The nature of the input: tracing the INFL-affix through the Dual Mechanism Model of Language Development

Abstract

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What we now know of the Dual Mechanism Model (DMM)—its inner trappings of the brain-language relation as revealed by recent advances in brain-imaging techniques, as well as its developmental nature—amongst those working within the Minimalism Program (MP), it has become theoretically appealing to devise some working brain-language model that captures the wide spectrum of child language morpho-syntactic development. By taking the DMM from its current slate of mere adult morphological processing, and extending it to a kind of first order computational interface, we can determine the set of criteria to be satisfied (consistent with the emerging states of the DMM) and better understand the maturational nature of INFLection in child language acquisition. The perspective model in turn treats as epiphenomenal the asymmetric development of affix-related material (e.g., case/agreement) as compared to earlier MLU onset and development of stems: the classic lexical vs. functional stages of child acquisition therefore shows as epiphenomenal in the sense that the former stage is a residual effect of a delimited computational system built upon a maturational DMM. Furthermore, the once heralded distinction leveled between lexical vs. functional stems no longer applies here given that all stems conflate by null hypothesis to taking up a unified position in the processing. A finer-grained assessment rather has to do with whether or not concatenation is involved in the stem’s computation.

This paper investigates the kinds of knowledge children have at various stages of their language development. In particular, it examines the nature of the input the child can access reliant on an emerging DMM interface as it relates to stem + affix separation. We ask what sort of internal brain/language model would avail itself to such partitioning. The arguments presented in the paper therefore establish that all inflection involves real movement operations all the time. We characterize inflection as that operation which entails one additional computational ‘leg up’ from Merge-α and conflates it to Merge-β thus forming the operation Move. Only full-fledge move appropriates applications dealing with concatenation, trace-theory, copy and deletion. The core concepts Merge vs. Move (as assumed within the Minimalist Program (MP)) are enhanced to meet further assumptions placed on the model. For instance, it is our view that a potentially Non-INFL stage-1 in early child language acquisition, as attested in the case study data provided herein, owes itself to a defective or immature operational leg of the model. Implicated in the model is not only the child’s source of delimited input (leading to subsequent omissions in output), but also how the model itself might be prone to maturational constraints (leading to a Non-INFL stage of child language acquisition) as well as to partial/selective defectiveness (leading to Specific Language Impairment (SLI)).

Further implications of the model: (i) a stage-1 of the ‘Multi-grammars’ Theory (Roepel), (ii) fMRI studies on concatenation and Broca triggering (Pinker), (iii) Language typologies and lexical incorporation (Baker), and (iv) a Non-INFLectional stage of Child Language Development (Schütze & Wexler, Radford & Galasso).
(i) Merge-$\alpha$

\[
X' \{x, y\} \text{ are necessary arguments of one another}
\]
\[
x_i \quad y
\]
and typically applies to two stems.

(ii) Merge-$\beta$

\[
X'_{\text{max}} \{y\} \text{ then raises leaving a copy of itself}
\]
\[
y_i \quad X' \quad x_{ii} \quad y_{ii}
\]

(0) DMM Model:

\[
\text{I}_{\text{max}} \rightarrow [_{IP} [\text{DP My [+AGR] dolly}]]
\]

Full DMM

stem + affix

I’ Infl structure, binding of trace = ‘Move’

(1) +AGR with Noun:

\[
dP \quad \text{[+AGR]}_i
\]
\[
\text{My}_i \quad [+AGR]_i \quad \text{VP} \rightarrow [_{VP} [\text{DP Me [-AGR] dolly}]]
\]

Partial DMM

stem [Ø]

DP {Ø} NP

V’ Base structure, = ‘Merge’

(2) –AGR with Noun:

\[
\text{Me}_i \quad [\text{Ø}] \quad \text{dolly}
\]

(3) +AGR with Verb:

\[
\text{I}_{\text{max}} (\text{DP}>\text{IP}) \rightarrow [_{IP} [\text{DP She [+AGR] talks}]]
\]

\[
\text{I} \quad \text{VP (DP}>\text{VP}) \rightarrow [_{VP} [\text{DP Her [-AGR] talk}]]
\]

She$_i$ [+AGR]$_i$

\[
\text{stem} \quad \text{affix} \quad \text{I’}
\]
\[
\text{I} \quad \text{VP} \quad \text{V’}
\]
\[
\text{V} \quad \text{affix} \quad \text{stem} \quad [\text{Ø}]
\]
\[
\text{talk}_i \quad \text{[Ø]} \quad \text{V}
\]
\[
\text{DP} \quad \text{V’}
\]

(4) –AGR with Verb:

\[
\text{her}_i \quad \text{talk}_i
\]