Lecture 6: Strong Minimalist Thesis
Ma 191c: Mathematical Models of Generative Linguistics

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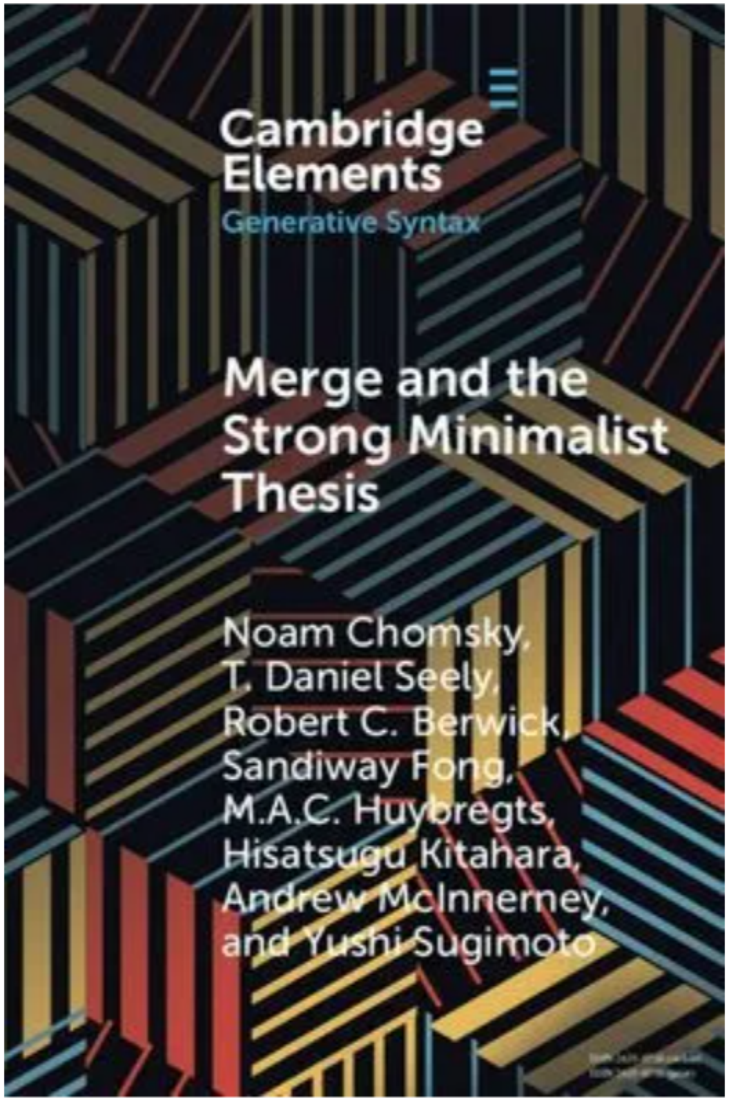
New model of Minimalism (past ten years)

- Noam Chomsky, *Keio Lectures*, 2023
- Noam Chomsky, *Minimalism: where are we now and where we can hope to go?* 2021
- Noam Chomsky, *UCLA Lectures*, 2019
- Noam Chomsky, *Some puzzling foundational issues*, 2019
- Noam Chomsky, *The Sofia Lectures*, 2015
- Noam Chomsky, *Problems of Projection*, 2013

• Noam Chomsky et al. *Merge and the Strong Minimalist Thesis*, Cambridge Elements, December 2023


Cambridge Elements
Generative Syntax
Merge and the Strong Minimalist Thesis
Noam Chomsky, T. Daniel Seely, Robert C. Berwick, Sandiway Fong, M.A.C. Huybregts, Hisatsugu Kitahara, Andrew McInnerney, and Yushi Sugimoto

Strong Minimalist Thesis

1. all the structures of I-language are generated by a simple Merge operation
2. this arises as an *optimal solution* to constraints

type of constraints:

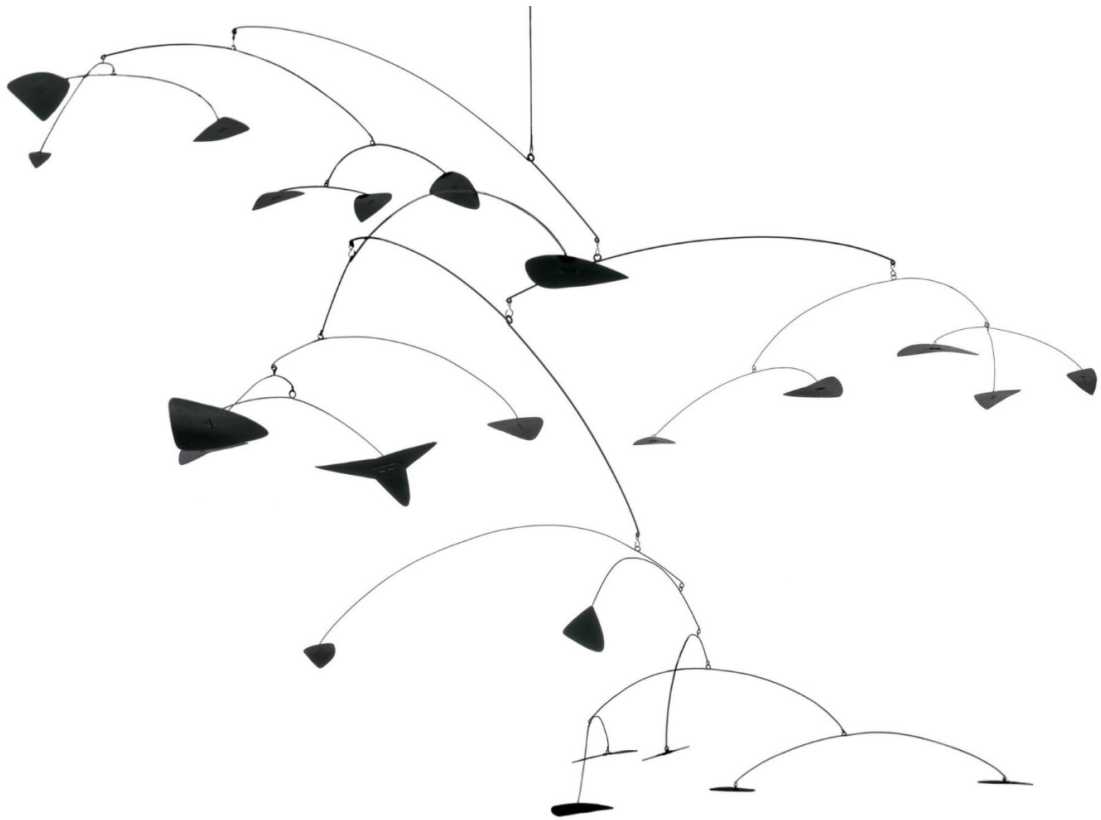
- *First factor*: genetics
- *Second factor*: experience
- *Third factor*: physics

Change of perspective: Strings versus Structures (non-planar)

- what language appears to look like

$$00220100211120001212200002002 11\ldots$$

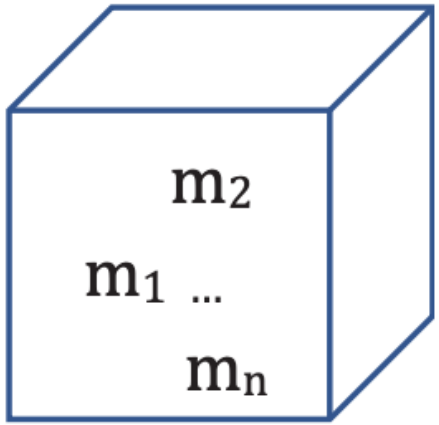
- what language actually looks like



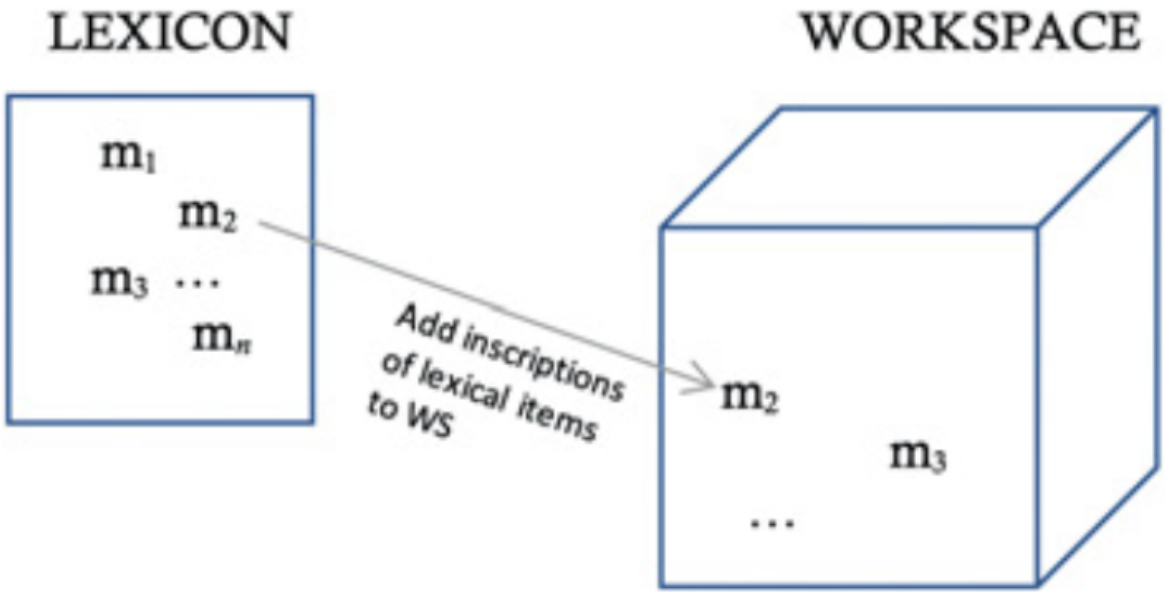
Model of Merge

- lexical items and syntactic feature
- syntactic objects
- workspaces
- accessible terms of workspaces
- action of free symmetric Merge on workspaces
- phases, labeling, theta-theory
- externalization
- syntax-semantics interface

The Lexicon (storage bin for lexical material)



a set of lexical items and syntactic features



lexical items/syntactic features and partially formed structures assembled together in a *workspace*, scratchpad for intermediate steps of calculation along a derivation

Merge:

(i) 'looks inside' the WS that it is applying to,

(ii) targets material within the WS,

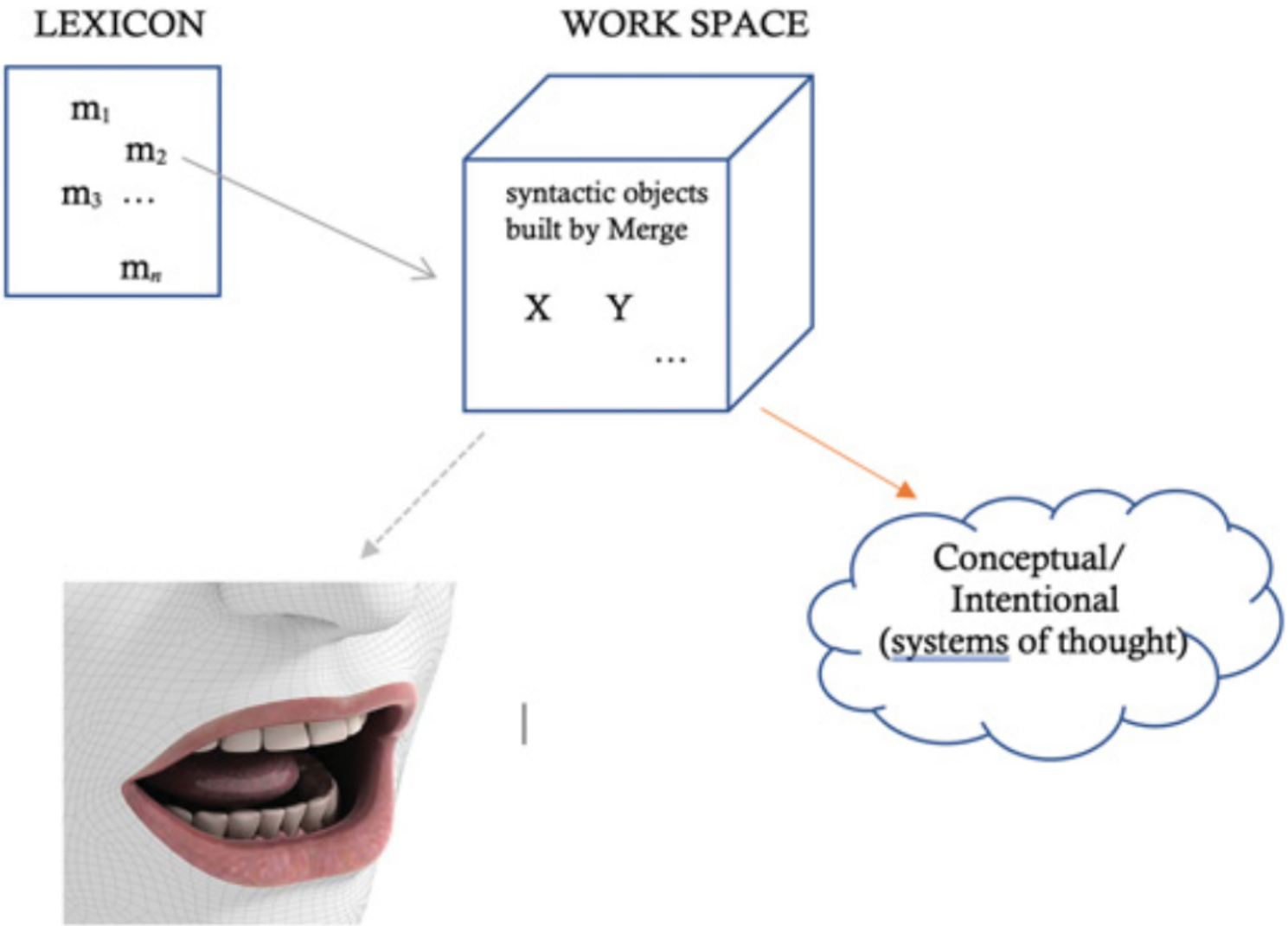
(iii) builds from that targeted-material an object (i.e., it builds a nonatomic structure), which is now

(iv) a new object within the WS, thereby modifying the WS.

Example:

$$WS = [\text{the, see, I, child}] \overset{\text{Merge}}{\mapsto} WS' = [\text{see, I.}\{\text{the, child}\}]$$

$$\overset{\text{Merge}}{\mapsto} WS'' = [\text{I,}\{\text{ see, }\{\text{the, child}\}\}] \overset{\text{Merge}}{\mapsto} WS''' = [\{\text{ I,}\{\text{ see,}\{\text{the, child}\}\}\}]$$



products of free symmetric Merge reach two interfaces: Externalization (Sensory-Motor system) and Syntax-Semantic interface (Conceptual-Intentional system)

constraints on Merge (optimality)

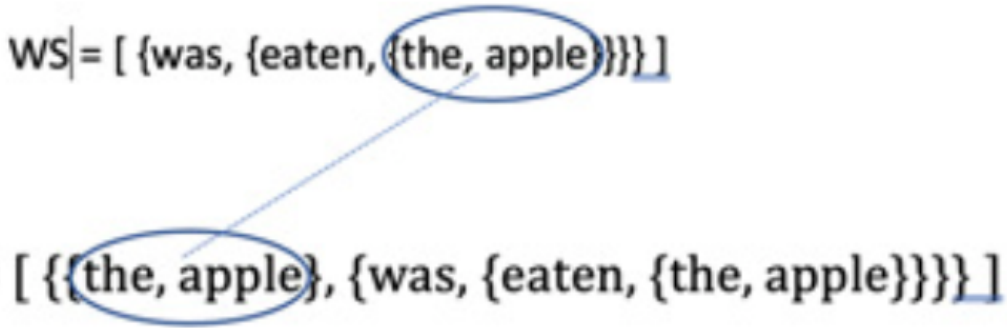
- unconstrained form (P_i matching accessible terms)

$$\text{Merge}(P_1, \ldots, P_m, WS) = WS' = [\{P_1, \ldots, P_m\}, \ldots]$$

- first optimality constraint: Merge is binary

$$\text{Merge}(P, Q, WS) = WS' = (\{P, Q\}, X_1, \ldots, X_n) = \text{Binary Merge}$$

- second optimality constraint: Minimal Search selects Internal/External Merge



- constraints on size of workspace: Minimal Yield, Resource Restriction
- Merge is Markovian (dyn system on set of workspaces)

further properties

- "copies" versus "repetitions"

{{many, people}, {praised, {many, people}}}
= the syntactic representation that at SM yields *Many people praised many people.*

{{many, people}, {were praised {many, people}}}
= the syntactic representation that at SM yields *Many people were praised.*

WS' = [{{many, people}, {were, {praised, {many, people}}}]

- linear ordering, syntactic parameters at Externalization phase
- head and projection, phases, labeling, theta-theory at Semantic interface
- duality (dichotomy) of Semantics: EM/IM (theta-positions/non-theta positions)

Next goal:

- turning the Strong Minimalist *Thesis* into a Strong Minimalist *Theorem*
- by proving that properties of Merge *assumed* in SMT (including optimality conditions) in fact *follow* by structural necessity from the algebraic formalism