

ACOMODAÇÃO SINTÁTICA NA AQUISIÇÃO DE PASSIVAS EM INGLÊS COMO LA

SYNTACTIC OVERLAPPING IN ADDITIONAL LANGUAGE ACQUISITION OF ENGLISH PASSIVES

ACOMODACIÓN SINTÁCTICA EN LA ADQUISICIÓN DE PASIVAS EN INGLÉS COMO LA

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Abstract

The aim of the study was to investigate the process of syntactic overlapping in the acquisition of passive structures in English as an additional language (AL) by Brazilian university learners. The syntactic overlapping hypothesis proposed in this study postulates that learners at the intermediate stage of language development produce structures that cannot be explained either as direct transfer from the first language (L1) or as the target structure of the AL, reflecting a systematic parametric adjustment of the L1 argument structures onto emerging AL knowledge. To test this hypothesis, 56 undergraduate students and recent graduates in English performed a Portuguese-to-English translation task involving sentences in the passive voice featuring the passive marker 'se', distributed across two experimental conditions (bi-argumentative and resultative). Participants were divided into two proficiency groups (intermediate level, n=17; advanced level, n=38) and three age of acquisition (AoA) groups (AoA1: 1–11 years; AoA2: 12–16 years; AoA3: after 16 years). Chi-square test results suggest a statistically significant association between age of acquisition and the choice of argument structure in both groups. Intermediate-level learners showed a preference for the VP-DP structures, whereas a higher frequency of the DP+POSSESSIVE-DP-VP and EXPLETIVE-VP-DP structures was observed in the advanced-level learners—particularly those in the AoA3 group.

Keywords: syntactic overlapping; second language acquisition; intermediate stage; bilingualism.

Resumo

Este estudo investiga o processo de acomodação sintática na aquisição de estruturas passivas em inglês como língua adicional (LA) por aprendizes universitários brasileiros. A hipótese da acomodação sintática proposta neste trabalho postula que aprendizes em estágio intermediário de desenvolvimento linguístico produzem estruturas que não podem ser explicadas como transferência direta da língua materna (L1) nem como a estrutura-alvo da LA, refletindo um ajuste paramétrico sistemático das estruturas argumentais da L1 sobre o conhecimento emergente da LA. Para testar essa hipótese, 56 graduandos e recém-graduados em Letras Inglês realizaram uma tarefa de

tradução do português para o inglês com sentenças na voz passiva sintética com o apassivador 'se', distribuídas em duas condições experimentais (biargumental e resultativa). Os participantes foram divididos em dois grupos de proficiência (intermediário, n=17; avançado, n=38) e três grupos de idade de aquisição (AoA1: 1–11 anos; AoA2: 12–16 anos; AoA3: após 16 anos). Os resultados do teste qui-quadrado sugerem uma associação estatisticamente significativa entre idade de aquisição e escolha da estrutura argumental nos dois grupos. Aprendizes no nível intermediário demonstraram preferência pela estrutura VP-DP, ao passo que se observou maior ocorrência das estruturas DP+POSSESSIVO-DP-VP e EXPLETIVO-VP-DP nos aprendizes no nível avançado, especialmente os com AoA3.

Palavras-chave: acomodação sintática; aquisição de segunda língua; estágio intermediário; bilinguismo.

Resumen

Este estudio investiga el proceso de acomodación sintáctica en la adquisición de estructuras pasivas en inglés como lengua adicional (LA) por parte de estudiantes universitarios brasileños. La hipótesis de acomodación sintáctica propuesta en este trabajo postula que los estudiantes de estadio intermedio de desarrollo del lenguaje producen estructuras que no pueden explicarse como una transferencia directa de la lengua materna (L1) ni como la estructura meta de LA, lo que refleja un ajuste paramétrico sistemático de las estructuras argumentativas de L1 sobre el conocimiento emergente de LA. Para probar esta hipótesis, 56 estudiantes de pregrado y recién graduados en Lengua Inglesa realizaron una tarea de traducción del portugués al inglés con oraciones en voz pasiva sintética con el marcador pasivo 'se', distribuidas en dos condiciones experimentales (biargumentativa y resultativa). Los participantes se dividieron en dos grupos de competencia (intermedio, n=17; avanzado, n=38) y tres grupos de edad de adquisición (AoA1: 1–11 años; AoA2: 12–16 años; AoA3: después de los 16 años). Los resultados de la prueba de chi-cuadrado sugieren una asociación estadísticamente significativa entre la edad de adquisición y la elección de la estructura argumental en ambos grupos. Los aprendices intermedios mostraron preferencia por la estructura VP-DP, mientras una mayor frecuencia de las estructuras DP+POSESIVO-DP-VP y EXPLIVO-VP-DP fue observado en los aprendices avanzados, especialmente aquellos con AoA3.

Palabras clave: acomodación sintáctica; adquisición de segundas lenguas; estadio intermedio; bilingüismo.

1. Introduction

Learning additional languages (AL)¹ is not a recent phenomenon, as it has a long history, dating back to the Greeks and Romans (Robins, 2013). In the 20th century, the teaching of additional languages gained momentum in military training during World War II, using pedagogical approaches developed by Bloomfield and

¹ According to contemporary literature, the most frequent term to refer to a second language (L2) or foreign language is additional language (AL), as it includes populations that use more than one language in their social interactions.

Lado (VanPatten and Williams, 2014). During that period, the cross-linguistic influence of the first language (L1), according to second language acquisition (SLA)² studies from a behaviorist perspective (for example, Weinreich, 1953; Haugen, 1953; Lado, 1957; Lee, 1968; Wardhaugh, 1970), was considered one of the aspects that hindered AL learning. It was largely believed that learning a foreign language meant overcoming the negative effects of the influence of the first language. According to behaviorist theories of SLA (especially the contrastive analysis hypothesis proposed by Lado in 1957), learning would occur more easily if there were positive transfer, that is, if the two languages shared similar structures. On the other hand, negative transfer was considered an impediment to learning because the learner's L1 would lead to errors in the production of the target language (Ellis, 1999). According to this approach, errors resulting from negative transfer were considered 'bad habits' that prevented the development of correct target language habits. In the strong version of the contrastive analysis hypothesis, it was argued that all L1 errors could be predicted if the differences between the learner's L1 and AL were identified (Lee, 1968, apud Ellis, 1999).

The behaviorist approach was challenged when research proved that AL acquisition followed an order and sequence like that of L1 acquisition (Ellis, 2015). Thus, from the late 1960s onwards, cross-linguistic influence began to be seen as a natural process of AL acquisition in which errors were products of learning and part of the acquisition process. The studies conducted in the early 1970s, which aimed to quantify the number of errors due to transfer, found that the influence of L1 was much smaller than that claimed by contrastive analysis.

Throughout the development of theoretical approaches to second language acquisition (SLA), the methodological procedures of AL have focused primarily on the outcome, that is, the final stage of proficiency, and not on the learning process

² We chose to maintain the acronym SLA (second language acquisition) as it is the standard term in the literature.

(i.e., the interlanguage stage) of AL. It was only with psycholinguistic studies that the learning process gained focus—largely due to studies related to lexical and morphosyntactic development in bilingual children—although few studies have been conducted on morphosyntactic development in late bilingual adults (Godfroid, 2019; Godfroid and Hopp, 2023). It has been widely documented that the acquisition of an additional language—as well as that of the first—goes through different stages of development: namely, the initial and final stages of acquisition (e.g., Vainikka et al., 1996; White, 2000 and 2003). Few studies (Cao et al., 2022) have investigated the intermediate stage of AL development in adults—widely known as interlanguage (Selinker, 1972). The scarcity of research leaves a significant gap in the understanding of the intermediate stage of LA development. This is particularly remarkable given that most learners spend years in this transitional stage.

Although L1 transfer dominates initial acquisition (VanPatten and Williams, 2014), there is a critical intermediate stage in which the syntactic inadequacy of learners primarily reflects intralinguistic processes—the systematic application and overgeneralization of AL syntactic rules, rather than L1 interference (Pienemann, 1998). This stage marks a qualitative shift in the learner’s interlanguage system. Considering that most studies on SLA focus on the initial and final stages of language development, little is known about the development of syntax in the intermediate stage of acquisition in adult AL learners.

The premise of the present study is that the intermediate stage of additional language development constitutes a qualitatively distinct phase, characterized not by the discrete alternation between L1 transfer and full acquisition of the target language, but by a gradual process of reorganization of syntactic representations — here called ‘syntactic overlapping’ (Glenday, 2020). Unlike pure syntactic transfer, in which the learner reproduces the argument structure (Chomsky, 1995) of the L1 in the AL, and interlanguage in a broad sense, which describes any intermediate system of the learner, syntactic overlapping specifically refers to the

process by which learners use their tacit knowledge emerging from the AL to parametrically adjust argument structures of the L1, producing structures that diverge simultaneously from the grammar of the L1 and the target grammar of the AL. Furthermore, errors (or inadequacies) produced by learners cease to be seen as a negative outcome and are now perceived as evidence of the acquisition process, for errors promote learning. In this sense, syntactic inadequacies become evidence of the AL learning process.

The syntactic overlapping hypothesis predicts that learners in the intermediate stage of language development will produce argument structures in the AL that: (i) cannot be explained as direct transfer from L1; (ii) are not the target structure of the L1; and (iii) reflect a systematic and rule-governed adjustment, indicative of an interlanguage system undergoing active restructuring. To test this hypothesis, a translation task was developed and administered to Brazilian university students learning English as an additional language with two levels of proficiency (intermediate and advanced).

2. Literature review

Adult learners of additional languages differ fundamentally from early bilinguals, as acquisition begins with a fully developed grammatical, phonological, and lexical system of their L1. Understanding how this pre-existing linguistic system interacts with emerging representations of AL remains a central challenge in SLA research. Although research has given considerable attention to the development of syntax—whether postulating a complete separation or a full integration of the syntactic systems of L1 and AL—little is understood about the intermediate stage of development in which adult learners exhibit characteristics of both systems simultaneously.

The syntactic overlapping hypothesis proposed in this study is influenced by—but differs from—three central constructs in the second language acquisition literature: interlanguage (Selinker, 1972; Barone, 2024), representational

restructuring (Sharwood Smith & Truscott, 2014), and the convergence hypothesis (Green, 2003). In addition to these, the hypothesis is influenced by other models (dual-path, shared syntax, and separate syntax) that have shaped discussions on how bilinguals mentally represent and process syntactic information in different languages.

The concept of interlanguage, according to Selinker (1972), describes the learner's intermediate linguistic system as systematic, permeable, and subject to fossilization. Although syntactic overlapping shares the notion of systematicity with interlanguage, it is distinguished by delimiting a specific mechanism—the parametric adjustment of the argument structures of the target language over the syntactic framework of the first language—instead of describing the learner's system in its entirety. In other words, while interlanguage is a broad descriptive construct, syntactic overlapping is a more restricted explanatory construct, specifically focused on the interface between argument structure and constituent order (Chomsky, 1995) in the intermediate stage of additional language development.

The notion of restructuring (Sharwood Smith & Truscott, 2014) refers to the process by which mental representations of AL are reorganized in response to input, particularly in children. Syntactic overlapping can be seen as an observable manifestation of this process at the argument structure level: while restructuring is a broad cognitive concept, syntactic overlapping is its measurable morphosyntactic expression in adult production tasks. The distinction, therefore, is one of scope, empirical operationalization, and age of acquisition.

The convergence hypothesis (Green, 2003) predicts a progressive approximation between the representations of the L1 and the target language as proficiency increases. Syntactic overlapping does not presuppose convergence as a necessary outcome: it describes the ongoing adjustment process, which may or may not culminate in convergence with the target grammar. Thus, learners in the intermediate stage of language development may exhibit syntactic overlapping

without their productions approaching the native norm, especially when the parameters of the two languages diverge more markedly.

The separate syntax model (de Bot, 1992; Ullman, 2001) posits that bilinguals store and process syntactic information of each language independently. The strong version of this model assumes a complete separation of grammatical processes and representations between L1 and AL, predicting that AL syntactic processing operates autonomously, without the influence of L1 grammar. A weaker version acknowledges that the degree of separation can vary depending on the typological distance between languages and the learner's proficiency, predicting that syntactic transfer decreases as proficiency increases. The syntactic overlapping hypothesis does not agree with this model.

In contrast, the shared syntax model (Hartsuiker, Pickering, and Veltkamp, 2004; Bernolet, Hartsuiker, and Pickering, 2007 and 2013) proposes that bilinguals develop shared syntactic representations between languages, with grammatical rules of one language influencing the processing of the other. According to Hartsuiker et al. (2004), syntactic representations are shared when grammatical rules converge between the two languages, while language-specific aspects remain represented separately. In this framework, syntactic transfer occurs when structures associated with the non-target language are activated during processing, even when that language is not being actively used. The syntactic overlapping hypothesis converges with this model regarding language transfer, especially in learners in the early stages of acquisition. On the other hand, syntactic overlapping differs with respect to the sharing of grammatical rules between two languages with similar syntax.

A relevant study for the hypothesis of syntactic overlapping is the dual-path model (Chang et al., 2012). This model posits that error-based learning drives restructuring in language acquisition. The learning mechanism occurs when the learner observes/receives input and reflects on the structural differences between L1 and the target language. In the hypothesis of syntactic overlapping, despite the

structure of the target language diverging from the first language and not being syntactically adequate in the target language, the input received allows for the correction and adaptation of syntactic structures in the target language through learning. That is, even when the adult learner produces an inadequate syntactic structure, the inadequacy promotes their learning.

Evidence from structural priming studies has provided robust support for the shared syntax hypothesis. It is important to note that priming between languages persists even when phrase order differs (Bernolet et al., 2009; Chen, Jia, Wang, Dunlap, & Shin, 2013; Shin & Christianson, 2009). This suggests that bilinguals share abstract syntactic representations, rather than surface-level structures. These shared representations may reflect functional relationships, such as the mapping between thematic roles and grammatical functions (Shin & Christianson, 2009), the order of thematic roles (Chang, Bock, & Goldberg, 2003), or the structure of information (Bernolet et al., 2009).

Research on the effects of proficiency adds important nuances to the debate. Bernolet et al. (2013) found that late learners of L1 initially maintain separate representations for the syntactic structures of L1 and AL but gradually develop shared representations as proficiency increases. When the L1 and AL constructions differ in such a way that a single L1 structure corresponds to two distinct AL structures, the new AL structure cannot be mapped onto existing L1 representations, suggesting differentiated processing for similar structures as opposed to dissimilarities. Hwang et al. (2018) extended these findings to late bilinguals by demonstrating that even learners who acquire L1 after the critical period can develop shared syntactic representations, challenging previous assumptions about age-related constraints on syntactic integration.

Neurolinguistic evidence corroborates this gradualist perspective. Cao et al. (2022) tested the convergence hypothesis, which predicts that the similarity of brain networks during L1 and AL processing increases with proficiency. Their findings revealed that, as learners progress, the patterns of neural activation during L1 and

AL processing become increasingly similar, reflecting “subtle accommodations” in the way the brain processes both languages. Crucially, these accommodations occur progressively, with evidence of greater convergence between L1 and AL in late adult bilinguals than in children. This neurobiological evidence directly supports the notion that syntactic representations exist along a continuum, rather than in discrete categories, and that the difference between L1 and AL disappears as proficiency increases.

In summary, the syntactic overlapping hypothesis does not replace these constructs, but complements them by proposing a specific, observable, and testable mechanism that operates at the interface between the syntactic systems of L1 and AL during the intermediate stage of language development.

2.1 Delimitation of the syntactic overlapping construct

The notion of syntactic overlapping was originally proposed by Glenday (2020), and it is the central construct of this study. For its empirical application to be rigorous, it is necessary to delimit it in relation to similar constructs with which it maintains a dialogical relationship, but which differ in object, mechanism, level of analysis, and empirical prediction. Table 1 systematizes these distinctions.

Table 1. Distinction of main constructs in additional language acquisition research.

Construct	Focus	Mechanism	Analysis	Prediction
Interlanguage (Selinker, 1972)	Learner's global linguistic system	Fossilization, permeability, systematicity	All levels (phonological, morphosyntactic, lexical)	Systematic productions that differ from L1 and target AL.
Syntactic transfer (Lado, 1957)	Specific grammatical structures	Direct L1→AL mapping	Syntax	Reproduction of L1 structures in L2
Representational restructuring (Sharwood Smith & Truscott, 2014)	Mental representations of AL	Cognitive reorganization in response to input	Mental (cognitive) representation	Qualitative change in internal representations
Convergence (Green, 2003)	Representations of L1 and AL	Progressive accommodation with increased proficiency	Mental representation	Increasing overlap of L1 and L2 systems

Shared syntax (Hartsuiker, Pickering, & Veltkamp, 2004)	Mental representations of AL	Syntactic representations shared between languages	Mental (cognitive) representation	Grammatical rules of L1 influence the processing of AL
Syntactic overlapping (Glenday, 2020)	Argument structure and constituent order	Parametric adjustment of L1 structures over AL knowledge in development	Morphosyntax (production)	Structures that (i) are not L1 transfer, (ii) productions that are not the target structure of AL, (iii) reflect systematic and rule-governed adjustment

For production to be classified as evidence of syntactic overlapping—and not of transfer, random error, or evasion strategy—this study adopts three minimum empirical criteria, based on Glenday’s first study (2020):

(i) Non-transfer criterion: the structure produced cannot be explained as a direct reproduction of the argument structure of L1. In the present study, this implies that the VP+se-DP order of Portuguese was not maintained literally in the English production.

(ii) Non-target criterion: the structure produced does not correspond to the canonical target structure of the AL. Productions that fully meet the English norm are classified as target structures and excluded from the category of syntactic overlapping.

(iii) Systematicity criterion: the structure produced has a recurring and internally coherent pattern, indicative of a rule development — even if partial — and not of random error or lexical deficit. Isolated, fragmented productions or those clearly resulting from a lexical gap are excluded from this category.

Productions that satisfy criteria (i) and (ii), but not criterion (iii), are classified as non-systematic hybrid productions and treated as inadequacies in the quantitative analysis. The complete coding scheme for the responses, with positive and negative examples for each structural category, is addressed in section 3.1.

3. Method

Participants

A total of 56 participants, undergraduates or recent graduates in English, performed a translation task in Sobral, CE. During initial data collection, the age of participants reported was 19-34 years old (mean: 23.64), of which 32 participants (57.14%) were female and 24 (42.86%) were male. According to the Vocabulary Size Test (VST) score, used to measure the level of knowledge in English, 30.35% of participants achieved intermediate proficiency (n=18) (values between 4,250 and 8,854; average VST score: 6,552) and 69.65% (n=38) achieved advanced proficiency (values between 8,855 and 15,574; average VST score=12,215). In the intermediate group, 8 participants acquired English between the ages of 12-16, and 9 participants acquired it after the age of 16. In this group, only 1 participant had acquired English between the ages of 1-11 and, due to statistical insignificance, was excluded from the analysis. In the advanced group, 7 participants acquired English between the ages of 1-11, 24 participants between the ages of 12-16, and 7 participants after the age of 16. It is important to note that no participant reported having lived outside of Brazil or traveled abroad (up to 3 months).

The distribution of participants among the age acquisition subgroups presents an imbalance that deserves consideration. In the intermediate group, the absence of participants with AoA1 in the final analysis—resulting from the exclusion of the only participant in that range due to statistical insufficiency—makes direct comparison between the three AoA ranges in this group impossible, limiting inferences about the effect of early acquisition age on the intermediate level of proficiency. In the advanced group, subgroups AoA1 and AoA3 have only 7 participants each, which requires caution in interpreting patterns specific to these ranges. Table 2 shows the effective n used in each comparison, allowing the reader to assess the relative robustness of each finding.

Table 2. Distribution of participants by proficiency group and age of acquisition (AoA).

Proficiency group	AoA1 (1–11 years old)	AoA2 (12–16 years old)	AoA3 (after 16 years old)	Total
Intermediate level	1 (excluded)	8	9	17
Advanced level	7	24	7	38
Total	7	32	16	55

Due to this imbalance, the results relating to the intermediate group should be interpreted with the following caveats: (i) the findings relating to the AoA1 range in this group are absent and cannot be inferred from the other subgroups; (ii) the patterns observed in the AoA2 and AoA3 ranges of the intermediate group constitute empirically observed trends, not robust generalizations; (iii) only the findings of the advanced group with AoA2 — the subgroup with the largest n (24 participants) — offer a more solid basis for stronger claims. This asymmetry is a recognized limitation of the present study and reinforces the need for replication with larger and more balanced samples across the AoA ranges.

The inclusion criteria for Brazilian participants were being a native speaker of Brazilian Portuguese (BP), being a learner of English as an additional language (AL), being an undergraduate or recent graduate, being 18 years of age or older, and having a minimum intermediate proficiency level, as measured by the VST. The exclusion criteria were not having a higher education degree, being under 18 years of age, or not completing the translation task.

All participants consented to participate in the research by signing the Informed Consent form. The research project was approved by the Research Ethics Committee, CAAE 25555119.1.0000.5053, report No. 3,746,994, of the Universidade Estadual Vale do Acaraú, Sobral, Ceará.

Experimental design

An experiment was designed using a translation task with verbs in BP in the synthetic passive voice with three independent variables: (i) argument structures in the passive voice at two levels (bi-argumentative and resultative); (ii) proficiency level of participants in two groups (intermediate and advanced); and (iii) age of acquisition of English as a foreign language in three groups (group AoA1;1-11

years, group AoA2;12-16 years, and group AoA3; after 16 years). For data analysis, the dependent variable was the argument structure used by participants in the translation task. It was not possible to include a control group of native English speakers in this study.

Experimental items

Ten sentences were constructed in BP in the synthetic passive voice with the passive marker 'se' using regular and irregular verbs, with 5 sentences in the bi-argumentative condition and 5 sentences in the resultative condition. In total, the instrument consisted of 10 experimental sentences and 20 filler sentences with sentences in both active and passive voice. The experimental items were randomized in the instrument along with the filler sentences.

3.1 Codification of answers

The categorization of responses was carried out by the main researcher. Each participant's production was classified into one of the following structural categories, based on the argument structure observed in the translation output:

(a) VP-DP — the verb occupies the initial position of the sentence, followed by the DP, without a subject. This structure reproduces the argument structure of the passive in BP, characterizing syntactic transfer. Example of inclusion in this category: Expected good results in the first tests. Example of exclusion in this category: It was expected good results (this structure would be classified as EXPLETIVE-VP-DP).

(b) EXPLETIVE-VP-DP — the expletive pronoun 'it' occupies the subject position, followed by the verb in the passive voice and the DP. This structure satisfies the non-null subject parameter in English and would constitute evidence of syntactic overlapping in the bi-argumental condition. Example of inclusion in this category: It was expected good results in the first tests. Example of exclusion in this category: Expected good results (this structure would be classified as VP-DP).

(c) DP+POSSESSIVE-DP-VP — a DP with a possessive structure (Saxon genitive) occupies the subject position, followed by the DP complement and the verb in the passive voice. This structure would constitute evidence of syntactic overlapping in the resultative condition. Example of inclusion in this category: Paul's insanity was certified at the clinic. Example of exclusion in this category: It was certified the insanity of Paul (this structure would be classified as EXPLETIVE-VP-DP+PP).

(d) EXPLETIVE-VP-DP+PP — the expletive pronoun 'it' occupies the subject position, followed by the verb in the passive voice, the DP, and a prepositional phrase. This is a variant of category (b) for the resultative condition. Example of inclusion in this category: It was certified the insanity of Paul at the clinic. Example of exclusion in this category: Paul's insanity was certified (this structure would be classified as DP+POSSESSIVE-DP-VP).

(e) VP-DP+PP — the verb occupies the initial position, followed by the DP and a prepositional phrase, without a subject. This is a variant of category (a) for the resultative condition, characterizing syntactic transfer. Example of inclusion in this category: Certified the insanity of Paul at the clinic. Example of exclusion in this category: Paul's insanity was certified at the clinic (this structure would be classified as DP+POSSESSIVE-DP-VP).

(f) Inadequacy — productions that do not fit into any of the above categories, because they show: incoherent argument structure, serious syntactic fragmentation, absence of a main verb, lexical error that compromises the identification of the structure, or a blank sentence. These responses were excluded from the quantitative analysis. Examples: True the insane of Paul the clinic; The dead on Joe; Report the of John.

A sentence was considered suitable for analysis even when the participant chose a verb different from the expected one (for example, 'waited' instead of 'expected'), if the argument order was identifiable. Lexical choice was not

controlled, since the object of analysis was exclusively the argument structure produced.

The classifications were subsequently reviewed by a data analyst, who examined ambiguous cases and confirmed the overall consistency of the criteria adopted. A formal protocol for independent double coding with calculation of an inter-rater agreement index was not conducted. This limitation is recognized as a restriction on the full reproducibility of the analysis. For future studies, the adoption of systematic double coding with calculation of an agreement index (e.g., Cohen's Kappa) is recommended to strengthen the validity of the answer categorization.

The two experimental conditions (bi-argumentative and resultative) were manipulated considering the need to move the argument structure in the translation task, and the independent variable, movement of the argument structure in the translation output, was investigated. In the bi-argumentative condition, the experimental items were sentences in the synthetic passive voice in BP with the passive pronoun 'se' and argument structure VP+se-DP. In the resultative condition, the experimental items were sentences in the synthetic passive voice in BP with the passive pronoun 'se' and argument structure VP+se-DP-PP, as shown in Condition Map 1.

Condition Map 1. Experimental items used in the translation task.

a) Bi-argumentative condition	Esperam-se bons resultados nos primeiros testes Recomendou-se uma nova avaliação após dois anos. Encontraram-se novos resultados para os últimos testes. Confirmou-se a hipótese da pesquisa após testes. Considerou-se a análise dos dados nos resultados.
b) Resultative condition	Atestou-se a insanidade de Paul na clínica. Considerou-se a inabilidade de Jack para o emprego. Reportou-se o sumiço de John depois de três dias. Declarou-se a morte de Joe pela manhã. Considerou-se a saúde de Ana no hospital.

The sentences were subsequently classified as verbal segment and critical segment. Below are experimental items in the two conditions and the critical segments are the dependent variables. In the bi-argumentative condition (a), the

critical segment was '*bons resultados*' in theme position (DP). In the resultative condition (b), the critical segment was '*a insanidade de Paulo*' in theme position (DP).

(a) Bi-argumentative condition

Esperam-se [verbal segment] *bons resultados* [critical segment] nos primeiros testes.

(b) Resultative condition

Atestou-se [verbal segment] *a insanidade de Paul* [critical segment] na clínica.

The size of the critical segments was balanced by the number of words (2 to 3 words) and not by the number of characters. The frequency and familiarity of the lexical items were controlled to avoid undesirable effects on the comprehension-related results. As the task was performed on a printed instrument, the experimental items were distributed in such a way that no two experimental conditions were on the same page. In this experimental design, all participants saw all sentences in all experimental conditions.

Procedure

Participants were recruited to participate in the study through invitations made in the classrooms at the Universidade Estadual Vale do Acaraú in the English program in the city of Sobral. Before participating in the study, participants formally consented to their participation by signing the consent form. In total, 56 participants completed the translation task.

The translation task was conducted in a soundproof room (Language Laboratory) at the Universidade Estadual Vale do Acaraú. Before starting the task, to ensure that participants did not repeat the experiment, each participant signed a printed attendance list. Each participant performed the translation task from BP to English using a printed instrument containing 30 items, 10 of which were experimental items and 20 fillers.

Before beginning the translation task, participants read the instructions on the first page of the brochure. The instructions on the first page clearly stated that it was a task, not a test. For each sentence, there were five lines for participants to record their translations. Participants were asked to translate each sentence, and, in case of a mistake, they were instructed to indicate the mistake by using the symbol (*) so that the sentence would not be considered in the analysis. Upon registering that the sentence was invalid, participants could use the next line to write the translation. Participants were asked not to cross out or erase their translations. This instruction page provided an example of how to complete the task and how to proceed in case of a mistake or reconsideration by the participant.

After reading the instructions, the researcher orally confirmed with the participants whether they had understood the task and if they had any questions. If a participant had any questions, they were clarified before starting the task. After addressing the participants' questions, they were informed that the translation task should be performed without consulting a dictionary (online or physical). Participants were also informed that if they could not remember a specific word in the instrument, they could replace that word with a synonym, without affecting the task. Since the investigation is related to the choice of argument structure in the translation, we did not control the participants' choice of lexical items, provided they were similar. Regarding the syntactic structure of the experimental sentences, no instructions were given on how to perform the translation. The goal was for the participant to use their linguistic intuition to solve the sentence translation. In this task, there was no training session prior to the translation.

There was no time limit for completing the task, therefore time was not a variable analyzed. The distribution of items in the instrument was such that participants would not see two consecutive items with the same experimental condition; that is, one distractor and one experimental item were placed on each page of the brochure-format instrument. The average time to complete the experiment was 1 hour and 30 minutes.

4. Results and discussion

The chi-square test in the statistical software Statistical Package for the Social Sciences – SPSS version 19.0 (SPSS Inc., Chicago, IL) was used to analyze the data collected.

The first analysis was to verify which types of argument structures the participants in the two groups chose to use in the two experimental conditions. Among the participants in the advanced group, in both conditions, when adding up all the experimental items (trials n=380), a proximity was observed in the percentages between the choice of structures. The EXPLETIVE-VP-DP structure (It was expected) was observed in 17.1% of the choices, followed by VP-DP (Expected good results) which occurred in 13.4%.

Among the participants in the intermediate group in both conditions, when adding up all experimental items (trials n=170), it was observed that there was a greater difference between the choice of EXPLETIVE-VP-DP structures (6.5%), while VP-DP was observed in 40.6%. A higher total percentage of inadequate sentences (35.9%) was observed in this group when compared to the advanced group.

Regarding the inadequacy of the sentences, the occurrence of blank items or incomplete sentences in the intermediate group was a factor that indicated that the participants recognized that the argument structure would be different in English, but there was no attempt to solve the task.

As for the adequacy of the items, the objective was to observe the choice of argument structure, and certain grammatical deviations were not considered inadequate. Although few participants chose the argument structure that would be the most adequate in English, not all sentences that differed were considered inadequate, as described in section 3.1. Table 3 shows some examples of sentences that were considered inadequate or incomplete and, consequently, were not included and computed in the final statistical model.

Table 3. Examples of sentences considered inadequate in both groups.

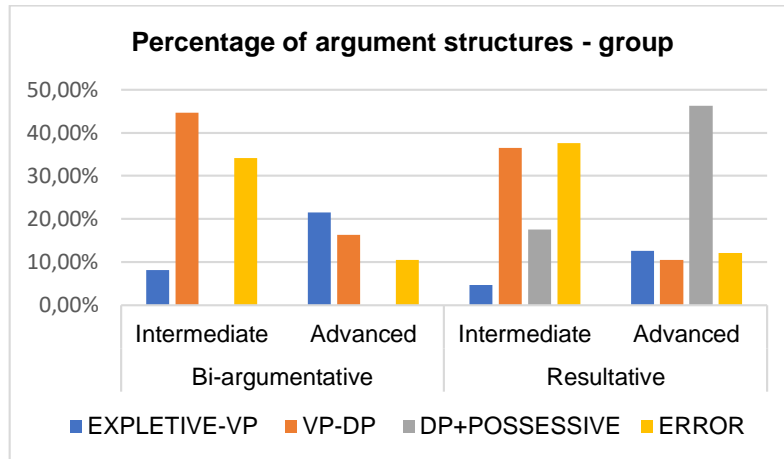
Participant/AoA/Proficiency	Sentence
I4017/AoA3/INTER	True the insane of Paul the clinic.
I6007/AoA3/INTER	The dead on Joe.
I6007/AoA3/INTER	Report the of John.
I4018/AoA1/AVANÇ	Insanity has been appointed in Paul.
I7015/AoA2/AVANÇ	Paul's anxiety was discovered at the clinic.
I7015/AoA2/AVANÇ	Jack's inability to find jobs were considered.
I7017/AoA2/AVANÇ	Joe's name was proclaimed.
I7022/AoA2/AVANÇ	The latest tests for new results were found.

Since the objective of the task was not designed to assess lexical knowledge, but rather the choice of argument structure, the sentence was considered correct for analysis even if the participants had used different verbs, provided they observed the adequate order of constituents.

In the second analysis, we observed the argument structures used by the two groups in the two conditions (Figure 1). When analyzing the choice of argument structure in the bi-argumentative condition, the EXPLETIVE-VP-DP structure (It was expected good results) showed a higher frequency (21.5%) in the advanced group. Regarding the choice of the VP-DP structure (Expected good results), it occurred more frequently in the intermediate group (44.7%). The total percentage of inadequate sentences was higher in the intermediate group (34.1%).

When analyzing the choice of argument structure in the resultative condition, the EXPLETIVE-VP-DP+PP structure (It was certified the insanity of Paul) was observed in 12.6% in the advanced group. The choice of the VP-DP+PP structure (Certified the insanity of Paul) occurred in 36.47% of the intermediate group. The choice of the DP+POSSESSIVE-DP-VP structure (Paul's insanity was certified) was observed in 46.3% in the advanced group. The total percentage of inadequate sentences in the resultative condition was higher in the intermediate group (37.6%).

Figure 1. Argument structures used by participants in the groups in both conditions.

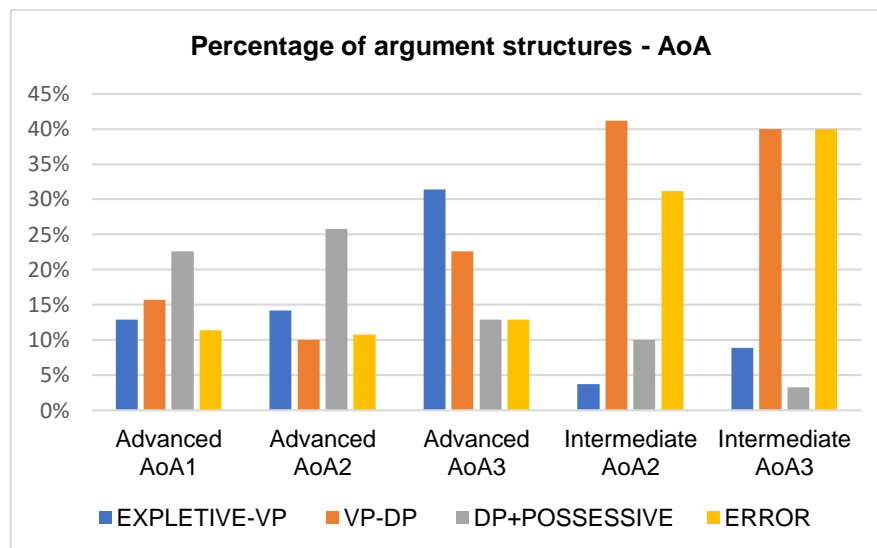


The next analysis considered the age of acquisition (AoA) and the choice of argument structure used among participants in the two groups in the two experimental conditions (Figure 2).

In the intermediate group, the percentage of participants with AoA2 and AoA3 that chose the VP-DP argument structure was similar, occurring in 40% and 41.2%, respectively. Regarding the EXPLETIVE-VP-DP structure, the percentage was higher among participants with AoA3 (8.9%). As for the choice of the DP+POSSESSIVE-DP-VP structure, the highest percentage was observed among participants with AoA2 (10%).

In the advanced group, the percentage of participants with AoA3 that chose the EXPLETIVE-VP-DP structure was 31.4%. Among participants with AoA1 and AoA2, the percentage of the DP+POSSESSIVE-DP-VP structure was 22.6% and 25.8%, respectively.

Figure 2. Argument structures used in the two groups studied according to the ages of acquisition.



In this data set, the chi-square test was used to verify if the data collected showed any statistical significance.

In the intermediate group, the chi-square test ($X^2=10.063$; $p=0.039$) revealed significance between the independent variables AoA and argument structure. According to Cramer's V (0.236), the degree of association between AoA and argument structure in the intermediate group was 23.60%. To identify which argument structures were significant with respect to AoA in the intermediate group, cross-tabulation was performed using the adjusted residual as a reference. The data revealed significance only for the VP-DP argument structure at AoA2 and AoA3.

In the advanced group, the chi-square test revealed significance ($X^2=30.722$; $p=0.000$) between the independent variables AoA and argument structure. According to Cramer's V (0.201), the degree of association between AoA and argument structure was 20.10%. To identify which argument structures in the advanced group were significant with respect to AoA, cross-tabulation was performed. In group AoA1, there was statistical significance for the argument

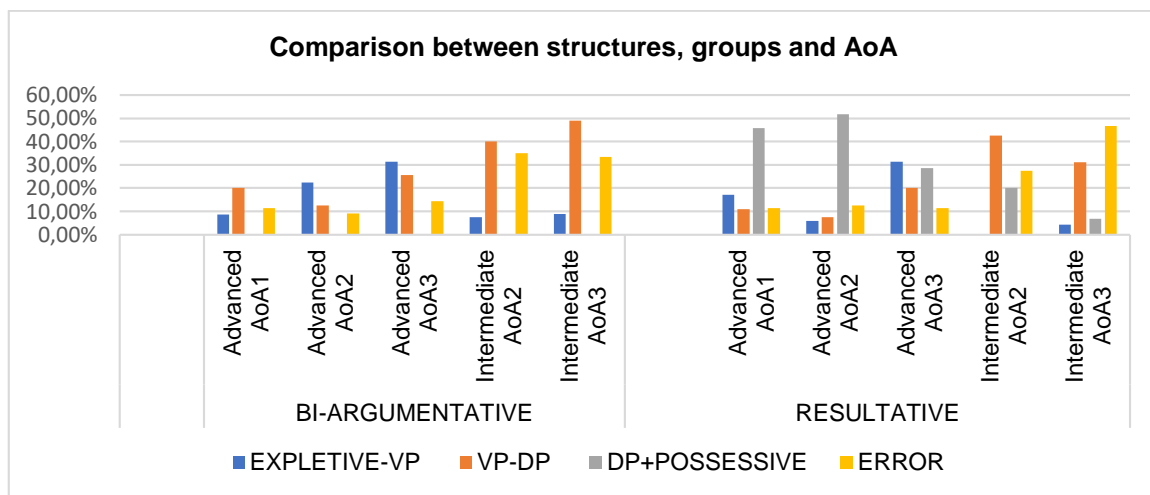
structures EXPLETIVO-VP-DP, VP-DP, and DP+POSSESSIVO-DP-VP. In group AoA2, there was significance for the argument structures EXPLETIVO-VP-DP, VP-DP, DP+POSSESSIVO-DP-VP, and inadequacy. In group AoA3, the argument structure EXPLETIVO-VP-DP did not show statistical significance.

In the next analysis, the interaction between the AoA, the level of proficiency, and the argument structures used by the participants in both groups was investigated. First, the interaction between argument structures and AoA was analyzed. It was found that the percentage of the VP-DP+PP structure used by participants with AoA3 was 26% for the resultative condition and 39% for the bi-argumentative condition. Inadequate sentences accounted for 31.2% in the resultative condition and 25% in the bi-argumentative condition. In contrast, the data revealed a higher percentage for the choice of the DP+POSSESSIVE-DP-VP structure in the resultative condition for participants with AoA2 and AoA1 (43.7% and 45.7%, respectively).

In the final analysis, the interaction between argument structures, conditions and AoA in the two groups was investigated (Figure 3). The data revealed that the percentage of choice for the DP+POSSESSIVE-DP-VP structure in the resultative condition was higher in the AoA2 subgroup (51.7%) than in the AoA1 subgroup (45.7%) in the advanced group. In the same condition, the use of the EXPLETIVE-VP-DP+PP structure was higher in the advanced group with AoA3 (31.4%). In the intermediate group with AoA2, the highest percentage in this condition was for the VP-DP+PP structure (42.5%). The highest percentage of inadequate sentences in this condition was observed in the intermediate group with AoA3 (46.7%).

In the bi-argumentative condition, the choice for the VP-DP structure was higher in the intermediate group with AoA3 (48.9%), followed by participants with AoA2 (40%). The use of the EXPLETIVE-VP-DP structure was also higher in this condition in the advanced group with AoA3 (31.4%).

Figure 3. Interaction between argument structures in the two conditions and AoA in the two groups.



Not all the results obtained corroborate the initial hypotheses, and these discrepancies deserve careful discussion, as they offer equally relevant information about the syntactic overlapping process. The prediction that intermediate learners with AoA2 would preferentially use the EXPLETIVE-VP-DP structure—indicative of syntactic overlapping—was not confirmed by the data (7.5% in the bi-argumentative condition). One possible interpretation is that syntactic overlapping in this group has not yet reached the threshold necessary for the spontaneous production of the expletive pronoun 'it', a structure without a direct functional equivalent in BP. This absence may indicate that syntactic overlapping is an asymmetrical process: more rapidly observable in structures with greater cross-linguistic overlap and slower in structures that require the instantiation of functional categories absent in L1.

Similarly, the unexpectedly high occurrence of the DP+POSSESSIVE-DP-VP structure among advanced learners with AoA1 in the resultative condition (45.7%) had not been predicted by the initial hypotheses. This finding suggests that syntactic overlapping does not necessarily follow a linear trajectory determined by the age of acquisition, and that factors such as the frequency of exposure to

possessive constructions in English and the overall level of proficiency may interact in a more complex way than the initial model predicted.

The high rate of inadequacy in the intermediate group with AoA3 (46.7% in the resultative condition) also deserves attention: instead of being interpreted merely as failure in the task, it may reflect learners' metalinguistic awareness of the structural incompatibility between languages—which, paradoxically, can be a positive indicator of language development, even if it does not manifest itself in successful production. These unconfirmed findings do not invalidate the hypothesis of syntactic overlapping, but they do define its applicability conditions more precisely and point to the need for models that consider the asymmetry and non-linearity of the acquisition process in the intermediate stage of language development.

In both experimental conditions, the problem for the participant was to identify which constituent would be the subject of the passive voice in English. The [+] value for the null subject parameter in Portuguese led the learner to transfer their knowledge from L1 to AL, resulting in syntactic transfer by choosing to keep the verb in the initial position of the sentence. On the other hand, the use of the expletive 'it' suggests a process of syntactic overlapping with the redefinition of the value [-] for the null subject parameter in English. In this case, the learner would not simply be transferring their knowledge from L1 to AL because the use of the expletive does not exist in L1 (Brazilian Portuguese).

In resultative sentences, the learner needs to know that Paul is the subject of the passive voice, and the DP (the insanity) is an AP after the verb. In this case, syntactic overlapping was observed when the learner opted for the possessive structure (Paul's insanity), since generally a DP followed by a PP indicates possession in English, as in 'Paul's house'. This parameter does not exist in Brazilian Portuguese, and we cannot attribute the use of the possessive as a direct transfer from L1.

However, it must be acknowledged that the production of the possessive structure admits at least two interpretations. The first, aligned with the hypothesis of syntactic overlapping, is that the learner reanalyzes the post-verbal DP (Paul's insanity) as a possessive phrase (Paul's insanity), parametrically reorganizing the argument structure of the L1 based on emergent knowledge of English—an operation that has no direct parallel in L1. The second interpretation is that this production stems from formulaic knowledge: the learner may have internalized the pattern proper noun + 's + noun as a frequent lexicalized sequence in English, without this necessarily implying a deeper parametric restructuring. Both interpretations are consistent with the data observed, but the written translation task does not allow for a reliable distinction between them. Distinguishing between formulaic grammatical solutions and evidence of parametric readjustment requires, in future studies, tasks that control for access to memorized patterns—such as the use of items with infrequent proper names or structures with low frequency in the input to which participants were exposed.

Both the use of the expletive 'it' and the use of the possessive structure are consistent with the syntactic overlapping hypothesis and offer behavioral evidence that the learners' interlanguage system is undergoing active restructuring. It is important to emphasize, however, that the data obtained through a written translation task without a time limit—an offline task that allows conscious monitoring and the use of metalinguistic strategies—do not provide direct access to the learners' mental representations, nor do they constitute conclusive evidence of I-language parametric reconfiguration. The patterns observed should be interpreted as behavioral evidence consistent with the syntactic overlapping hypothesis, and not as proof that a parametric restructuring occurred. Future studies using online processing paradigms, such as self-paced reading or structural priming between languages, will be needed to investigate whether these patterns persist under conditions of increased cognitive pressure, when conscious monitoring is reduced.

Finally, an important terminological distinction should be made. In this study,

the terms ‘intermediate level’ and ‘advanced level’ refer exclusively to lexical proficiency scores measured by the Vocabulary Size Test (VST), and not to stages of syntactic development. Based on the patterns observed of argument choice, it is possible to formulate the interpretative hypothesis—not directly tested by the instrument—that participants classified as intermediate by the VST exhibit syntactic behavior closer to the initial stage of L1 acquisition, insofar as they still predominantly resort to L1 parsing to process sentences in English. Participants classified as advanced, in turn, exhibit patterns consistent with an intermediate stage of syntactic development, alternating between L1 structures and emerging AL structures. This correspondence between vocabulary score and hypothetical developmental syntactic stage is an interpretation to be tested in future studies with instruments that directly assess syntactic processing, and not an equivalence established by the data from the present study.

The limitations of the present study were the limited number of participants and the lack of complementary experimental tasks. The data obtained from participants with AoA3, compared to those with AoA1 and AoA2, seem to indicate that there is some influence of the age of acquisition on syntactic processing in AL; however, further studies should be conducted with a larger population sample and more participants in each group to confirm this finding. In future studies, we suggest using Translog[®], for example, with eye tracking to better investigate and understand the resolution process of these structures, as well as including other sentence types and syntactic structures for better comparison. Future research should be conducted with more participants and other language pairs.

5. Conclusion

The findings in this study should be interpreted considering some methodological limitations that deserve consideration. Firstly, the written translation task, while ecologically valid and suitable for eliciting argument structure choices, does not allow direct access to online syntactic processing.

Because it is a reflective production task without a time limit, it allows the use of conscious metalinguistic strategies that can mask automatic syntactic activation processes. Future studies could complement these findings with online processing paradigms, such as self-paced reading, eye tracking or structural priming, to investigate whether the patterns observed are maintained under conditions of greater cognitive pressure.

Secondly, the imbalance between the age-of-acquisition subgroups, particularly the absence of participants with AoA1 in the intermediate group and the small size of some subgroups in the advanced group, limits the generalizability of comparisons between AoA ranges. Although chi-square tests revealed statistically significant associations, Cramer's V values (0.201 and 0.236) indicate small to moderate effect sizes, suggesting caution in interpreting the magnitude of the observed differences.

A third limitation concerns the statistical treatment adopted. The chi-square test, used as the main analytical tool, is suitable for identifying associations between categorical variables, but has important restrictions when applied to data of the present study. In particular, the chi-square test does not control the dependence between observations generated by the same participant—each participant contributed multiple items in both experimental conditions—or the variability between the experimental items themselves, which may differ in degree of difficulty, lexical familiarity, and semantic plausibility. Treating these two sources of variability simultaneously requires the use of mixed-effects models, which include participants and items as random effects. The choice of the chi-square test in this study was due to the research conditions and the sample size of the subgroups, which make stable estimation of more complex models difficult. This choice is acknowledged as an analytical limitation: the results reported indicate statistically significant associations between the independent variables and the choice of argument structure but should not be interpreted as definitive proof of causal effects or parametric reconfiguration. The effect sizes obtained by Cramer's

V (0.201 and 0.236), classified as small to moderate, reinforce the need for caution in interpreting the magnitude of the observed differences. Future studies with larger samples should adopt mixed-effects multinomial logistic regression models, which allow for simultaneous control of variability between participants, items, and experimental conditions.

Fourthly, the absence of a control group of native English speakers prevents an objective empirical anchoring for the definition of argument structure adequacy in L2. The adequacy criteria adopted in the analysis, although linguistically grounded, reflect the researcher's judgment and could be more robustly validated through acceptability assessments by native speakers or by consulting English reference corpora.

Finally, the number of experimental items per condition (five items per condition) is relatively small, which may have limited the stability of the frequency estimates of the argument structures. Future studies should increase the set of experimental items and use mixed-effects models that allow for simultaneous control of variability between participants and items.

In addition to the reduced number of items per condition, the five experimental items in each condition are not necessarily equivalent to each other in terms of their linguistic properties. Factors such as the frequency of the verb in the input to which the participants were exposed, the semantic plausibility of the relationship between the agent and the theme, the familiarity of the proper names used in the resultative sentences, and the length of the critical segments may have influenced the argument choices independently of the variable of interest. For example, a high-frequency verb in English may favor the production of the target structure not through syntactic overlapping, but through the retrieval of a memorized sequence; similarly, the presence of a proper noun easily associated with a possessive construction in English—such as Paul's—may have induced this structure in some participants regardless of their proficiency level or AoA range. The absence of an item-by-item analysis prevents these contributions from being

separated from the effect of the main independent variables. Future studies should increase the set of experimental items to at least ten per condition, systematically control the lexical and semantic properties of the stimuli, and perform item-by-item variability analyses—preferably using mixed-effects models—before consolidating interpretations based on aggregate frequencies.

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