

Morphological Productivity in the Acquisition of Plural Inflection in European Portuguese

The acquisition of plural morphology in European Portuguese (EP) provides a compelling test case for understanding how children internalize inflectional rules, particularly when phonological complexity interacts with morphological regularity. While previous studies have documented the developmental trajectory of plural formation (Castro, 2010; Ramalho & Freitas, 2012; Freitas & Afonso, 2017; Chao & Freitas, 2024), open questions remain regarding the nature of morphological generalization (Yang, 2016; Grandlund et al, 2019; Austin et al, 2021; Chomsky, 2021): do children apply plural rules categorically, or does their learning trajectory reflect graded productivity influenced by phonotactics and lexical frequency?

This study investigates morphological productivity of plural inflection in EP in preschool-aged children using an elicited production task with phonologically controlled pseudowords. Unlike lexical-based assessments, this wug test evaluates children's ability to generalize plural rules beyond familiar words in EP, providing insight into their productive morphological knowledge.

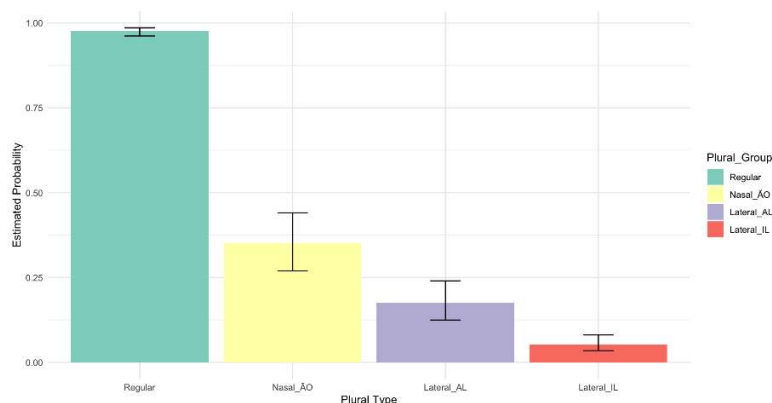
Final year of kindergarten children aged 5;5 to 6;5 years old (n=200) were asked to produce the plural of pseudowords following four pluralization patterns: (i) regular (-s), (ii) nasal (-*ão* → -*ões*/*-ãos*/*-ães*), (iii) lateral preceded by a low vowel (-*al* → -*ais*), and (iv) lateral preceded by a high vowel (-*il* → -*is*). Since the goal was to assess morphological productivity rather than lexical knowledge, responses were evaluated based on their alignment with the productive suffix in adult grammar. For regular and lateral plurals, a single expected form was considered correct, as these follow consistent and categorical rules (-s, -*ais*, -*is*). However, for nasal plurals (-*ão*), where multiple attested variants exist in Portuguese (-*ões*, -*ãos*, -*ães*), the target response was defined as the productive suffix in adult usage (-*ões*), reflecting its generalization pattern.

Results reveal a hierarchy of productivity, with regular plurals being the most consistently applied, while the other tested plurals patterns display structure-dependent variability (Graph 1). Among these, nasal plurals show the highest degree of intra-individual variation, aligning with their multiple-attested plural forms in adult grammar. Lateral plurals (-*al* and -*il*) were less consistently applied than regular forms but still showed a tendency toward rule-based patterns, though they were not as robustly applied as expected. This suggests that while children can acquire these patterns, they may be subject to phonotactic constraints or lexical frequency effects that influence their productivity.

Using multinomial regression and latent class analysis (LCA), we assess the consistency of pluralization patterns and identify subgroups based on response variability (Table 1).

These results will be discussed against distributional and phonotactic constraints that may hinder rule application. These findings challenge strict rule-based accounts of morphological learning and support a gradient model of productivity in which generalization is also modulated by phonological transparency and input frequency. This study contributes to theoretical debates on inflectional acquisition and provides novel empirical insights into how children process morphological patterns.

Keywords: plural morphology, morphological productivity, phonology-morphology interface, European Portuguese, first language acquisition, rule generalization



Graph 1: Estimated production probabilities by plural pattern (based on productive suffix in adult grammar)

Latent Class Probabilities and Age Distribution							
Response Probabilities for Each Plural Type							
Latent Class	Proportion	Regular (-s)	Nasal (-ão)	Lateral (-al)	Lateral (-il)	Mean Age (months)	SD Age (months)
1	0.725	0.866	0.154	0.000	0.000	72.395	3.258896
2	0.192	1.000	0.821	0.571	0.364	72.563	2.902856
3	0.083	0.000	0.000	0.181	0.000	74.514	1.692684

Table 1: Latent clusters of children (3) with distinct response patterns (based on productive suffix in adult grammar)

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