Introduction

mi•ni•mal•ist: 1. One that favors restricting something (as the functions and powers of a political organization or the achievement of a set of goals) to a minimum. 2. In Art, used of a form of painting and sculpture which is characterized by the use of simple or primary forms, structures, etc., often geometric and massive.

1. What is minimal about the Minimalist Program?

1.1 An optimal solution to design specifications

"How well is FL [the faculty of language] designed? Suppose that a super-engineer were given design specifications for language: Here are the conditions that FL must satisfy; your task is to design a device that satisfies these conditions in some optimal manner (the solution might not be unique). The question is: How close does language come to such optimal design?" (Chomsky 1998:5)

"What are the minimal design specifications for FL?" (Chomsky 1998:6)

"To clarify the problem of design specifications, let us invent a evolutionary fable, keeping it highly simplified. Imagine some primate with the human mental architecture and sensory motor apparatus in place, but no language organ. It has our modes of perceptual organization, our propositional attitudes,…perhaps a "language of thought" in Jerry Fodor's sense, but no way to express its thoughts by means of linguistic expressions…. Suppose some event reorganizes the brain in such a way as, in effect, to insert FL. To be usable, the new organ has to meet certain "legibility conditions". Other systems of the mind/brain have to be able to access expressions generated by FL, to "read" them and use them as "instructions" for thought an action. We can try to formulate clearly—and if possible answer—the question of how good a solution FL is to the legibility conditions, and these alone. This is essentially the topic of the minimalist program." (Chomsky 1998:6-7)

"Language is an optimal solution to legibility conditions." (Chomsky 1998:9)

1.2 Minimal machinery and architecture (conceptual necessity)

OCKHAM'S RAZOR: The philosophical rule that entities should not be multiplied unnecessarily.

"In pursuing a minimalist program, we want to make sure that we are not inadvertently sneaking in improper concepts, entities, relations, and conventions." (Chomsky 1995:225)

"It seems that a linguistic expression L cannot be defined just as a pair (π,λ) formed by a convergent derivation. Rather its derivation must be *optimal*, satisfying certain natural economy

conditions: locality of movement, no "superfluous steps" in derivations, and so on." (Chomsky 1995:220)

"It is a misunderstanding to contrast "minimalism and X", where X is some theoretical conception (Optimality Theory, Lexicalism, etc.). X may be pursued with minimalist goals, or not." (Chomsky 1998:5)

"One should bear in mind that it is a program, not a theory." (Chomsky 1998:5)

"It is perhaps worth mentioning in this connection that the Minimalist Program, right or wrong, has a certain therapeutic value. It is all too easy to succumb to the temptation to offer a purported explanation for some phenomenon on the basis of assumptions that are roughly the order of complexity of what is to be explained. If the assumptions have broader scope, that may be a step forward in understanding. But sometimes they do not. Minimalist demands have at least the merit of highlighting such moves, thus sharpening the question of whether we have a genuine explanation or a restatement of a problem in other terms." (Chomsky 1995:233)

"At the methodological level, the program has a certain heuristic and therapeutic value. It brings to light what might be fundamental problems, where empirical evidence and minimalist expectations conflict. And it encourages us to distinguish genuine explanations from "engineering solutions"—a term that I do not mean in any disparaging sense. Problems of descriptive and explanatory adequacy are vast and largely obscure. One tries to overcome them somehow, with special assumptions that are often not independently motivated, hoping to reformulate the problems in ways that will facilitate further inquiry….Various solutions have been proposed that are useful and enlightening, but we can ask whether they are of roughly the same order of complexity of the original problem….The minimalist program helps to focus attention on such issues, and perhaps to address them by showing that elimination of descriptive technology yields empirical results that are as good, possibly better, than before." (Chomsky 1998:5-6)

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Ma.: MIT Press.
Chomsky, Noam. 1998. "Minimalist Inquiries: The Framework". ms. MIT.

2. A Minimalist Grammar

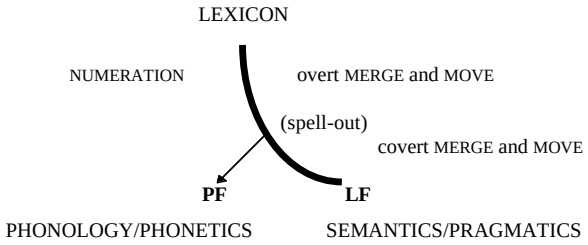
2.1 Architecture

The grammar consists of a lexicon and computational system. The former contains familiar lexical entries. The computational system consists of structure-building machinery (MERGE and MOVE) and principles of derivational economy.

Levels of Representation
There are two and only two syntactic levels of representation, *Logical Form* (LF) and *Phonological Form* (PF). LF is the level of representation that interfaces with the conceptual-intention system. PF is the interface with the articulatory-perceptual system. All conditions on syntactic representations (Binding Theory, Full Interpretation, etc.) hold at LF and/or PF.

Spell-Out
Spell-Out is an optional, unordered operation that splits a structural description, sending part of the information to PF and part to LF. Ideally, Spell-Out applies freely and without restriction: if it applies at the wrong point or sends the wrong information to one of the interfaces, the derivation crashes. Spell-Out is not a level of representation that the grammar can refer to.

Numeration
In models of the MP that require comparison of derivations, some standard of comparison is required. The numeration is a set of lexical items used for this purpose, although it is also found in some local economy models. It consists of lexical items, each associated with a counter that indicates how many instances of that lexical item are present. Each time an item is taken from the numeration, the counter is reduced by one. At the end of a derivation, the numeration must be empty—all counters must be reduced to zero.



Summary
1. There are only two levels: LF and PF. Syntactic levels are the interfaces between syntax and other components of language perception/production and understanding/use.
2. Constraints on representations hold only at LF or PF.
3. Crosslinguistic variation is a matter of *timing*: the route from the lexicon to LF is universal, but languages may differ in terms of the timing of Spell-Out.

2.2 Interface Conditions ("Bare Output Conditions")

Full Interpretation (FI)
Every element must receive an interpretation. There are to be no superfluous (uninterpretable) symbols at the interfaces.

Note that FI is relativized to the two interface levels:

- A syntactic expression is PF-interpretable iff it can be assigned a phonological representation (i.e., iff it can "read" by the phonology).
- A syntactic expression is LF-interpretable iff it can be assigned a semantic representation (iff it can be read by the semantics).

This does not mean that

LF Projection Principle
Lexical requirements must be satisfied.

LF Theta Criterion
1. Every argument receives a θ-role
2. Every θ-role is assigned to an argument

The LF Projection Principle and LF Theta Criterion are arguably **not** independent principles but, rather, follow from FI. They are stated here for explicitness. Their reformulations have two important consequences: i) movement into a θ-position is in principle possible and ii) an argument (chain) may bear more than one θ-role.

Convergence
A derivation *converges* at a level if it yields a representation satisfying FI and all other requirements at that level; otherwise, it *crashes*.

A derivation converges iff it converges at PF and LF.

2.3 Lexicon and Features

Lexical Entries
As in many frameworks, a lexical entry in the MP is a complex bundle of phonological, grammatical, syntactic and semantic features. Features are divided along four lines: formal vs. substantive, interpretable vs. uninterpretable, intrinsic vs. optional, and strong vs. weak.

The empirical intent of the *strong/weak distinction* is to distinguish overt from covert movement. The execution here is not straightforward but one approach appeals to Full Interpretation (at PF): strong features are not interpretable at PF, and so must be eliminated (see *feature*

checking below) before Spell-Out; weak features are interpretable at PF, so economy conditions favor non-movement. Overt movement occurs because strong features must pied pipe the associated phonological matrix when they move; weak features need (must) not do so.

Chomsky 1995 assumes that if a feature F is strong, then F is a feature of a functional head and F is checked by a categorial feature. For example, the EPP is some strong feature in T˚ that is checked by the D-feature of a noun phrase (DP).

Feature Checking
Feature checking is a LOCAL relation: Spec/Head or Head/Head.

Cross-linguistic Variation
All syntactic variation is restricted to nonsubstantive parts of the lexicon. In many versions of the MP, cross-linguistic variation is handled exclusively in terms of feature strength. There is no parameterization of the computational system.

2.4 Structure Building

Merge
Merge takes two objects α and β and forms γ.

α and β come from the lexicon, a previous application of Merge, or the operation Copy. γ is a set consisting of the set $\{\alpha,\beta\}$ and a label δ which is the head of $\{\alpha,\beta\}$. $\gamma = \{\delta,\{\alpha,\beta\}\} = \{H(\alpha),\{\alpha,\beta\}\}$. Merge is subject to Last Resort. There can be no unmotivated applications of Merge; every application must satisfy some lexical property (subcategorization, feature checking, etc.) of α or β.

An adjunction structure is created by introducing an additional label corresponding to the two-segment category: $\{<\alpha,\alpha>, \{\alpha,\beta\}\}$.

Move
There are two views on Move. Under one view, it is a unitary operation that is more complex and thus less economical than Merge. Under an alternative view, Move is a combination of independent suboperations: Copy+Merge+Form Chain.

Movement employs a Copy and Delete strategy since traces are non-lexical items and violate Inclusiveness. There is a PF operation that deletes the unpronounced copies.

2.5 Economy of Derivation

Inclusiveness
No new objects are introduced by the computational system. Any structure formed by the computation is constituted of elements already present in the lexical items. Inclusiveness rules out traces, bar levels on categories, indices, etc.

Last Resort (cf. *Enlightened Self-Interest, Attract*)
A syntactic operation (i.e. Merge or Move) affecting α and β must check some feature of α or β

Shortest Move
α may move to τ to check a feature F only if there is no movement of β to τ that checks F where β is closer to τ than α.

If β c-commands α and τ is the target of movement, then β is *closer* to τ than α unless β is in the same minimal domain as (i) τ or (ii) α.

Procrastinate
Minimize the number of overt operations necessary for convergence. (**NB**: As formulated, Procrastinate requires global (transderivational) economy. Systems that appeal to local economy do not include Procrastinate as an economy principle._