

Adversative Passives in Thai Child Language: A Lexicase Analysis

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Abstract

This study provides systematic elicited production data on Thai adversative passives in children, contributing to the limited literature on passive acquisition in isolating languages. Using a Lexicase syntactic analysis, the study examines the predominant adversative passive constructions, marked by the passive markers *thùuk* and *doon*. The study investigated the production of 138 children aged 2 to 5 years through experimental tasks and semi-structured interviews, compared with an adult baseline production.

Findings revealed that children produced passive constructions early and accurately. In the experiment, the canonical passive pattern (Pattern 4) emerged at age 2, with high target accuracy maintained across the preschool years (86.8%, 95% CI [80.3%, 91.4%]), which confirms robust productive command of the canonical Thai adversative passive pattern. Lexical verbs in passive constructions were predominantly adversative actional verbs, consistent with the adversative nature of the Thai passive markers *thùuk* and *doon*. The extended passive pattern with body-part noun phrases (Pattern 5) emerged at ages 2–3, requiring both Patient-to-Patient control and semantic part-whole understanding. Adults produced a more elaborate passive variant not observed in children's data. This suggests that passive elaboration continues beyond age 5. Grammatical development progressed from basic, canonical passives at age 2 to extended forms at age 3, with more elaborate patterns at age 5, establishing developmental milestones in Thai adversative passive production.

Keywords: Thai, adversative passives, syntax, lexicase, child language

1. Introduction

Passive constructions are a topic of interest in the syntactic development of children across languages. In languages with adversative passives, such as Thai and Japanese, adversative passives play an essential role in conveying an adverse effect on the patient subject, making them distinct from passives in other languages. While passive acquisition has been widely studied in English, there is little research on how Thai children acquire adversative passive constructions. It remains unclear, particularly, how Thai preschool children form adversative passive sentence patterns and whether their patterns align with adult norms or exhibit developmental deviations. The purpose of this paper is to illustrate passive sentence patterns produced by Thai preschool children, in comparison with those of adults.

1.1 Passive Constructions in Language Acquisition

In the study of passive acquisition, comprehension studies have been well studied cross-linguistically, while production studies have received less attention. Earlier research on the passive acquisition of English shows that the passive is acquired late (Baldie, 1976; Borer & Wexler, 1987, p. 156; Horgan, 1978). Crain et al. (2009, p. 127) showed that children successfully produced full passives with various morphological affixes and the presence of ‘by’ phrases as early as age 3, using elicitation as an innovative method for producing full passives in preschool children. Research in other languages found that Inuit children were able to produce passives between the ages of 2 and 3 (Allen & Crago, 1996) and Sesotho at age 3 (Demuth & Machobane, 2010). In languages with adversative passives, Sugisaki (1999, p. 151) reported that Japanese children acquired indirect passives or gapless passives before passives with gaps. In Thai, Indrambarya (2024) found that preschoolers comprehended actional verbs in passives better than psychological verbs, yet at age 5, they still struggled with the patient-agent role in passive constructions. Few studies, however, have examined the structural patterns of passives in children. Thus, this study aims to fill this gap by exploring children’s passive sentence patterns and determining at what age children achieve a target-like pattern of Thai passives.

1.2 Thai Adversative Passive Constructions

Canonical Thai passive sentences are adversative passive sentences in the pattern [NP *thùuk* / *doon* (NP) V] where the presence of an agentive noun phrase is optional, as in (1a). In this study, passives are defined as sentences that appear with at least one of the passive markers *thùuk* or *doon*, which carry the meaning ‘to be adversely affected; to undergo a certain adversative action.’ This broad definition distinguishes the passive and non-passive uses of *thùuk* or *doon*, as both can appear in active sentences in Thai. Within this broad definition, this study focuses on adversative passives defined following

Prasithrathsint (2006, p. 118), as: 1) adversative passives co-occur with transitive verbs with unfavorable meanings; 2) the subject of adversative passives is usually animate; and 3) adversative passives occur in an adversative context where the speaker feels unpleasant and unfortunate.

These passive markers *thùuk* and *doon* are analyzed as verbs since both can co-occur with the negation word *mây* ‘not’, which is used to identify a verb (Indrambarya, 1994; Prasithrathsint et al., 2011), as shown in (1b).

- (1) a. kháw *thùuk/doon* tii
 เขา ถูก/โดน ดี
 he PASV hit
 ‘He was hit.’
- b. kháw *mây* *thùuk/doon* tii
 เขา ไม่ ถูก/โดน ดี
 he NEG PASV hit
 ‘He was not hit.’

Modern Thai linguists have analyzed the passive verbs *thùuk* and *doon* as verbs taking an embedded clause (Indrambarya, 1994; Prasithrathsint, 2001; Savetamalaya, 2001; Sudmuk, 2003). These linguists differed in their views about the transitivity and the complements of *thùuk* in passive constructions. Working within the Lexicase grammatical framework, Indrambarya (1994), Prasithrathsint (2001), and Savetamalaya (2001) agreed that *thùuk* functions as an intransitive verb in passive constructions. Their analyses, however, differed in detail. Indrambarya (1994, pp. 270-276) classified *thùuk* and *doon* in sentences (2a) as an intransitive verb that takes an accusative noun phrase bearing a Correspondent case relation (COR) and a non-finite embedded clause with a control chaining rule to link the missing object noun phrase in the embedded clause with the Nominative Patient. This rule also predicts the accompanying noun phrase as the grammatical actor¹ of the embedded verb. Prasithrathsint (2001, p. 82) shared a similar view regarding the complement of the verb *thùuk*.

¹ In lexicase, an actor is a formal macro role referring to a subject-like argument of a verb in both finite and non-finite clauses. It is different from a semantic notion of agent and patient. See Section 1.3 for the full definition of lexicase terminology. A full list of abbreviations used in this paper is provided in the Abbreviation Section.

- (2) a. coon *thùuk/door* tamrùat [càp] *non-finite analysis (Lexicase)*
 โจร ถูก/โดน ตำรวจ จับ
 thief PASV police catch
 Nom -trns Acc +trns
 PAT +fint COR -fint
 ‘A thief was arrested by the police.’

A finite embedded-verb analysis was conducted by Savetamalaya (2001) and Sudmuk (2003). Savetamalaya (2001, pp. 127-130) analyzed *thùuk* as an intransitive verb taking a finite or non-finite clause dependent on the presence of an agent noun phrase. However, this construction-specific analysis could not account for agent licensing and failed to capture generalizations of Thai passive constructions. Sudmuk (2003, p. 422), working within Lexical Functional Grammar, analyzed *thùuk* as a verb taking a clausal complement (SCOMP), involving long-distance dependency through topicalization and functional control between the matrix subject and the missing object of the embedded verb. This type of dependency was compared to the ‘tough construction’ in English. A parallel analysis was proposed for Chinese long passives in Huang (2013, p. 96). However, as shown in (2c), the embedded verb cannot co-occur with an auxiliary. This demonstrates its non-finite status. A finite analysis fails to capture this evidence. The non-finite analysis (Indrambarya, 1994; Prasithrathsint et al., 2011) is therefore adopted.

- (2) b. coon *thùuk/door* [tamrùat càp] (finite analysis)
 โจร ถูก/โดน ตำรวจ จับ
 thief PASV police catch
 intransitive transitive
 finite finite
 ‘A thief was arrested by the police.’
- c. *coon *thùuk/door* [tamrùat khuan/ʔàat càp] (finite analysis)
 โจร ถูก/โดน ตำรวจ ควร/อาจ จับ
 thief PASV police should/may catch
 ‘A thief was arrested by the police.’

1.3 Lexicase Dependency Grammar

Lexicase is a dependency grammar developed by Stanley Starosta in 1971. Lexicase has been employed to analyze syntactic structures of many languages in Asia and the Pacific.

Across several lexicase analyses of Thai syntax, the framework has been shown to be suitable for analyzing Thai syntactic structures. It is particularly appropriate for Thai passive constructions.

Grammar as Lexicon

Lexicase is a grammar of words. A word is defined with three components: sound, meaning, and distribution. Therefore, a form with two distinct grammatical environments is analyzed as two separate lexical entries. Individual lexical items are represented by features. Lexical features can be contextual or non-contextual. While contextual features specify ordering and dependency relationships, non-contextual features are binary and include syntactic, semantic, and inflectional features (Starosta, 1988).

Monostratal Representation

Lexicase operates on one level of syntactic representation: surface structure. There are no phrase-structure rules or transformational rules. The relationship between active and passive sentences is simply two semantically related sentences, each of which has its own distinct sentence pattern.

Dependency-based Structures

Each constituent is captured with a dependency relation between a lexical head and its dependents. Structures are divided into exocentric and endocentric constructions. Only prepositional phrases and coordinate structures are exocentric. A verb and its dependents have an endocentric relationship. In a sentence, a verb is the regent head and takes complements and adjuncts as its dependents.

Case Forms, Case Relations, and Macro Role

While case forms indicate grammatical relations, case relations represent semantic roles. Lexicase has five case forms: Nominative (Nom), Accusative (Acc), Locative (Lcv), Means (Mns), and Correspondent (Crsp). There are five case relations in lexicase, namely Patient (PAT), Agent (AGT), Locus (LOC), Means (MNS), and Correspondent (COR). Unlike the Fillmorean case, which is situation-based, case relations in lexicase are syntax-based. In accusative languages, the subject and the object of a transitive verb bear the Agent and the Patient case forms, respectively. For intransitive verbs, a Patient is always realized as a Nominative. In an accusative language, all subjects bear the macro role ‘actor’ and are realized as the Agent of transitive verbs and the Patient of intransitive verbs (Starosta, 1988, p. 183).

Control Rules

Lexicase employs control rules to specify the relationship between arguments and non-finite embedded predicates. Lexicase has control rules for complements and adjuncts. A Patient-to-actor control rule (P2a) is a general control rule for complements. A control-chaining

rule essential to Thai passive constructions and related structures is the Patient-to-Patient (P2P) rule, which governs continuant verbs [+cntr]. The feature continuant [+cntr] on a regent verb indicates an ongoing action between a regent and its dependent (Indrambarya, 1994, pp. 299-300). The mechanism underlying relevant control rules will be discussed in Section 4.

Thai is an isolating language with no inflectional morphology. Grammatical relations, such as subjects and objects, are not morphologically marked but are indicated by word order. Theoretical frameworks that incorporate morphological alteration and movement operations face challenges when applied to Thai, since there is no morphological evidence in the surface structure to motivate such operations. Lexicase, a dependency-based framework, is suitable for analyzing passives in Thai for the following reasons. One reason is that it captures grammatical relations through syntactic and lexical features. Another reason is that its monostratal level captures the relation between two distinct patterns of active and passive sentences without positing an abstract underlying representation. Moreover, case relations in lexicase are syntactically based. This framework is appropriate for analyzing Thai passive constructions, since word order and dependency relations are crucial in grammatical structures. In Thai passive constructions, the intransitive verbs *thùuk* and *doon* take a subject noun phrase in Nominative case form bearing a Patient case relation. When an agent noun phrase is overtly present, it bears an Accusative case form with a Correspondent case relation (Indrambarya, 1994).

1.4 Research Objectives

While Thai preschool children's difficulty in comprehending passives has been investigated by Indrambarya (2024), children's production of passive sentence patterns has not been explored. It is unknown which passive sentence patterns children produce, whether their passive constructions match adults' usage, and how passive constructions develop across the preschool years.

The study addresses this gap by documenting the production of passive sentence patterns in child language. It aims to 1) identify adversative passive sentence patterns produced by Thai children aged 2–5 years and determine their grammatical status in adult Thais; 2) examine how adversative passive sentence patterns develop across ages 2–5; and 3) compare children's adversative passive sentence patterns with adult baseline production.

2. Methodology

This section identifies the participants, the data collection and analysis, and the scope of the present study.

2.1 Participants

Participants were divided into two groups: children and adults. All children were native Thai speakers and were divided into four age groups: ages 2, 3, 4, and 5. The total number of 158 children in their preschool years, from both nursery and kindergarten, were divided into two groups: 20 children participating in semi-structured interviews and 138 participating in production tasks. Written parental consent was obtained for all children.

In the semi-structured interviews, 8 of the 20 children were male and 12 were female. There were 3 children aged 2, 6 children aged 3, 3 children aged 4, and 8 children aged 5, whose ages were reported by teachers and parents.

In the experiment, 67 of the 138 children were male, and 71 were female. They comprised 27 2-year-old children (2;00-2;11), with a mean age of 2;07, 37 3-year-old children (3;00-3;11), with a mean age of 3;06, 36 4-year-old children (4;00-4;11), with a mean age of 4;04, and 38 5-year-old children (5;00-6;03), with a mean age of 5;08. The last group had a wider age range, as they were in kindergarten 3, the final year of preschool education in Thailand. Table 1 presents details of the study participants.

The adult baseline group comprised 38 native Thai speakers aged 18–75 (mean = 46.74), with 8 males, 26 females, and 4 LGBTQ+ participants. Gender distribution reflects recruitment availability and was not analyzed.

Table 1
Child Participants by Age and Data Collection Method

Ages	Semi-structured Interviews			Experiment		Total
	Males	Females	Total	Males	Females	
2 years	1	2	3	14	13	27
3 years	4	2	6	15	22	37
4 years	0	3	3	21	15	36
5 years	3	5	8	17	21	38
Total	8	12	20	67	71	138
158						

Note. Adult participants (N = 38) participated only in the experimental picture task.

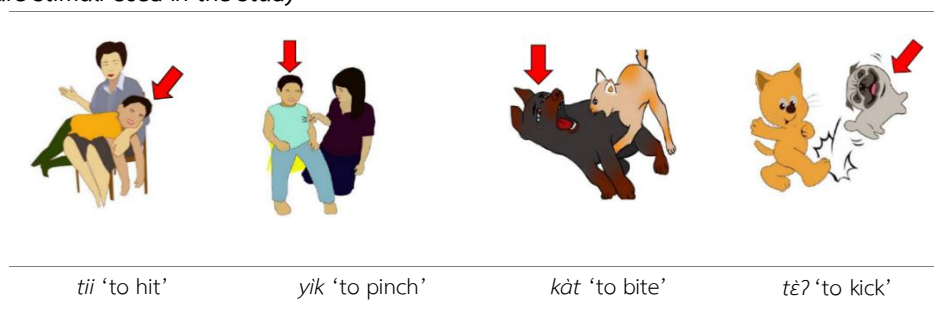
2.2 Data Collection

Data were collected from two sources: semi-structured interviews and picture-based tasks. While the former represents children's spontaneous production performance or their production ability, the latter represents children's linguistic competence (Deen, 2011, p. 177).

In the semi-structured interviews, children's speeches were recorded during leisure time with both caretakers and the research team. Conversational interactions with the research team focused on daily topics and on those likely to elicit passive constructions. Open-ended question prompts, followed by follow-up questions and related pictures, were used to foster their imagination and interest, and observe their spontaneous responses. As it turned out, all verbs in passive utterances in the semi-structured interviews were adversative in context. This is consistent with the adversative nature of *thùuk* and *doon* in Thai.

In the production task, to see how children use adversative passive sentence patterns, four actional verbs which are familiar to children, namely, *yik* 'to pinch', *tii* 'to hit', *kàt* 'to bite', and *tè?* 'to kick' were targeted in the picture-based experiment to observe their targeted passive sentences. These verbs depict actions that resulted in adversative consequences for the patient. They are prototypical candidates for Thai adversative passive constructions marked by the passive marker *thùuk* and *doon*. These negative verbs were designed to appear with reversible animate arguments. Children were shown each of the four pictures in Figure 1 and asked what happened to the character indicated by an arrow. Children were free to produce sentences with the four target verbs as well as other alternative verbs semantically related to the shown picture task, such as *biip* 'to squeeze' for *yik* 'to pinch'. Adversative passives are identified through the semantic contexts of adversative verbs in the elicited pictures. These verbs are inherently adversative actional verbs. Both target verbs and semantically related alternatives produced in passive constructions were coded as target adversative passive sentences.

Figure 1
Picture Stimuli Used in the Study



In both data sources, utterances with *thùuk* and *doon* were first identified. Those which carried the meaning ‘to be adversely affected’ were categorized as passive and retained for analysis.

In the semi-structured interviews, all passive utterances were collected without restriction on the number of utterances per child, as spontaneous passive production in naturalistic speech is valuable for analysis.

In the production task, one utterance was collected per child per picture. Since elicited passive production demonstrates children’s competence, children were allowed to correct themselves and produce their best responses, regardless of the order of production. When a child produced more than one passive utterance per picture, hierarchical data selection procedures were taken as follows. First, an acceptable passive utterance with the target verb was selected. If there were more than one acceptable passive utterance, the most complete passive utterance would be selected. If there were more than one complete passive sentence, one was randomly selected. Random selection at the final stage was considered appropriate given that all remaining utterances were equally complete and grammatically acceptable. Any further criterion-based selection would risk introducing bias.

To determine whether the children developed passive sentence patterns similar to those of adults, the study established an adult control group to measure the grammatical passive sentence patterns used and the frequency of their adversative passives. The adult group completed the same picture-based task as the children.

2.3 Data Analysis

In the picture-based task, elicited verbs that are irrelevant to the pictures are excluded, regardless of whether they contain the words *thùuk* or *doon*. For example, in response to the image of a mother pinching a boy, some children produced *dèk lóm* เด็กล้ม ‘A child fell’; *dèk doon lóm* เด็กโดนล้ม *‘A child got fallen’; *dèk doon tapuu* เด็กโดนตะปู ‘A child got hurt by nails.’ These off-task responses were excluded from the analysis. On-task passive utterances containing *thùuk* and *doon* were identified and analyzed for their syntactic patterns with lexicase analysis.

In semi-structured interviews, coding for clear cases followed the criteria stated in Section 2.2. For ambiguous cases, a native Thai speaker was consulted to verify the categorization. Two tokens with non-target grammatical status were excluded as they contained an intransitive embedded verb that cannot satisfy the Patient-to-Patient (P2P) control requirement (see Section 4.2.2 for detailed analysis).

In the production task, 138 children responded to the four picture-based tasks, yielding a total of 552 responses. Of these, 44 responses (8.0%) were excluded: 38 irrelevant responses (6.9%) and 6 null responses (1.1%). Excluded responses varied by age groups: 14 (12.8%) for 2-year-olds, 16 (10.8%) for 3-year-olds, 11 (7.6%) for 4-year-olds, and 3 (2.0%) for 5-year-olds. Null responses were found only among the two younger groups. This is consistent with the developmental expectation that younger children are less likely to produce target passive responses.

Of the 508 valid utterances retained for analysis, 144 (28.4%) were passive utterances and constituted the dataset for the present analysis. The remaining 364 responses (71.7%) were active utterances, which fell outside the scope of the present study.

Passive utterances were classified into patterns based on their linear sentence structure, rather than grammatical functions, at this stage. For example, Pattern 4 [*thùuk/door* + NP + V] includes all utterances matching the pattern and hence includes both intransitive verbs *thùuk₂/door₂* and passive verbs *thùuk₃/door₃*. This form-based categorization provides systematic structural patterns, while functional interpretations are addressed in the syntactic analysis in Section 4 and the discussion in Section 5.

2.4 Scope of the Present Study

This paper examines the structural patterns of adversative passive constructions produced by preschool Thai children and their development, in comparison with adult usage. It is part of a larger research project on “The Acquisition of Passives in Preschool Thai Children”, comprising three studies with overlapping participant samples: a comprehension study (Indrambarya, 2024), the present production study focusing on the structural patterns of adversative actional verbs, and a companion production study examining semantic and lexical constraints across verb types (Indrambarya, under review). The companion study and the experimental tasks of the present study used the same 138 children and 38 adults, whereas the comprehension study used 138 children and 16 adults.

3. Results

This section presents findings from both the semi-structured interviews and the production task. It is divided into four subsections: 1) passive sentence patterns in children; 2) passive sentence patterns in adults; 3) lexical verbs in passive constructions; and 4) comparison of experimental data and semi-structured interviews.

3.1 Passive Sentence Patterns in Children

Five passive sentence patterns were identified in children’s speech. While Patterns 4 and 5 conform to the target Thai passive constructions, Patterns 1, 2, and 3 do not. They represent developmental variants. The term ‘developmental patterns’ refers to structures exclusively found in child data that are absent from both adult datasets and adult usage. This classification does not necessarily imply a systematic acquisition stage, as some instances may reflect performance errors.

As shown in Table 2, the canonical passive construction (Pattern 4) was the most frequent among children, both in semi-structured interviews (73.0%) and in the experiment (86.8%). Pattern 5 was the second-most-used pattern in the experiment (9.0%) and the third-most-frequent in the semi-structured interviews (8.1%). In the semi-structured interviews, Pattern 1 was the second-most-used (16.2%). The least-used pattern in both the semi-structured interviews and the experiment was Pattern 2 [*thùuk/door* + V + NP], which is unacceptable in Thai and occurred only once in both data types. Passive sentence Pattern 3, with double passive markers [*thùuk/door* + NP + *door/thùuk* + V], was observed only in the experiment at a rate of 2.8%. The five passive patterns and their developments are illustrated in Sections 3.1.1 and 3.1.2, respectively.

Table 2
Children’s Passive Sentence Patterns, n (%)

Data Types	Developmental Passive Sentence Patterns			Targeted Passive Sentence Patterns		Total
	Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	
	<i>thùuk/door</i> + (NP)	<i>thùuk/door</i> +V+NP	<i>thùuk/door</i> +(NP)+ <i>door</i> / <i>thùuk</i> +V	<i>thùuk/door</i> +NP+V (+V)	<i>thùuk/door</i> + NP+V+body part NP (+V)	
Semi-structured Interviews	6 (16.2)	1 (2.7)	0 (0.0)	27 ² (73.0)	3 (8.1)	37 (100.0)
	Developmental subtotal 8 (18.9)			Targeted subtotal 30 (81.1)		
Experiment	1 (0.7)	1 (0.7)	4 (2.8)	125 (86.8)	13 (9.0)	144 (100.0)
	Developmental subtotal 6 (4.2)			Targeted subtotal 138 (95.8)		

Note: Bold values indicate the most frequent pattern in each data type.

² Pattern 4 in the semi-structured interviews includes 2 non-target instances with intransitive embedded verbs. These are analyzed separately in Section 4.2. Excluding these yields 25 tokens of Pattern 4 (67.5%).

In both data sources, children produced *doon* more frequently than *thùuk*. In the semi-structured interview, of 37 passive tokens, 30 tokens contained *doon* and 7 contained *thùuk*. In the experiment, of 144 passive tokens, 120 tokens contained *doon* and 20 contained *thùuk*.

According to Prasithrathsint (2001, 2006), *thùuk*, which originated as a non-adversative transitive verb meaning ‘to touch, to hit the target’, has various homophonous forms, including an adversative transitive verb meaning ‘to incur’ and an adversative intransitive verb *thùuk* meaning ‘to undergo unfavorable experience’, which is followed by an optional noun phrase and a lexical verb. They are referred to here as *thùuk*₁, *thùuk*₂, and *thùuk*₃, respectively. While Prasithrathsint (2006) provides a detailed analysis of homophonous forms of *thùuk*, a parallel analysis of *doon* has not yet been undertaken in the literature. The present study assumes a parallel structure for *doon* based on its similar distribution and function in adversative constructions. Specifically, within the scope of this paper, *doon* is treated as having three homophonous forms parallel to *thùuk*: *doon*₁ as the non-adversative transitive verb meaning ‘to hit the target’; *doon*₂ as the adversative intransitive verb taking a noun phrase complement meaning ‘to incur’; and *doon*₃ as the adversative intransitive passive verb taking a noun phrase and an embedded clause meaning ‘to undergo unfavorable experience’. A comprehensive independent analysis of *doon* remains a direction for future research.³

3.1.1 Five Passive Sentence Patterns

Developmental Pattern 1: [thùuk/doon + (NP)]

In Thai, the presence of the verb *thùuk* or *doon* by itself is not acceptable without context. As transitive verbs, *thùuk* and *doon* require an accusative patient noun phrase, animate or inanimate, which can be omitted in context, as is characteristic of a pro-drop language. Developmental Pattern 1 consists of the verb *thùuk/doon* alone or followed by an NP. Although the pattern can appear either with the non-adversative transitive verbs *thùuk*₁ and *doon*₁ ‘to hit the target’, with the adversative intransitive verbs *thùuk*₂ and *doon*₂ ‘to incur’, or as a fragment of a passive pattern with the passive verbs *thùuk*₃ or *doon*₃, Developmental Pattern 1 refers to incomplete passive utterances with *thùuk*₃ or *doon*₃.

The study found the verb *doon* alone only once in the semi-structured interviews, as in (3), where a girl was talking about hitting the Angry Bird in the Angry Birds game. In this instance, *doon* functions as the transitive verb *doon*₁ ‘to hit the target’ with a covert accusative patient in an active sentence, demonstrating that the child had productive knowledge of *doon*

³ The subscript numbers for *thùuk* and *doon* are limited to forms relevant to the present analysis and are not intended to represent an exhaustive classification of all homophonous forms in Thai.

as a transitive verb. However, since example (3) is not a passive utterance, it was not counted as a valid token in the present analysis. No instance of the verb *thùuk* was found.

- (3) weelaa yij man cà? pay *doon*₁ lɛ̃w man cà? tɛ̃k
 เวลา ยิง มัน จะ ไป โดน แล้ว มัน จะ แตก
 time shoot it will go hit then it will break
 ‘When shooting, the hitting will hit (the Angry Bird), and then it breaks.’
 (4-year-old girl, Ssi)

The pattern *thùuk* or *doon* followed by a noun phrase causing adversity was found four times with an inanimate noun phrase in the semi-structured interviews and twice with an animate noun phrase (once in the experiment and once in the semi-structured interviews).

[*doon* + inanimate NP]

An instance of the verb *doon* with a following inanimate noun phrase is found in (4), in which a 3-year-old boy talked about a picture of a dog lying under a rock. The child most likely intended to produce the adversative *doon*₃ with an inanimate agent noun in an incomplete passive construction in (4b), rather than the adversative intransitive verb *doon*₂ in (4a), which is contextually implausible.

- (4) a. ?man *doon*₂ kónhĩn
 มัน โดน ก้อนหิน
 it incur rock
 ‘It got hit by a rock.’
 (3-year-old boy, Ssi)
- b. *man *doon*₃ kónhĩn
 มัน โดน ก้อนหิน
 it PASV rock
 ‘It was crashed by a rock.’
 (3-year-old boy, Ssi)

[*doon/thùuk* + animate NP]

Example (5) is an instance from the experiment in which a 4-year-old girl was shown a picture of a child being pinched by his/her mother. She used the verb *thùuk* followed by the noun phrase *mɛ̃ɛ* ‘mother’. Given such context, it is likely an incomplete passive sentence with the passive *thùuk*₃ to convey that the child was pinched by his/her mother.

- (5) *dèk *thùuk*₃ mɛ̃ɛ
เด็ก ถูก แม่
child PASV mother
'The child was (pinched) by his/her mother.'

(4-year-old girl, Exp)

In example (6), an animate noun phrase accompanies the verb *doon* in Pattern 1, followed by the target passive verb of Pattern 4. Consider possible interpretations of the first utterance with either *doon*₂ in (6a) and *doon*₃ in (6b).

- (6) a. ?cení⁴ tɔ́ŋ *doon*₂ maawin nɛ̃ɛnɛ̃ɛ // cení⁴ tɔ́ŋ *doon*₃
เจนนี่ ต้อง โดน มาร์วิน แน่ๆ เจนนี่ ต้อง โดน
Jenny must incur Marvin certain Jenny must PASV
Maawin tii nɛ̃ɛnɛ̃ɛ // díaw chán cà càtkaan man lɔ̃ɔy
มาร์วิน ตี แน่ๆ เดี่ยว ฉัน จะ จัดการ มัน เลย
Marvin hit certain in a moment I will manage it prt
'Jenny must have been affected by Marvin. Jenny must have been hit
by Marvin. In a moment, I'm gonna get him.'

(3-year-old boy, Ssi)

- b. cení⁴ tɔ́ŋ **doon*₃ maawin nɛ̃ɛnɛ̃ɛ // cení⁴ tɔ́ŋ *doon*₃
เจนนี่ ต้อง โดน มาร์วิน แน่ๆ เจนนี่ ต้อง โดน
Jenny must PASV Marvin certain Jenny must PASV
Maawin tii nɛ̃ɛnɛ̃ɛ // díaw chán cà càtkaan man lɔ̃ɔy
มาร์วิน ตี แน่ๆ เดี่ยว ฉัน จะ จัดการ มัน เลย
Marvin hit certain in a moment I will manage it prt
'Jenny must have been adversely affected by Marvin. Jenny must have
been hit by Marvin. In a moment, I'm gonna get him.'

(3-year-old boy, Ssi)

In his chitchat, the 3-year-old boy in example (6) was talking about what he thought had happened to his friend Jenny. He appeared to perceive the adversity inflicted on his friend Jenny. He believed that Marvin had hit Jenny. So, he decided to do something to protect her. The boy produced the verb *doon* twice consecutively. Given that his second utterance was the adversative intransitive passive verb *doon*₃ followed by an animate noun

⁴ All names are aliases.

phrase and a non-finite verb (Pattern 4), it is likely that his first utterance was an incomplete passive utterance with the passive verb *doon*₃ in (6b), rather than *doon*₂ in (6a). That is, the second utterance was a self-correction of his first utterance. As illustrated, the unacceptability of examples (4b), (5), and (6b) arises because the passive verb *doon*₃ requires a following lexical verb, which was missing in these utterances.

Developmental Pattern 2: [*thùuk* /*doon* + *V* + *NP*]

This pattern shows the reverse order of the action instigator and the embedded verb. That is, a verb and a noun phrase follow the passive verb. It appeared only once in semi-structured interviews and once in the experiment. This pattern is not acceptable in Thai and is not found in adult usage or in an adult dataset. With only one occurrence in each child dataset, it remained unclear whether this represents a developmental pattern or a performance error. Further data would be needed to determine its status.

- (7) *māa thii *doon*₃ tháp kônhin
 หมา ที่ โดน ทับ ก้อนหิน
 dog that PASV press rock
 ‘The dog which was crushed by a rock.’

(3-year-old girl, Ssi)

The noun phrase *kônhin* ‘rock’ in (7) should have appeared before the embedded verb *tháp* ‘press’ to make the sentence acceptable and conform to the canonical passive Pattern 4.

Developmental Pattern 3: [*thùuk*/*doon* + (*NP*) + *doon*/*thùuk* + *V*]

This pattern exhibits the presence of double passive markers. Two patterns were identified: Pattern 3.1 has the passive marker *thùuk* as the main verb, while Pattern 3.2 has the passive marker *doon* as the main verb. In these two double passive sentence patterns, no repetitive passive verbs were found. That is, there were no instances of the same passive marker present in both the main clause and the embedded clause. These patterns are generally unacceptable in adult Thai usage and are not found in the adult dataset.

Developmental Pattern 3.1: [*thùuk* + (*NP*) + *doon* + *V*]

In this pattern, the passive verb *thùuk* precedes *doon*. It appeared once in the experiment and not at all in the semi-structured interviews. There were no instances of the presence of a following noun after *thùuk*. In (8), a 4-year-old boy used this pattern to show that the stubborn child was hit.

- (8) *dèk dɛ̃n thùuk doon tii káp
 เด็ก ดื้อ ถูก โดน ตี คับ
 child stubborn PASV PASV hit prt
 ‘The stubborn child was hit.’

(4-year-old boy, Exp)

Developmental Pattern 3.2: [*doon* + (NP) + *thùuk* + V]

In this double passive marker pattern, the passive verb *doon* preceded *thùuk*. It occurred three times in the experiment and never in the semi-structured interviews. Example (9) shows an instance of the noun phrase *mɛ̃ɛ* ‘mother’ between the two passive verbs.

- (9) *dèk doon mɛ̃ɛ thùuk tii
 เด็ก โดน แม่ ถูก ตี
 child PASV mother PASV hit
 ‘The child got hit by his mother.’

(4-year-old boy, Exp)

Target Pattern 4: [*thùuk* / *doon* + (NP) + V]

This passive sentence pattern is a canonical passive sentence structure in Thai and appears most frequently. It accounts for 86.8% of all passive utterances (125/144, 95% CI [80.3%, 91.4%]) in the experiment and 73% in semi-structured interviews. In this pattern, the passive verb *doon*₃ is followed by an embedded verb in (10) and an additional overt noun phrase in (11).

- (10) phiicháan doon₃ yin
 พี่ช้าง โดน ยิง
 older sibling elephant PASV shoot
 ‘The big elephant got shot.’

(2-year-old girl, Ssi)

- (11) mǎa doon₃ mɛ̃w kàt
 หมา โดน แมว กัด
 dog PASV cat bite
 ‘A dog was bitten by a cat.’

(2-year-old boy, Exp)

While examples (10) and (11) represent the majority and the prototypical structure of Pattern 4 with transitive embedded verbs, sentence (12) exemplifies data from the semi-structured interviews, which includes two instances with embedded intransitive verbs. Unlike transitive embedded verbs, which complete the passive construction, intransitive embedded verbs make the construction anomalous. This is because the adversative passive construction in Thai requires a lexical transitive verb to express the action inflicted on the patient. The two intransitive verbs are analyzed separately in Section 4.2.

- (12) ?man **doon**₃ kónhĩn lòn
 มั่น โดน ก้อนหิน หล่น
 It PASV rock drop
 ‘It was crushed by a rock.’

(3-year-old boy, Ssi)

It should be noted that Pattern 4 frequencies differed between the two data types. Experimental data showed an accuracy of 86.8%, all of which were transitive verbs in passive. Semi-structured interviews, on the other hand, showed a lower accuracy of 67.5%, excluding two intransitive verbs in passive. Despite this difference, Pattern 4 dominated children’s production in both contexts.

Two 5-year-old boys produced elaborate variants of Pattern 4, as in (13). This complex construction is analyzed in Section 4.3.

- (13) dèk dǐm **doon**₃ yík cèp
 เด็ก ดื้อ โดน หยิก เจ็บ
 child stubborn PASV pinch hurt
 ‘The stubborn child was pinched and hurt.’

(5-year-old boy, Exp)

Target Pattern 5: [thùuk /doon + (NP) + V + NP body part]

This passive sentence pattern differs from Pattern 4 in that an embedded verb contains an overt object, which is a body part. It was found three times (8.1%) in semi-structured data and 13 times (9.0%) in the experiment. This type of pattern is common in Thai adults. While example (14) appears without an overt noun phrase, example (15) shows Pattern 5 with an overt noun phrase instigating the action.

- (14) ʔan nli *doon*₃ māt *mɯɯ*
 อัน นี้ โดน มัด มือ
 CL this PASV tie hand
 ‘This one had his hand tied.’

(2-year-old girl, Ssi)

- (15) dèk *doon*₃ mɛɛ yik *khɛ̃ɛn*
 เด็ก โดน แม่ หยิก แขน
 child PASV mother pinch arm
 ‘A boy had his arm pinched by his mother.’

(5-year-old girl, Exp)

One 5-year-old boy further extended Pattern 5 by adding a result complement after the body part noun phrase, as in (16). This complexity is analyzed in Section 4.3.

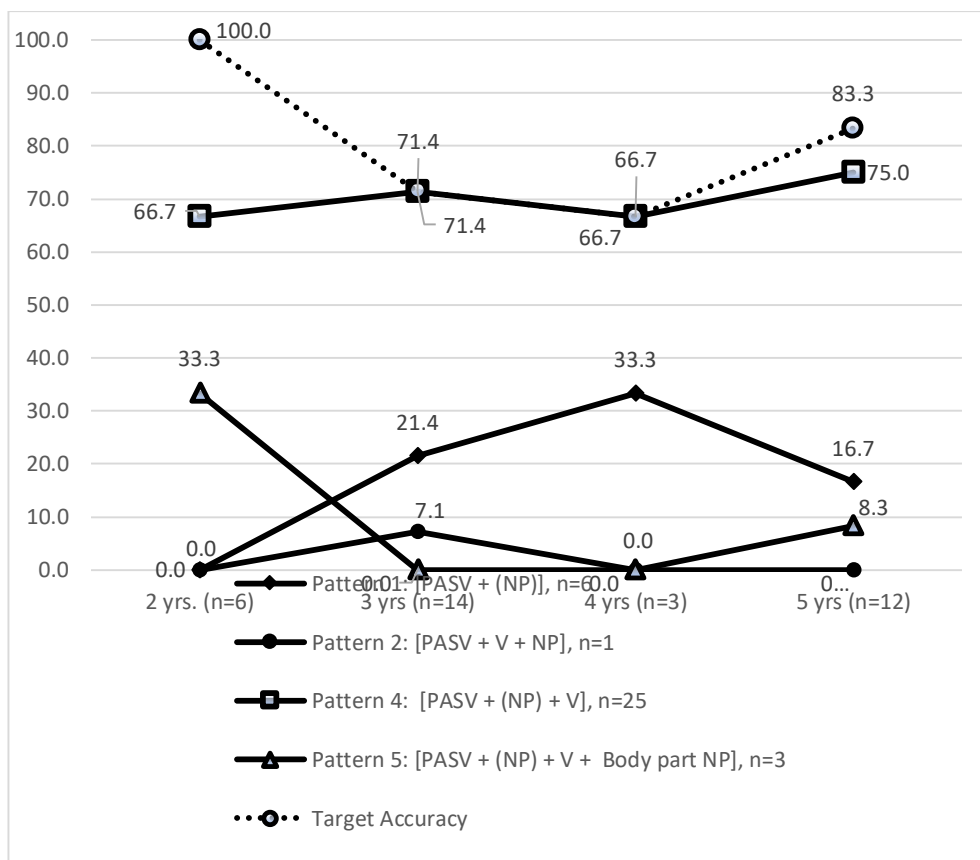
- (16) dèk dɯɯ *doon*₃ tii *tùut* *cèp*
 เด็ก ดื้อ โดน ดี ตูด เจ็บ
 child stubborn PASV hit bottom hurt
 ‘A stubborn child had his bottom hit and hurt.’

(5-year-old boy, Exp)

3.1.2 Developments of Passive Sentence Patterns in Children

Figure 2 shows the Developmental Patterns 1–3 and Target Patterns 4–5 in each age group in semi-structured interviews. The total number of valid tokens was 35 (age 2: $n = 6$; age 3: $n = 14$; age 4: $n = 3$; and age 5: $n = 12$). This figure indicates that Developmental Patterns 1–2 were very rare ($n = 7$) and occurred between the ages of 3 and 5. Pattern 3 with double passive markers was not found. The target Pattern 4 [*thùuk/doon* + (NP) + V], the canonical adversative passive construction, was dominant among children of all ages. Pattern 4 ($n = 25$) emerged at age 2 and remained the most frequent pattern through age 5. Pattern 5 [*thùuk/doon* + (NP) + V + body part NP] ($n = 3$) appeared at age 2 and age 5 at a very low rate. The target accuracy rates were highest at age 2 (100%), dropped to 71.4% at age 3, and to 66.7% at age 4, before rising to 83.3% at age 5.

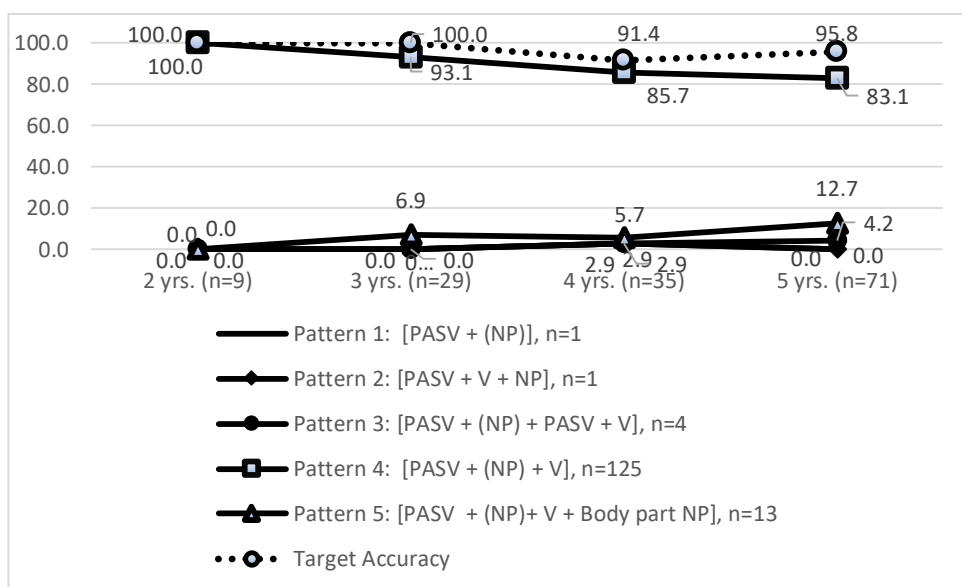
Figure 2
Passive Patterns and Target Accuracy Rates in Children Aged 2–5 in Semi-Structured Interviews



The total number of tokens in the experiment was 144 (age 2: $n = 9$; age 3: $n = 29$; age 4: $n = 35$; and age 5: $n = 71$). Data from the experiment in Figure 3 show that passive Pattern 4 [*thùuk/door* + (NP) + V] ($n = 125$) was clearly dominant across all ages. It emerged at age 2 at 100% and slowly dropped to 93.1% at age 3, 85.7% at age 4, and 83.1% at age 5. Pattern 5 ($n = 13$) emerged at age 3 at 6.9%, continued at age 4 at 5.7%, and rose to 12.7% at age 5. Developmental Patterns 1–3, on the other hand, were infrequent ($n = 6$) and occurred only at age 4 ($n = 3$) and age 5 ($n = 3$). The target accuracy rates were highest at age 2–3 (100%) and remained above 91% at age 4–5 (91.4–95.8%).

Figure 3

Passive Patterns in Children Aged 2–5 in the Experiment



3.2 Passive Sentence Patterns in Adults

Adults produced two passive patterns, both of which were grammatical: the canonical passive Pattern 4 and an extended variant with a body-part object in Pattern 5. Adults used Pattern 4 most frequently (88.0%) and Pattern 5 less frequently (12.0%), as shown in Table 3.

Table 3

Passive Sentence Patterns in Adults, n (%)

Passive sentence patterns	Pattern 4	Pattern 5	Total
	<i>thùuk/door</i> +(NP)+V	<i>thùuk/door</i> +(NP)+V+body part NP	
Adults	117 (88.0)	16 (12.0)	133 (100.0)

Comparing the use of passive sentence patterns between children and adults, Table 2 and Table 3 reveal that Pattern 4 appeared at a high rate in both children (86.8%) and adults (88%). Pattern 5 appeared at a similar rate (9%) in children and (12%) in adults. The developmental Patterns 1–3 were found sporadically in children (4.2%) and were absent in adults.

Pattern 4 has a variant in which the preposition *thii* ‘at’ is added before the body part noun phrase: [*thùuk/door* + (NP) +V + *thii* + body part NP]. This pattern is acceptable in Thai adult usage, but was found only once in the experiment, as shown in (17).

- (17) kháw **door** yik thii **khěen**
 เขา โดน หยิก ที่ แขน
 he PASV pinch at arm
 ‘He was pinched on the arm.’

3.3 Lexical Verbs in Children’s Passive Sentences

This section reports the verbs which appeared in an embedded clause under the regent passive verb *thùuk* and *door* in children’s speech. Of all 27 verbs found, 25 (92.6%) were transitive adversative actional verbs, and 2 (7.4%) were intransitive. All verbs were adversative in context, consistent with the adversative nature of *thùuk* and *door* in Thai.

Of all 144 passive tokens in the experiment, 14 verbs were found, all of which were transitive verbs denoting adversative actions. They were the *yik* ‘to pinch’ *tii* ‘to hit’ *klěen* ‘to tease’ *biip* ‘to squeeze’ *kàt* ‘to bite’ *thamthoôt* ‘to punish’ *ngáp* ‘snap’, *yin* ‘to shoot’, *tòp* ‘to slap’ *kin* ‘to eat’, *tě?* ‘to kick’ *thiip* ‘to kick’ and *khùn* ‘to scratch’, and *cò?* ‘to puncture’.

Of all 37 passive tokens in the semi-structured interviews, 13 verbs were found: 11 (84.6%) were transitive verbs, and two (15.4%) were intransitive verbs. They were the transitive actional verbs *kàt* ‘to bite’, *mát* ‘to tie’, *yin* ‘to shoot’, *sàap* ‘to curse’ *chon* ‘to run over’ *tháp* ‘to press on’ *yiap* ‘to step on’ *tii* ‘to hit’ *wăa* ‘to reproach’ *thúp* ‘to hit with a fist’ and *tě?* ‘to kick’ and the intransitive verbs *lòn* ‘to fall’ and *taay* ‘to die’.

3.4 Comparison of Experimental Data and Semi-structured Interviews

As shown in Table 2, pattern frequencies differed between the two datasets. The experimental task showed higher rates of the canonical passive Pattern 4 (86.8% vs. 73%), and lower rates in developmental Patterns 1–3 (4.2% vs. 18.9%). Frequency rates in Pattern 5 were similar across both datasets (experimental data: 9.0%; semi-structured interviews: 8.1%).

The two datasets also differed in the type of verbs elicited. The experimental data contained only transitive verbs, but the semi-structured interviews included two instances of Pattern 4 with intransitive verbs, analyzed in Section 4.2. Moreover, the developmental Pattern 3 with double passive verbs was found exclusively in the experiment, not in the semi-structured interviews.

Despite the differences, both datasets illustrated that Pattern 4 was dominant (See Figures 2 and 3). In the experiment, the target accuracy reached 100% at age 2 and remained above 90% through age 5. In semi-structured interviews, target accuracy reached 100% at age 2 but varied across age, ranging from 66.7% to 83.3%.

4. Syntactic Analysis

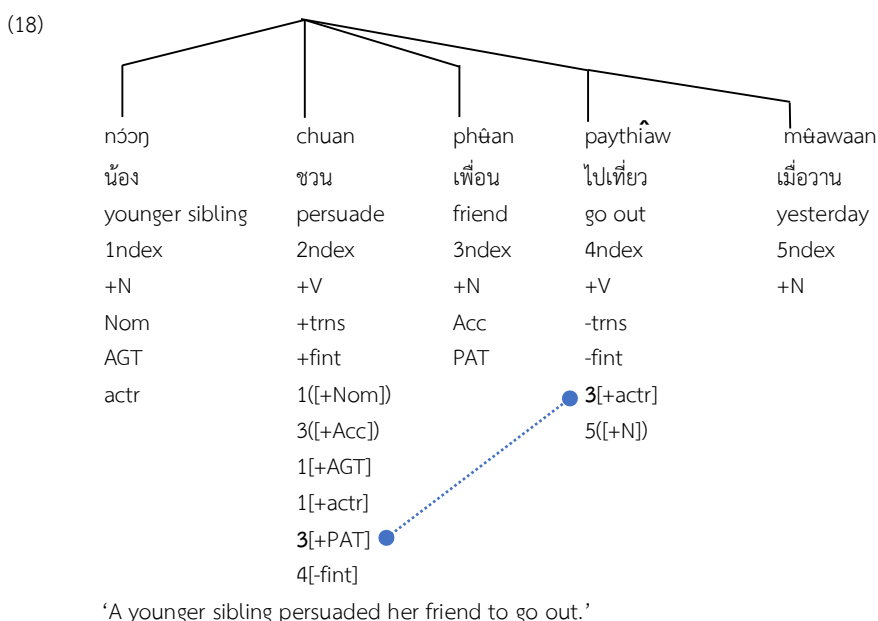
Lexicase analysis represents each sentence as a dependency structure. Each lexical item is assigned a numerical index (ndex) to track its role and dependency relationship within a sentence. The finite verb functions as the regent head of the sentence and carries all the contextual features that specify its dependents. Word class features are identified for each lexical item: [+N] for nouns and [+V] for verbs. The lexicase linking rule allows a regent verb to carry all contextual features specifying its required dependents, including case forms such as [1([+Nom])] and [3([+Acc])], and case relations, such as [1[+AGT]] and [3[+PAT]]. The parentheses around the case forms reflect the noun phrase's optionality within the context, a characteristic of pro-drop languages. Adjuncts are illustrated with parentheses around the contextual word class features such as 5([+N]). These features are illustrated with example (18) in the next subsection.

4.1 Lexicase analyses of the Target Passive Sentence Patterns

This section illustrates the lexicase analysis of target passive sentence Patterns 4 and 5, as well as verbs in the embedded clauses. Following lexicase analyses of passive sentences in (Indrambarya, 1994, pp. 273-274) and Prasithrathsint (2001, p. 82), the passive markers *thùuk*₃ and *doon*₃ in the present study are analyzed as intransitive verbs taking an optional Accusative noun phrase bearing a Correspondent case relation (showing corresponding relation to the head verb) and an embedded non-finite verb.

4.1.1 Lexicase Control Chaining Rules

Lexicase employs the control chaining rules to link the relationship between the regent verbs and their non-finite embedded verbs. Two control rules for complements need to be addressed here: the Patient-to-actor Rule (P2a) and the Patient-to-Patient Control Rule (P2P). While the Patient-to-actor Control Chaining Rule (P2a) is a general rule for complements, the Patient-to-Patient Control Chaining Rule (P2P) is marked for a particular verb class. The P2a rule states that an embedded non-finite verb finds its missing actor from the Patient of the regent verb (Indrambarya, 1994, p. 297). Example (18) illustrates the P2a control rule.



In (18), the regent verb *chuan* ‘to persuade’ takes the Nominative Agent *nóng* ‘younger sibling’ [1([+Nom])], the Accusative Patient *phûan* ‘friend’ [3([+Acc])], and the embedded verb *paythîaw* ‘to go out’ [4[-fint]] as complements. The verb *paythîaw* ‘to go out’ has a dependent adjunct *mûawaan* ‘yesterday’ specified with parentheses in the word class as [5([+N])] on the embedded verb to illustrate adjunct status. The non-finite verb *paythîaw* ‘to go out’ finds its missing actor [3[+actr]] from the higher Patient [3[+PAT]]. Therefore, the noun phrase *phûan* ‘friend’ is identified as the actor of the verb *paythîaw* ‘to go out’.

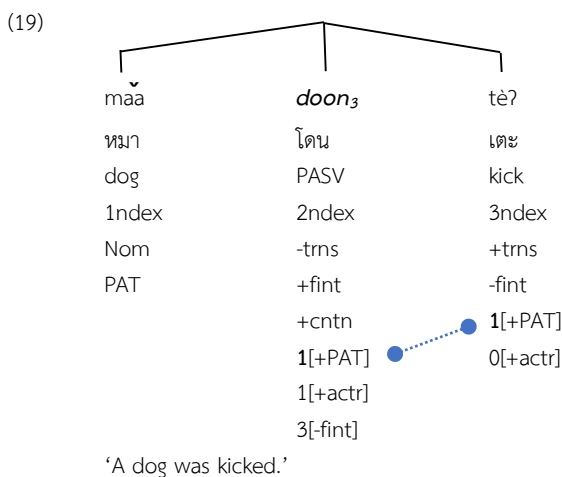
The P2P control rule, specific to continuant verbs marked [+cntn], captures the coreference between the Patient of a non-finite verb complement and the Patient of the regent verb. Unlike Savetamalaya’s construction-specific rule, the P2P rule applies to continuant verbs with a missing Patient, and is not limited to passive constructions. It states that a non-finite embedded verb finds its missing Patient from the Patient of the regent verb marked with the feature [+cntn] (continuant), while its actor is identified as the closest available noun-headed dependent of the regent verb to the left of the embedded verb (Indrambarya, 1994, p. 300). Examples are illustrated in (19) and (20) in the next section.

4.1.2 Pattern 4: Canonical Passive Pattern

Pattern 4: [*thùuk* /*doon* + (NP) + V]

Pattern 4 is a canonical Thai passive sentence pattern. It consists of the passive verb followed by an optional noun phrase and an embedded clause. This noun phrase is referred to as an actor. In example (19), Pattern 4 appears without an overt noun phrase, while in example (20), Pattern 4 appears with an actor noun phrase.

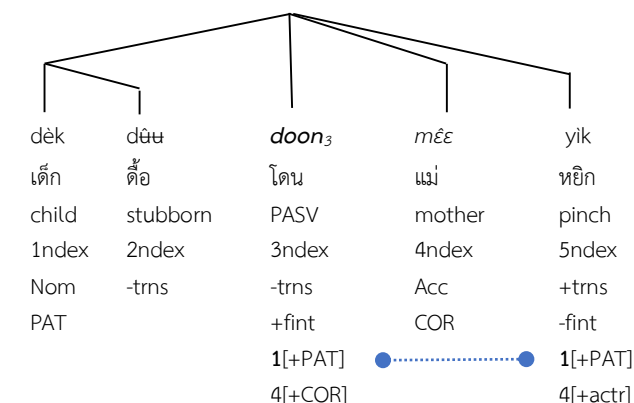
In example (19), the passive verb *doon*₃ requires the nominative patient *mǎǎ* ‘dog’ and an embedded non-finite verb as its dependent. Based on the lexicase dependency analysis, the non-finite transitive verb *tè?* ‘to kick’ finds its missing Patient from its higher Patient *mǎǎ* ‘dog’, following the Patient-to-Patient control chaining rule (P2P), shown with the feature [1[+PAT]] on the verbs. Since the noun phrase bearing the actor role in example (19) is covert, it can be shown as [0[+actr]] on the regent verb *doon*₃.



(4-year-old boy, Exp)

In (20), the passive verb *doon*₃ has three dependents, namely *dèk dǎu* ‘stubborn child’, *mǎi* ‘mother’, and the embedded clause headed by *yik* ‘to pinch’. Based on the Patient-to-Patient Control Rule (P2P), the embedded transitive verb *yik* ‘to pinch’ finds its missing object from the Patient of the higher verb *doon* in [1[+PAT]] and thence *dèk dǎu* ‘stubborn child’ is identified as the patient of *yik* ‘to pinch’. The actor of the verb *yik* ‘to pinch’ is identified with the feature [4[+COR]] as *mǎi* ‘mother’, the closest noun phrase to the left of the embedded verb.

(20)



‘The stubborn child was pinched by his mother.’

(5-year-old boy, Exp)

4.1.3 Pattern 5: Extended Pattern with Body-Part Objects

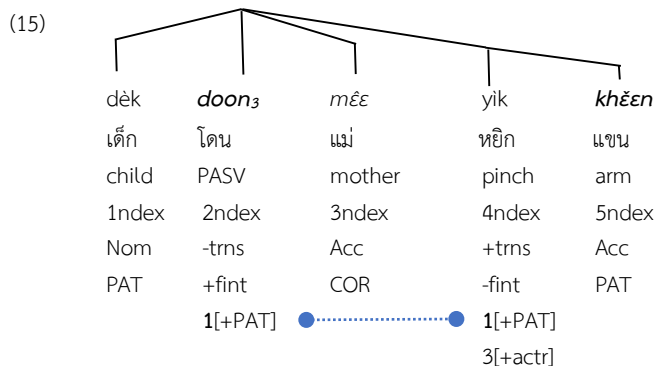
Pattern 5: [*thùuk* /*doon* + (NP) + V + NP body part]

Passive Pattern 5 extends the canonical structure by adding an overt object to the embedded verb. It involves the P2P control of an implicit Patient, with the body-part noun phrase serving as additional information. As noted by Indrambarya (1994, p. 275), “the passive verb *thùuk* and *doon* allow their embedded verb to have their own overt object only when the object is an inalienable possession or part of the higher patient. However, this occurrence of an overt object cannot be formalized in the P2P rule at that stage.” The P2P rule captures the grammatical control relationship between the matrix and embedded Patient; the overt body-part object involves a semantic relationship as a part or inalienable possession of the matrix Patient. This part-whole relationship is semantically entailed and is not formally encoded by the P2P rule itself.

Pattern 5 maintains the P2P control structure of Pattern 4 and adds the specification of the affected body part, reflecting a semantic part-whole relationship between the matrix Patient and the overt body-part noun phrase.

Example (15) illustrates Pattern 5. A 5-year-old girl described the picture in which a child’s arm was pinched by his/her mother. In this structure, the noun phrase *dèk* ‘child’ functions as an implicit Patient of the embedded verb *yik* ‘to pinch’ via P2P control rule, indicated with [1[+PAT]] under the embedded verb. The inalienable possession object *khǎen* ‘arm’ provides additional specification of which part of the patient *dèk* ‘child’ is affected. The noun phrase *mǎi* ‘mother’ bears an accusative case with a Correspondent case relation

(COR). It is the actor of the embedded verb *yik* ‘to pinch’ as it is the closest noun to the left of the embedded verb and is marked [3[+actr]] on the embedded verb.



‘The child had his arm pinched by his mother.’

(5-year-old girl, Exp)

4.2 Pattern 4 with Intransitive Embedded Verbs

This section illustrates two instances of Pattern 4 [*thùuk/doon* + (NP) + V] when the embedded verbs are intransitive.

4.2.1 Theoretical Issues and Possible Interpretations

Generally, passive constructions appear with transitive verbs. Theoretically, intransitive verbs lack an object to promote to the subject position. Hence, the intransitive verbs *lóm* ‘to fall’ and *taay* ‘to die’ in passives are unacceptable, as shown in (21) and (22).

- (21) *kháw *doon*₃ lóm
 เขา โดน ล้ม
 He PASV fall
 ‘He was affected by falling.’

- (22) *kháw *doon*₃ taay
 เขา โดน ตาย
 He PASV die
 ‘He was affected by dying’.

While no intransitive passives were found in the adult dataset, these two intransitive verbs were found with the verb *doon* in the pattern [*doon* + NP + intransitive verb] in the semi-structured interviews.

Two possible interpretations are interpretation A and interpretation B. Based on contextual evidence and native speaker judgment, interpretation B is favored.

A. *Intransitive verb doon₂ + NP + intransitive verb*

With this interpretation, it is the intransitive verb *doon₂* ‘to incur’ followed by an Accusative Correspondent and an embedded intransitive verb denoting result (adjunct).

B. *Passive verb doon₃ + NP + intransitive verb*

With this interpretation, it is the intransitive passive verb *doon₃* followed by an Accusative Correspondent and an embedded intransitive verb denoting result (complement).

4.2.2 Analysis of Two Instances

Two instances of intransitive verbs in the embedded clauses are *lòn* ‘to drop’ and *taay* ‘to die’, shown in (12) and (23), respectively. First, consider (12).

(12)	a.	?man	doon₂	kónhĩn	lòn
		มัน	โดน	ก้อนหิน	หล่น
		it	incur	rock	drop
		Nom	-trns	Acc	-trns
		PAT	+fint	COR	-fint
		‘It got hit by a rock and fell.’			

(3-year-old boy, Ssi)

b.	*man	doon₃	kónhĩn	lòn
	มัน	โดน	ก้อนหิน	หล่น
	it	PASV	rock	drop
	Nom	-trns	Acc	-trns
	PAT	+fint	COR	-fint
	‘It was crushed by a rock.’			

(3-year-old boy, Ssi)

In (12), a 3-year-old boy described the event that a dog was crushed by a rock, using the non-finite intransitive verb *lòn* ‘to drop’ for the action of crushing. Example (12a) shows interpretation A, in which a dog hit a rock and fell. In this case, the intransitive verb *doon₂* precedes a Correspondent noun phrase and the result verb *lòn* ‘to drop’. The embedded verb here is an adjunct. Example (12b) shows interpretation B: The boy uses the passive verb *doon₃* with an incomplete passive utterance. In other words, the child may have attempted

to produce a passive Pattern 4 with the intention of using the transitive verb *tháp* ‘to crush’, but instead produced the intransitive verb *lòn* ‘to drop’ instead. Now consider (23).

(23) a.

maa	<i>doon₂</i>	rót	<i>taay</i>
หมา	โดน	รถ	ตาย
dog	incur	car	die
Nom	-trns	Acc	-trns
PAT	+fint	COR	-fint

‘A dog got hit by a car and died.’

(5-year-old girl, Ssi)

b.

*maa	<i>doon₃</i>	rót	<i>taay</i>
หมา	โดน	รถ	ตาย
dog	PASV	car	die
Nom	-trns	Acc	-trns
PAT	+fint	COR	-fint

‘A dog was run over by a car and died.’

(5-year-old girl, Ssi)

c.

maa	<i>doon₃</i>	rót	chon	<i>taay</i>
หมา	โดน	รถ	ชน	ตาย
dog	PASV	car	crash	die
Nom	-trns	Acc	+trns	-trns
PAT	+fint	COR	-fint	-fint

‘The dog was hit by a car and died.’

In (23), a 5-year-old girl talked about a dog which died because of a car crash. Two interpretations remain possible. In interpretation A in (23a), where a dog got hit by the car, and it died, the intransitive verb *doon₂* takes a Correspondent noun phrase, having the embedded intransitive verb *taay* ‘to die’ as an adjunct. In (23b) with interpretation B, a dog was run over by a car, and as a result, it died. Under this analysis, the passive verb *doon₃* is followed by two complements, the accusative Correspondent noun phrase *rót* ‘car’ and the embedded intransitive result verb *taay* ‘to die’. This sentence is a non-target passive attempt in which the child likely intended to produce a passive sentence in (23c) but omitted the embedded transitive verb *chon* ‘to crash’. These two instances (12) and (23) are considered non-target passive attempts. The intransitive embedded verbs *lòn* ‘to drop’ and *taay* ‘to die’ cannot satisfy the P2P control requirement as they lack the Patient argument to be coreferential with the higher Patient, making both constructions grammatically incomplete.

4.3 Complex Elaboration: Complements and Adjuncts

The passive sentence Patterns 4 and 5 also have three complex variants with an additional intransitive verb. This type of passive construction was found three times in the experiment. This pattern is acceptable in Thai adult usage, although uncommon. An embedded verb can function either as a complement in (13) and (16) or as an adjunct in (24).

4.3.1 An embedded Verb as a Complement

Two 5-year-old children produced complex extensions of passive Patterns 4 and 5 with additional predicate complements, shown in (13) and (16). In (13), the passive verb *doon*₃ takes *yik* ‘to pinch’ as a complement, which in turn takes the result verb *cɛp* ‘hurt’ as a complement. The verb *yik* ‘to pinch’ finds its missing Patient from its higher Patient *dɛk* ‘the stubborn child’, based on the P2P control rule, with an unspecified actor signaled with [0[+actr]]. The embedded verb *cɛp* ‘hurt’, on the other hand, finds its actor from the higher Patient *dɛk* ‘child’, based on the control rule for complement (P2a). That is, the stubborn child is the one who got pinched and hurt.

(13)	dɛk	dɛu	doon ₃	yik	cɛp
	เด็ก	ดื้อ	โดน	หยิก	เจ็บ
	child	stubborn	PASV	pinch	hurt
	1ndex	2ndex	3ndex	4ndex	5ndex
	Nom		-trns	+trns	-trns
	PAT		+fint	-fint	-fint
			1[+PAT] ●.....●	1[+PAT] ●.....●	1[+actr]
				0[+actr]	

‘The stubborn child was pinched and hurt.’

(5-year-old boy, Exp)

In example (16), the embedded verb *tii* ‘to hit’ has an overt body-part object. To convey the meaning that the stubborn child got hit on his bottom and was hurt, the passive sentence Pattern 5 was used with the additional result verb *cɛp* ‘to hurt’ to emphasize the adversative consequence of being hit on his bottom. By the P2P rule, the verb *tii* ‘to hit’ finds its implicit Patient from the higher Patient [1[+PAT]] with an unspecified actor. The embedded verb *cɛp* ‘to hurt’ finds its actor from the higher Patient *dɛk* ‘child’ [1[+PAT]]. This sentence represents the most complex passive sentence structure observed in the data, as it combines the body-part object characteristic of Pattern 5 with a result verb complement.

(16)	dèk	dɛ̃ɰ	doon ₃	tii	tùut	cèp
	เด็ก	ดื้อ	โดน	ตี	ตูด	เจ็บ
	child	stubborn	PASV	hit	bottom	hurt
	1ndex	2ndex	3ndex	4ndex	5ndex	6ndex
	Nom		-trns	+trns		-trns
	PAT		+fint	-fint		-fint
			1[+PAT]	1[+PAT]	1[+actr]	1[+actr]
				0[+actr]		

‘A stubborn child had his bottom hit and hurt.’

(5-year-old boy, Exp)

The result intransitive verb *cèp* ‘to hurt’ in (13) and (16) specifies the consequences of the adversative action and is structurally distinct from the result intransitive verbs discussed in Section 4.2. Here, the passive *doon* embeds a transitive verb, which embeds an intransitive verb complement. These sentences are clear instances of passive sentence Patterns 4 and 5, without any ambiguity.

4.3.2 An Embedded Verb as an Adjunct

One 5-year-old child produced an extended passive Pattern 4 with an overt noun phrase and a manner verb. With its optionality, it functions as an adjunct. In (24a), the passive verb *doon*₃ takes the embedded transitive verb *tii* ‘to hit’ as a complement. The transitive verb *tii* ‘to hit’ has its missing Patient coreferential with the higher Patient *dèk* ‘child’ and finds its actor from the closest available noun phrase *mɛ̃ɰ* ‘mother’. The subsequent embedded verb *ɛ̃ɛ̃* ‘to be hard’ finds its actor from the higher actor *mɛ̃ɰ* ‘mother’, rather than the whole proposition, via the control rule for adjuncts;⁵ the mother is the one who hit the boy hard. The verbal status of *ɛ̃ɛ̃* ‘to be hard’ is confirmed by its ability to be negated, as shown in (24b).

⁵ According to Starosta (1988, p. 134), the Adjunct Control Rule states that a non-finite verb finds its missing actor from an actor of the higher clause or the whole higher clause.

(24) a.

dèk	dǎm	doon ₃	mǎi	tii	rɛɛŋ
เด็ก	ดื้อ	โดน	แม่	ตี	แรง
child	stubborn	PASV	mother	hit	hard
1ndex	2ndex	3ndex	4ndex	5ndex	6ndex
Nom		-trns	Acc	+trns	-trns
PAT		+fint	COR	-fint	-fint
		1[+PAT]	1[+PAT]	4[+actr]	
			4[+actr]		

‘The stubborn child was hit hard by his mother.’

(5-year-old boy, Exp)

b.

dèk	dǎm	doon ₃	mǎi	tii	mây	rɛɛŋ
เด็ก	ดื้อ	โดน	แม่	ตี	ไม่	แรง
child	stubborn	PASV	mother	hit	NEG	hard

‘The stubborn child was not hit hard by his mother.’

This embedded manner adjunct verb *rɛɛŋ* ‘hard’ in (24a) is structurally different from the result complement in that it is optional and it modifies the action of hitting, rather than specifying the consequence of hitting.

5. Discussion

This section discusses children’s production of passive sentence constructions, with particular attention to the early emergence and accurate production of Thai adversative passives and rare developmental variants.

5.1 Early Emergence and Accurate Production of Thai Adversative Passives

The increase in the overall number of passive utterances across age groups in the experimental data (age 2: *n* = 9; age 3: *n* = 29; age 4: *n* = 35; age 5: *n* = 71) suggests a developmental growth in passive production across preschool years. This pattern is consistent with the increase in Pattern 4 accuracy. The most striking finding is the remarkably high accuracy of passive production at all ages in the experiment (See Figure 3). At ages 2 and 3, children reached 100% target accuracy with Patterns 4 and 5, indicating early mastery of basic patterns. Although developmental patterns emerged at ages 4 and 5, children maintained their target accuracy above 90%. Both datasets illustrated that Pattern 4 [*thùuk/doon* + (NP) + V], a canonical passive construction, was dominant across all ages. In the experiment, this high proportion of Pattern 4 (86.8%, 95% Confidence interval [CI]: [80.3%, 91.4%]) confirms robust productive

command of the canonical Thai adversative pattern, with a lower bound of 80.3%. This indicates that Pattern 4's dominance is reliable beyond this sample. The usage frequency of Pattern 4 among children and adults in the experiment was approximately equal (children: 86.8%; adults: 88%). The target patterns (with Patterns 4 and 5 combined) account for 95.8% of children's production of passive patterns. This demonstrates high structural accuracy throughout the preschool years. The developmental path shows a continuous increase in Pattern 4 from age 2 to 5, while developmental variants are few and tend to be eliminated as children acquire target-like passive constructions.

Passive Pattern 5 requires understanding of the control relationship between the higher and lower Patient, as well as the part-whole relationship between the person affected in the matrix and the specific body part as an overt object. Children's successful production of passive Pattern 5 demonstrates that they acquired not only the grammatical control mechanism but also the semantic constraint on the part-whole relationship. This level of acquisition is more sophisticated than basic Pattern 4, which requires only grammatical control between matrix and embedded Patients. This pattern was observed at similar rates in both children (8.1%) and adults (12%). Moreover, the pattern emerged between the ages of 2 and 3. This suggests that children acquire both grammatical and semantic components of Thai passive constructions early and rapidly.

Furthermore, three 5-year-old children demonstrated the ability to elaborate passive patterns with additional complexity: Patterns 4 and 5 with result complements (examples 13 and 16) and Pattern 4 with manner adjuncts (example 24). Despite a small number ($n = 3$), their significance lies in the quality rather than the quantity of production. While children may be exposed to elaborate structures from caretaker input, the simultaneous application of two types of grammatical control rules (P2P and P2a), correct case relation assignment, and the distinction between complements and adjuncts indicate that these constructions are unlikely to be mere replications of input. Each element must be independently computed and correctly integrated within the grammatical system. This suggests that some children have acquired the grammatical knowledge necessary to produce elaborate passive constructions beyond the canonical passive. While it is tempting to interpret the preference for Pattern 4 among most children as a stylistic choice, this cannot be confirmed without experimental evidence testing whether children who produced Pattern 4 are capable of producing Pattern 5. This remains to be explored in future research.

The developmental sequence of passive acquisition in Thai differs from that in Japanese. Sugisaki (1999, p. 151) found that Japanese children acquired indirect passives earlier than

direct passives, whereas Thai children produced direct passives (Pattern 4) accurately from age 2, with indirect passives (Pattern 5) emerging later. Despite this difference, adversative semantics appears to facilitate early passive acquisition in both Japanese and Thai.

The adult data also reveal an even more complex variant, which was not observed in children. That is, the Pattern 4 with an additional prepositional phrase containing body-part specification in [*doon* + V + *thii* + body part NP], as shown in example (17).

The emergence of elaborated structures at age 5 suggests a gradual developmental progression in passive sentence production. Children acquire the basic canonical pattern (Pattern 4) as early as age 2, followed by the extended form (Pattern 5) from ages 2–3, and begin elaborating both patterns with additional grammatical complexity at age 5 (See Figures 2 and 3). However, the absence of adult variant patterns in children indicates that they have not yet acquired the full range of adult passive variants, which suggests that grammatical development continues into later childhood.

The higher Pattern 4 frequency in the experimental task (86.8%) compared to semi-structured interviews (67.5%) reflects the different nature of the two elicitation methods. The experimental task reflects productive competence in passive constructions through controlled elicitation. Semi-structured interviews capture spontaneous speech and reveal more developmental patterns, as performance factors in spontaneous speech influence speech production.

5.2 Rare Developmental Variants: Observation from Limited Data

While developmental Patterns 1–3 appeared infrequently, some observations are worth discussing.

Pattern 3 involves the use of double passive markers in passives and was found only in the experiment. It is intriguing that children did not reduplicate the same passive verb. This suggests that children recognize the biclausal structure of the Thai adversative passive construction and may have misanalyzed one passive marker in the root clause and the other as occurring in the embedded non-finite verb. Although the use of double passive markers in passive constructions was not found in the present adult dataset, the sequence of passive markers *doon thùuk* was found in adult Thai, as attested by Prasithrathsint (2001, p. 87) and confirmed by Thai elderly (Indrambarya, in press). An instance of [*doon* + NP + *thùuk*] with an intervening noun phrase instigating an adversative action in (9) **dèk doon mĕĕ thùuk tii* ‘The child was hit by his mother’, suggests that children treat the combination of *doon* and *thùuk* as separate markers rather than a compound. The combined Patterns 1–3 in the experiment constituted only 4.2%. This indicates that these are minor obstacles in the grammatical acquisition of passive constructions.

6. Conclusions

This study presents a formal syntactic analysis of child adversative passive sentence patterns. It is among the first to document the production of adversative passives in preschool Thai children. The study demonstrates productive command of adversative passive constructions as early as age 2, with a clear developmental progression from basic to more elaborate passive structures across early childhood. Children aged 2 can produce canonical passive structures (Pattern 4) with 100% target accuracy and maintain a high accuracy ranging from 91.4% to 100% through age 5 in the experiment, indicating robust and grammatical command of the canonical Thai adversative passive pattern.

Three key findings emerged from the present study. First, Thai preschool children demonstrated early and accurate production of canonical adversative passive sentences (Pattern 4). Second, a small number of children demonstrated productive syntactic competence through the accuracy of the extended Pattern 5, which requires understanding of control relationships and part-whole semantics, and through elaborate grammatical complexity with complements and adjuncts. However, adults produced a more complex variant not observed in children's data, suggesting that passive elaboration continued developing beyond age 5. Third, children demonstrated clear developmental progression from basic adversative passives at age 2 to extended forms at ages 2–3 and to more elaborate structures at age 5. This suggests complex grammatical development into later childhood. While the present findings demonstrate syntactic competence in adversative passive constructions, children's pragmatic competence in the appropriate use of passive constructions continues to develop beyond the preschool years (Indrambarya, under review).

Future research could examine child-directed speech to identify input factors affecting passive acquisition and explore the production of other syntactic constructions to enhance the understanding of syntactic development in Thai.

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Abbreviations

Acc	Accusative	actr	actor
advr	adversative	AGT	Agent
CL	classifier	COR	Correspondent
cntn	continuant	Exp	experiment
fint	finite	N	noun
N	Total number of samples	n	number of samples
ndex	index	NP	noun phrase
NEG	negative	Nom	Nominative
PASV	passive marker	PAT	Patient
Ssi	semi-structured interviews	trns	transitive
V	verb	prt	sentence particle

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