory and predication whose purpose is to monitor and regulate the distribution of these null (grammar-internal) expressions. None of this means that the best theory of UG won't contain such entities or principles. However, minimalist reasoning suggests that they be adopted only if there is strong empirical motivation for doing so. On conceptual grounds, the burden of proof is on those who propose them. At the very least, minimalist scruples force us to reconsider the empirical basis of these constructs and to judge whether their empirical payoffs are worth the methodological price.

These sorts of considerations can be easily amplified, as we will see when we get into details in the chapters that follow. This suggests that the “big facts” listed in (F1) to (F6) above in tandem with the principles of methodological and substantive economy can in fact be used to generate interesting research projects. We will present some of them later on in this book. These considerations prove more fruitful still when the proposals they prompt are contrasted with an appropriate foil. The GB-framework proves to be an admirable straight man to the minimalist jokster.

1.4. Using GB

GB is the most successful P&P-theory elaborated to date. It affords a useful starting point on which to implement the minimalist methodological concerns outlined above. In what follows, we will constantly be assuming (one of) the standard GB-approaches to a particular problem and asking whether we can do better. In effect, the GB-story will set the mark that any competing minimalist reanalysis will have to beat.

As a general rule, we will thus start by discussing the empirical bases of various modules of GB. This means that we will ask what data lie behind the Binding Theory or the θ -Criterion, for instance. Then we will examine whether the GB-implementation of some particular grammatical approach, the leading idea as well as technical implementation, is really the best that we can come up with. In this respect, we will ask whether there is anything minimally undesirable about it. For example, does it use undesirable primitives, does it rely on undesirable operations or levels, and so on? We will then proceed to consider minimalist alternatives that might do better.

For example, consider the fact that sentences pair form and meaning. Within GB this “big fact” (see (F2)) is accommodated by having PF and LF levels. A reasonable minimalist question given GB as a starting point is whether the other two GB-levels, DS and SS, are dispensable and if not, why not? Observe that even in case we come to the conclusion that one or the other (or maybe even both of these levels) must be retained, we will have a far better understanding about what justifies them if we go through this minimally inspired process. Of course, it is always possible that we might discover that DS and SS are convenient but not really necessary. This discovery would, in turn, prompt us to see whether certain technical alternatives might allow us to get the results for which we postulated these levels — but without having levels at all. Chomsky (1993) attempts this and suggests that perhaps our acceptance of a four-level theory (consisting of DS, SS, PF and LF, as in GB) was somewhat hasty.

It is worth keeping in mind that the fact that an analysis is minimally suspect does *not* imply that it is incorrect. To repeat, minimalism is a project: to see just how well designed the faculty of language is, given the obvious facts that we know about it. The

answer could be that it has design flaws. We could come up with this answer empirically: the best account of the grammar suffers from a certain redundancy or inelegance. It is, after all, conceivable that GB is roughly right and that when all the relevant facts are considered, it is the best theory of grammar we can devise. Even this conclusion would be interesting. For it would indicate that even starting from different initial considerations, we end up with the conclusion that GB is roughly right. In what follows you will see that this is not the conclusion that many have come to. However, it could have been and still could be. This does not remove the interest of analyzing GB-accounts in minimalist terms. For what minimalism does is afford us the opportunity of rethinking the empirical and theoretical bases of our claims and this is always worth doing.

This said, the reader will observe that grammars that arise from minimalist reflection have a very different “look” from the standard GB-varieties. One aim of what follows is to escort readers through the complexities of some current speculations that fly under the minimalist flag.

1.5. The Basic Story Line

The Minimalist Program explores the hypothesis that the language faculty is the optimal realization of interface conditions. In other words, it is a nonredundant and optimal system in the sense that particular phenomena are not overdetermined by linguistic principles and that the linguistic system is subject to economy restrictions with a least effort flavor. The program also addresses the question of what conditions are imposed on the linguistic system in virtue of its interaction with performance systems (the bare output conditions).

Earlier versions of the P&P-theory worked with the hypothesis that the linguistic system has several levels of representation encoding systematic information about linguistic expressions. Some of these levels are conceptually necessary, since their output is the input to performance systems which interact with the linguistic system. The Minimalist Program restricts the class of possible linguistic levels of representation to only the ones which are required by conceptual necessity, namely, the ones which interface with performance systems.

As a working hypothesis, these performance systems are taken to be the A-P system and the C-I system. The linguistic levels that interface with A-P and C-I are PF and LF, respectively. Assuming that these are the only interface levels, PF and LF can be conceived of as the parts of the linguistic system that provide instructions to the performance systems. Under the Minimalist perspective, all principles and parameters of the linguistic system should be stated in either LF or PF terms, perhaps as modes of interpretation by the performance systems. Furthermore, all principles and parameters should make reference only to elements that function at the interface levels and to local relations among them. Linguistic

expressions are then taken to be optimal realizations of interface conditions, where optimality is determined by economy conditions specified by UG.

Another assumption is that the language faculty is comprised of a lexicon and a computational system (see note 8). The lexicon specifies the items that enter into the computational system and their idiosyncratic properties, excluding whatever is predictable by principles of UG or properties of the language in question. The computational system arranges these items in a way to form a pair (π, λ) , where π is a PF object and λ is an LF object. If π and λ are legitimate objects (i.e. they satisfy Full Interpretation), the derivation is said to *converge* at PF and at LF, respectively. If either π or λ does not satisfy Full Interpretation, the derivation is said to *crash* at the relevant level. A derivation is taken to converge if and only if it converges at both LF and PF.

The pair (π, λ) is subject to a principle of *representational economy* in that all of its features must be legible at the relevant interfaces. Thus, if D is the set of permissible derivations that yield a pair (π, λ) , the set of convergent derivations C is the subset of D whose members satisfy Full Interpretation at LF and at PF. That is, the set of legible syntactic objects is a subset of the set of all combinations that the grammar can construct. Considerations of *derivational economy* in turn selects derivations where legible pairs (π, λ) are built in an optimal way.⁹ In other words, the set of admissible derivations A constitutes the subset of C which is selected by optimality considerations. Figure 2 offers a visual summary of these subset relations.

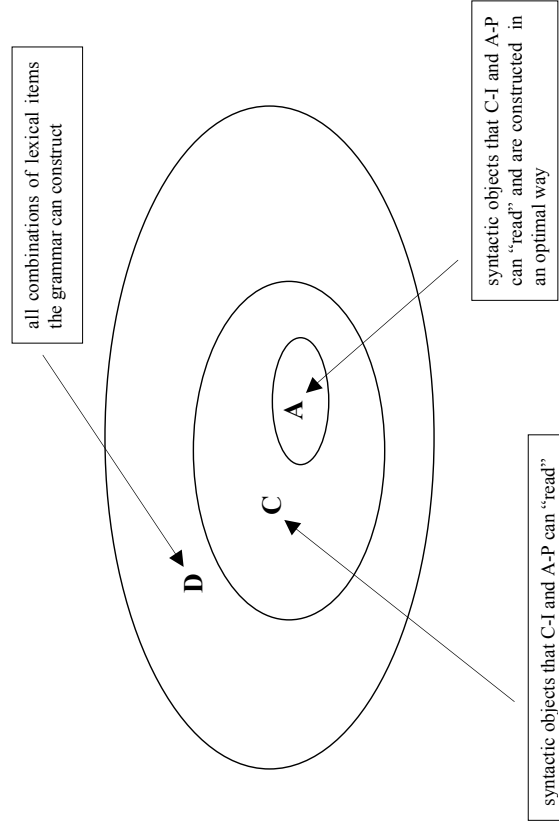


Figure 2. Subset relationship among derivations

This chapter has presented the general picture of the Minimalist Program. In the

chapters that follow, we elaborate this general conception and discuss specific aspects of the Minimalism, as formulated in these general terms.

Notes

- ¹ This faculty of language, often abbreviated FL, is one of the domains in our brains specialized for cognitive processes, alongside other faculties each specialized for things like colors, numbers, vision etc. For an approach to the “modularity of mind” from a mainly linguistic perspective, see the pioneering work of Fodor (1983) and more recently, Jenkins (2000); see also Chomsky (1998, 1999).
- ² The literature on child language acquisition is very rich. Some introductory texts to the acquisition of language in a generative framework are Cook and Newson (1996), Crain and Lillo-Martin (1999). Other works that illustrate this approach more thoroughly include Crain and Thornton (1998), Lightfoot (1999), Guasti (2002).
- ³ For a discussion of the differences between the grammatical properties between creoles and pidgins (the latter being the input for the creation of the former), see Bickerton (1986), Lightfoot (1991), de Graff (1999a), and various papers in de Graff (1999b), among others.
- ⁴ See Chomsky (1981, 1986b) and Chomsky and Lasnik (1993) for the general outline of the model.
- ⁵ And of course, if the program proves successful, a further question that arises is why the language faculty has properties such as elegance and parsimony (see Uriagereka 1998 for relevant discussion).
- ⁶ The term articulatory-perceptual is to be understood as independent of the modality of the output system, in order to capture both spoken and signed languages (see Chomsky 1995:10, note 3), dubbed more recently the “sensorimotor” (SM) system by Chomsky (2001:2).
- ⁷ For minimalist approaches that attempt to eliminate all levels of representation, see Epstein, Groat, Hawashima, and Kitahara (1998) and Uriagereka (1999).
- ⁸ Throughout the book we will be assuming that the computational system of the language faculty is “weakly” derivational (weakly in the sense that it admits the levels of PF and LF, which are representations by definition). See Brody (1995) for a weakly representational version of the Minimalist Program and Epstein, Groat, Hawashima, and Kitahara (1998) and Uriagereka (1999) for strongly derivational alternatives. In chapter XXX we will discuss some arguments in favor of derivational approaches. For critical comparison between strongly representational approaches, such as constraint-based frameworks like Head-driven Phrase Structure Grammar of Pollard and Sag (1994), for example (see Sag and Wasow 1999 for a comprehensive introduction), and derivational implementations of minimalism, see Johnson and Lappin (1999).
- ⁹ As Chomsky (1995:221) observes, if nonconvergent derivations could be taken into consideration for economy purposes, a derivation that employs no operation would always block any derivation that employs some operation. Thus, only convergent derivations can be compared in terms of economy.