

# Acquiring Japanese Passives: A Production Study

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## 1. Introduction

The acquisition of passives has been controversially discussed in the literature. Its great importance both for language acquisition and linguistic theory resulted in a very rich literature, on e.g., discrepancies between comprehension and production of passives, developmental differences in acquisition of short and long passives, and the interaction of argument structure and verb class of the passivized verb (Baldie 1976, Romaine 1984, Maratsos 1974, Maratsos and Abramovitch 1975, Horgan 1978, Maratsos et al. 1979, Maratsos et al. 1985, Harris and Flora 1982, Pinker et al. 1987, Gordon and Chafetz 1990). Despite the differences in the exact questions examined and the diversity in theoretical approaches and methodologies applied, previous studies all converge on the idea that in the process of language acquisition: (i) active clauses precede passive and (ii) short passives precede long passives.

One of the most widely discussed topics in this domain is the age of acquisition. Late acquisition of passive has been reported for a wide range of typologically different languages, including Dutch (Verrips 1996), Greek (Terzi and Wexler 2002), Russian (Babyonyshev and Brun 2004), Serbian (Perovic et al. 2014), and Spanish (Pierce 1992), among others. For Japanese in particular the claim is that acquisition of passives is delayed to the age of 7 (Okabe and Sano 2002). An idea that passive acquisition is delayed has also been put forth in theoretically-oriented work, most prominently in the Maturation Approach of Borer and Wexler (1987) and its various guises, such as Universal Phase Requirement (Wexler 2004), Universal Freezing Hypothesis (Hyams and Snyder 2005), and more recently, building on smuggling analysis of passive in Collins (2005), Smuggling (Belletti 2021). However, despite the consensus on delayed acquisition of passive, early acquisition of passive has been reported for some languages (Demuth 1989, Allen and Crago 1996, Alcock et al. 2012, Lau 2011).

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In a recent experimental study, Armon-Lotem et al. (2016) investigated the acquisition of passives in eleven languages (Catalan, Cypriot Greek, Danish, Dutch, English, Estonian, Finish, German, Hebrew, Lithuanian, Polish). In a picture-selection task, 472 five-year-old children (age range 5;00-5;11) were tested on their comprehension of long and short passives. The results demonstrate that majority of children show good performance in comprehension of short passive at the age of five, while the effect of language was identified in the long passive acquisition. The authors notice that children tend to assign the linear order of arguments in active clauses to passive ones. Namely, the main error that emerged in comprehension of long passives is reversed, non-target identification of external and internal arguments, as children identified the external argument with the first NP and the internal argument with the second NP, contrary to adult-like grammar. An important finding of this study is an observation that acquisition of passive is not a cross-linguistic milestone expected to be achieved by certain age, as previously claimed, but may vary depending on specific characteristics of each language. Particularly relevant for the angle that we are taking in this paper is the observation regarding the presence of a unique syntactic or morphological property such as special verbal suffix or auxiliary for passive that may facilitate the acquisition in a particular language compared to languages that employ ambiguous forms. Although the authors notice that it was not possible to determine the precise morphosyntactic properties that would explain why acquisition of passive is more difficult in some languages compared to the others, the observed correlation between morphosyntax and earliness of acquisition is telling.

In this paper, we present two findings: early production of passives in Japanese, a language with overt dedicated passive morphology and unexpected, frequent production of long passives. Building on Armon-Lotem et al.'s (2016) insights, we develop the following Overt passive morphology hypothesis.

(1) **Overt passive morphology hypothesis**

The overt special passive morphology facilitates the early acquisition of passive as children follow the 1:1 mapping principle from conceptual representations (CRs) to morphology, as argued in Guasti, Alexiadou, and Sauerland (2023).

The paper is organized as follows. In Section 2, we present the puzzle. Section 3 introduces the framework from which we approach the puzzle. Section 4 presents the corpus study. In Section 5, we provide support from acquisition that agent PPs are best analyzed as adjuncts (Bruening 2013, Alexiadou et al. 2015). In Section 6, we lay out the analysis and revisit previous work from the perspective of our novel proposal. Section 7 brings the extension of our proposal. Section 8 summarizes.

## 2. The puzzle

Japanese exhibits dichotomy between the *direct passive* (2), associated with transitive verbs, and *indirect passive* (3), found mostly with intransitives, whose nominative DP is adversely affected by the passive event (Ishizuka 2012). In contrast to languages such as English, Japanese employs a dedicated passive morpheme *-(r)are*, attested in both forms.

- (2) Ken-ga keisatsu-ni tsukamae-**rare**-ta.  
 Ken-NOM police-DAT catch-PASS-PST  
 ‘Ken was caught by the police.’
- (3) Ken-ga Naomi-ni nige-**rare**-ta.  
 Ken-NOM Naomi-DAT escape-PASS-PST  
 Lit. ‘Ken was escaped from by Naomi.’ (Ishizuka 2012)

In this study, we focus on direct passive and patterns of its acquisition. Our results demonstrate that children have available passive constructions very early on at the age of 3 in their spontaneous production. Overt realization of passive morphology is consistently present.

- (4) a. Kirichan-ga Tomokun-ni os-**are**-ta.  
 Kirichan-NOM Tomokun-DAT push-PASS-PST  
 ‘Kirichan was pushed by Tomo.’ (Ayumi, 3;03)
- b. Okaasan yob-**are**-ta ne.  
 mother call-PASS-PST TAG  
 ‘You were called by your mother.’ (Ayumi, 3;03)

Furthermore, the difficulty that arises from realization of the external argument in form of the *by*-phrase has often been proposed as the main cause of delayed passive acquisition. On the basis of a comprehension experiment, Fox and Grodzinsky (1998) argue that children do not exhibit any difficulties with actional *be*-passives (5-a) and *get*-passives (5-b), where the direct theta-role assignment can obviate the need for the grammatical process. However, children fail in comprehension only when the process of theta-transmission is mandatory, i.e., in passives with *by*-phrases that are not affectors, such as nontruncated non-actional passives, as in (5-c), where only 46.1% of correct interpretations were found. In the subsequent experiment, the authors eliminated the *by*-phrases (5-d) in order to test whether they are the source of the difficulty. Removal of the *by*-phrases resulted in significantly increased comprehension performance as the results demonstrate 86.5% of correct interpretations. Out of 13 children that participated in the experiment, 8 children (age range 3.6-5.5) demonstrated perfect performance in this task.

- (5) a. The rock star is being chased by the koala bear.  
 b. The boy is getting touched by the magician.  
 c. The boy is seen by the horse.  
 d. The bear is seen.

Several studies have claimed that *ni*-phrases, i.e., counterparts of English *by*-phrases, are challenging for children and lead to delayed acquisition of passive in Japanese (see e.g., Okabe and Sano 2002 and Okabe and Okubo 2005). As a possible reason, the authors mention ambiguity of the Japanese *ni*-phrase, as it marks an agent, but also goal and source, which makes the comprehension of the agent role and passive in the mentioned comprehension studies difficult. However, *ni*-phrases are consistently present in our data from early stages of passive production, which suggests that they cannot cause difficulties in acquisition. Furthermore, topic marking is not preferred and overt arguments in child data do not appear in focus environments, as is the case in adult Japanese.

Our data show that children have available both long (6-a) and short passives (6-b) very early on at the age of 3. Given the previous proposals regarding the *by*-phrases discussed above, the production of such passives by Japanese children is surprising.

- (6) a. Ayumichanwa ka-ni sas-**are**-n-ai n da mon.  
 Ayumi.TOP mosquito-DAT bite-PASS-NEG-PRES QUD be ASSERT  
 ‘Little Ayumi isn’t bitten by a mosquito.’ (Ayumi, 3;01)
- b. Otokonoko-ga oite ik-**are**-ta.  
 boy-NOM put go-PASS-PAST.  
 ‘The boy was left behind.’ (Ayumi, 4;10)

### 3. Proposal

#### 3.1. Universal conceptual structure (Sauerland & Alexiadou 2020)

We approach this puzzle from the perspective of Meaning First Approach (MFA) developed in Sauerland and Alexiadou (2020). A cornerstone idea of the MFA that sets it apart from other existing theories is independence of thought and language. Namely, thought structures or Conceptual Representations (CR) are structured meanings generated independently of language and assumed to be considerably more complex than their actual realizations and, as such, unsuitable for communication.

The MFA architecture consists of two components - a Generator and a Compressor. The Generator is a language-independent component consisting of an inventory of logical primitives that combine into complex concepts via the application of the structure-building operation Merge, shared with Minimalism (Chomsky 1995), while the Compressor is a morphological component that radically reduces full CRs to articulated strings suitable for communication. Since CRs are

assumed to be generated independently of language the prediction that follows from this proposal is that they are universal, i.e., accessible to humans independently of language(s) that they speak, and thus available to children before learning a language (see Guasti, Alexiadou, and Sauerland (2023) for a more elaborate explanation), and presumably shared to a certain degree with other species. Language, on the other hand, radically reduces CRs in the realizational Compressor component. According to this view, individual languages are seen as individual compressors that differ in the array of morphological devices that they have on their disposal. Depending on the morphology of a language, individual languages may realize different parts of the CRs (see Sauerland and Alexiadou (2020) for empirical support of this idea).

MFA adopts Universal Late Insertion of early Distributed Morphology (DM), with a twist. Namely, in DM structure-generation is part of grammar, while in MFA it is outside of grammar, i.e., in the Generator component. In contrast to DM assumption that only functional morphemes are inserted post-syntactically, MFA proposes that both functional elements and roots are subject to late insertion, i.e. the building blocks of meaning lack phonological content, which naturally follows under the assumption that structure is generated independently of language. Furthermore, ideally one exponent realizes one concept/feature in structure (cf. Kayne's (2005) Principle of Decompositionality, Guasti, Alexiadou, and Sauerland (2023), and see also Slobin (1973), Van Hout (1998), among others, for ideas that children prefer overt marking of structures).

Sauerland and Alexiadou (2020) argue that passive morphology indicates the presence of a primitive concept PASS (see also Alexiadou et al. (2015) and others), which is not present in active clauses. In this way, MFA also departs from Generative Semantics, as it assumes two different CRs for active and passive clauses. In the following sections, we aim to demonstrate why this view better explains our findings that children acquiring Japanese demonstrate early proficiency in passive production that would stay unaccounted for under the existing proposals.

### **3.2. 1:1 mapping of Guasti, Alexiadou, and Sauerland (2023)**

Guasti, Alexiadou, and Sauerland (2023) develop the idea that individual languages reflect only fragments of thought structures, i.e., conceptual representations (CRs), which leads to big blind spots of cognitive structures that no adult language ever expresses. Grammatical sentences in adult language are maximally compressed, and as such the least informative for investigating the underlying universal CRs. However, child language differs from adult grammars in the domain of compression. Namely, as children operate with a not yet fully developed system they are not able to compress in adult-like manner and are biased by the one-to-one mapping from CRs to their linguistic realizations (cf. Slobin (1973), Van Hout (1998), among others), which is reflected in producing utterances that are closer to CRs than adult sentences are. The authors propose the following Transparency principle:

(7) **Transparency principle**

Children are biased towards a one-to-one mapping from CRs to language.

Evidence for the one-to-one mapping comes from so-called **Undercompression errors**. Often in child grammars overt realizations of material that stays unpronounced in adult grammar can be found. Empirical support for this proposal comes from relative clauses. Yatsushiro and Sauerland (2018) investigated the production of relative clauses in German on a representative sample of data elicited from 83 monolingual children (age range 4;6-8;7, mean age 6;6). In the production experiment eliciting subject and object relative clauses, the authors found a high frequency of full DPs in the gap position within the relative clause. These resumptive DPs demonstrate that in child language the head of the relative clause is pronounced twice - in a position where it is expected in adult German and in a position internal to the relative clause. Whereas in adult German a relative clause with the resumptive pronoun would be ungrammatical, utterances with overt DPs within relative clauses as in (8) are attested at a high rate in child German.

- (8) Das Mädchen sein, das der Opa **das Mädchen** umarmt.  
 the girl be that the granddad the girl hugs

Lit.: 'Be the girl who the granddad hugs the girl.'

Yatsushiro and Sauerland (2018)

Undercompression errors serve as a tool for investigating universal CRs. The example above demonstrates why child languages are a better reflection of the underlying CR compared to adult grammars, since looking at fully compressed adult German relative clauses we would not be able to identify underlyingly present but unpronounced DPs (see Guasti, Alexiadou, and Sauerland (2023) for further evidence that child errors reveal pieces of CRs coming from binding, multi-argumental verbal concepts, and antonymic concepts).

Further prediction of the Meaning First Approach in the light of one-to-one mapping from CRs to language is that acquisition proceeds more smoothly in cases where CRs are mapped in a transparent way. The results of our study demonstrate that this prediction is indeed born out.

## 4. Corpus study

### 4.1. Methodology and Data

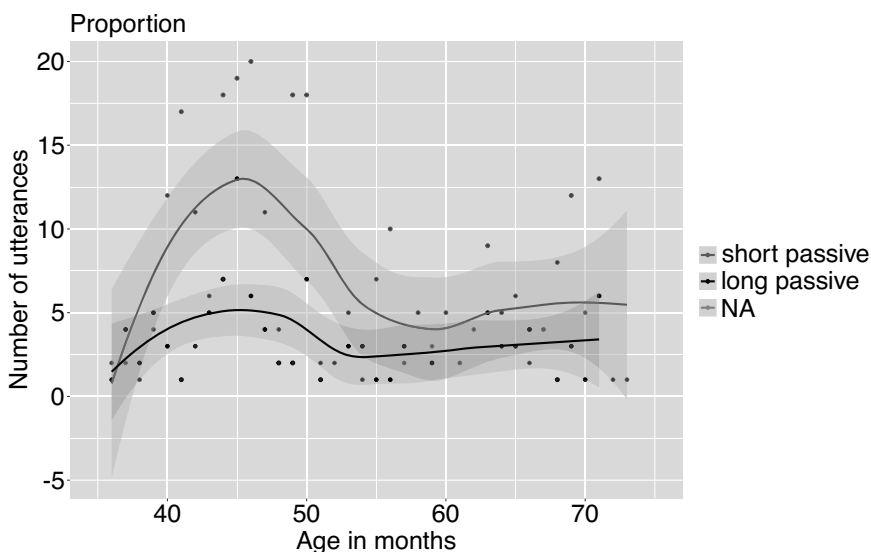
We extracted all the utterances surfacing with the passive morpheme **-(r)are** in the *Ogawa* corpus (Ogawa 2016) of the CHILDES database (MacWhinney 2000) using the CLAN software. The corpus consists of two longitudinal diary data of typically developing children acquiring Japanese (Ayumi, data recorded daily, age range: 0;9.00-6;01.00, and Mari, data recorded daily, age range: 0;5.00-4;02.00).

Out of the total number of utterances ( $N = 35666$ ), sentences surfacing with the passive morpheme ( $N = 393$ ) were selected for the analysis. The analysis covers the time span between the age of 3;00, when the first occurrence of passive is attested in our corpora, and the age of 6;1.

In the process of data annotation, we applied two criteria - (1) **type of passive**, distinguishing between (i) long and (ii) short passives, and (2) **argument realization pattern**, distinguishing between forms with (i) both external and internal arguments overtly realized, (ii) both external and internal arguments unpronounced, (iii) only external argument overtly realized, (iv) only internal argument overtly realized.

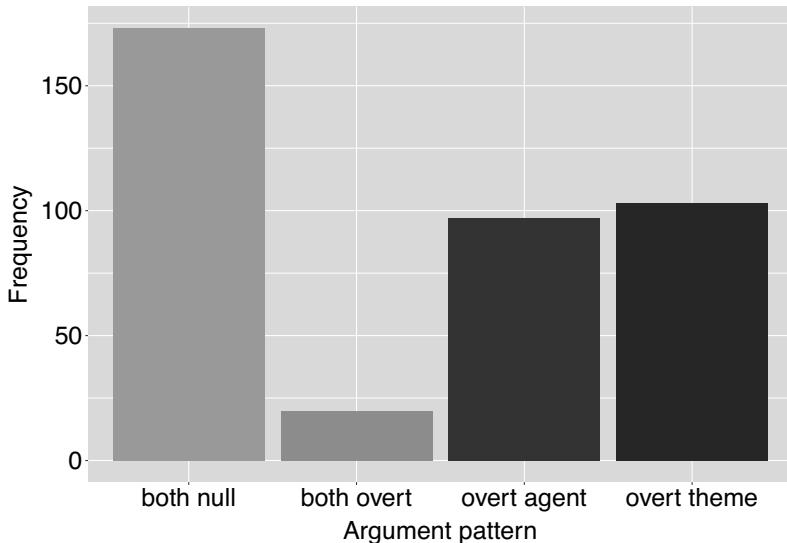
## 4.2. Results

Our results demonstrate that short and long passives appear at the same time in child spontaneous production in Japanese, i.e., short passives do not emerge first. Short passives are more frequent ( $N = 276$ ) compared to long passives ( $N = 117$ ), while both forms show increase in frequency between 40 and 50 months (age 3;4-4;2).



**Figure 1: Developmental trajectory of long and short passives**

When it comes to realization of external and internal arguments, passive forms with both arguments unpronounced are significantly more frequent ( $N=173$ ) than clauses with both arguments overt ( $N=20$ ). There is an asymmetry between clauses surfacing with an overt internal argument and silent external argument ( $N=103$ ) and those with an overt external argument but silent internal argument ( $N=97$ ).



**Figure 2: Argument structure patterns**

### 5. Implicit arguments and overt Voice morphology

At least two issues have been controversially discussed in the literature on passives: the status of implicit arguments (see Bhatt and Pancheva (2017) for a comprehensive overview) and the role of Voice morphology in transitivity alternations. With respect to the latter, several researchers take voice morphology to realize a functional head. With respect to the former the fact that in e.g., English, silent subjects are not allowed in active clauses (9-b), while agents of passives are usually left unpronounced (10-b), suggests that agents are not projected in the syntax. As they may optionally be realized (10-a) within a *by-phrase*, agent PPs are viewed as adjuncts to the VoiceP (Bruening 2013).

- (9) a. The girl hugged the dog.      (10) a. The dog was hugged by the girl.  
 b. \*Hugged the dog.                      b. The dog was hugged.

In this paper, we approached this discussion from the perspective of child language. We examined the status of external, i.e., agent, and internal, theme, arguments in Japanese direct passive constructions, focusing on the role of overt Voice morphology in the acquisition of passives.

Our results (i) support the idea that early acquisition of passives is related to the presence of overt morphology and (ii) are generally compatible with an analysis of *by-phrases* as adjuncts, as put forth in Bruening (2013) and Alexiadou et al. (2015).

We observe a strong preference for both external and internal arguments to be left implicit in Japanese (11). If agent PPs are adjuncts, this is expected for



the EA. As Japanese is a radical *pro*-drop language, it further allows an internal pronominal argument to be realized as *pro* (Neeleman and Szendrői 2007).

- (11) a. Otera de sas-**are**-ta n janai?  
 temple LOC stab-PASS-PAST NEG TAG  
 ‘Weren’t you stabbed at the temple?’ (Ayumi, 3;01)
- b. Tsukamae-**rare**-ta.  
 catch-PASS-PST  
 ‘I was caught.’ (Ayumi, 3;05)

However, when only one of the arguments is expressed overtly, children demonstrate a preference for an overt theme and a silent agent, as in (12-b), over an overt agent and silent theme (12-a). (12-a) is possible as the internal argument is syntactically projected.

- (12) a. Ka-ni sas-**are**-ta no.  
 mosquito-DAT bite-PASS-PAST QUD  
 ‘I was bitten by a mosquito.’ (Ayumi, 3;01)
- b. Misoshiru kobos-**are**-ru.  
 miso.soup spill-PASS-PRES  
 ‘Miso soup is spilled.’ (Ayumi, 5;00)

This asymmetry is reminiscent of the behavior of agent PPs in nominalizations, where the presence of an agentive PP is dependent on the presence of the internal argument (Grimshaw 1990). Furthermore, it is consistent with treating *by*-phrases as adjuncts (Bruening 2013, Alexiadou et al. 2015).

### 5.1. *rare* as an exponent of Voice

Ishizuka (2012) argues that Japanese has a designated Voice head, expounded by *-rare*. As the external argument is introduced by the overt morpheme *-ni*, the competition in principle emerges as they cannot both spell-out the same head, but are good candidates for it. The author provides several arguments for the proposal that *-rare* realizes Voice. First, it is incompatible with middle Voice marking, as demonstrated in (13).

- (13) \*Taroo-ga musuko-ni kaidan-kara oti-**rare**-ta.  
 Taro-NOM son-DAT stairs-from fall-PASS-PST  
 Int. ‘Taro<sub>i</sub> was affected by his<sub>i</sub> son’s falling from the stairs.’  
 Ishizuka (2012)

Ishizuka (2012), moreover, notes that *-rare* may combine with transitive verbs yielding idiomatic readings. This pattern is reminiscent of languages such as

Greek that make use of Voice heads hosting non-active morphology (Alexiadou et al. 2015, Oikonomou and Alexiadou 2022).

- (14) O Petros tsimbithike me ti Marina.  
 the Peter pinch.NACT.PST.3PL with the Marina  
 ‘Peter fell in love with Marina.’ Oikonomou and Alexiadou (2022)

## 6. Passive exponence and acquisition

In contrast to previous work, our study demonstrates early acquisition of passive in Japanese, at the age of 3. Furthermore, our data do not support the view that short passive emerges first compared to long passive, as both forms appear simultaneously. We argue that our result stems from the transparent Voice morphology in Japanese, realized in the form of the morpheme *-rare*, which strongly supports the idea in Guasti, Alexiadou, and Sauerland (2023) that children follow a 1:1 correspondence between conceptual representations (CRs) and morphology, and predicts that overt passive morphology facilitates the acquisition of otherwise challenging structures. To explain the observed pattern, we propose the following hypothesis:

### (15) Overt passive morphology hypothesis

The overt special passive morphology facilitates the early acquisition of passive as children follow the 1:1 mapping principle from conceptual representations (CRs) to morphology, as argued in Guasti, Alexiadou, and Sauerland (2023).

The results of our study and consistent presence of overt passive marking from the early age strongly supports **morphological account** of passive acquisition. In contrast to Japanese, acquisition of passive in languages such as English, where dedicated passive morphology is not present, is significantly delayed.

Our proposal predicts that passive should be acquired earlier in languages that employ overt dedicated passive morphology. Previous work on several typologically different languages shows that this prediction is indeed born out. Namely, early acquisition of passive is attested in several Bantu languages, such as Zulu (Suzman 1985), Sesotho (Demuth 1989, Demuth et al. 2010, Kline and Demuth 2010), Kiswahili and Kigiriama (Alcock et al. 2012), Mayan languages (Pye and Poz 1988), as well as in Inuktitut (Allen and Crago 1996), Jakarta Indonesian (Gil 2008), and Cantonese (Lau 2011). Demuth (1989) reports on spontaneous production data from longitudinal studies of four children arguing that verbal passive is acquired already at the age of 2;8 in Sesotho. Similar finding has been reported for Kiswahili and Kigiriama, Eastern Bantu languages spoken in Kenya, where productive use of passive is attested at the age of 2;1 (Alcock et al. 2012). Furthermore, Allen and Crago (1996) provide production data of four children acquiring Inuktitut and demonstrate that passive forms appear in spontaneous production at

the age of 2;0. Early acquisition of passive in these studies is attributed to high frequency of passive clauses in the input. The authors substantiate their claim by the fact that in languages such as English, where acquisition of passive is relatively late, the rate of passive clauses in adult language is also low. However, Kline and Demuth (2010) argue that, though necessary, high frequency in the input is not a sufficient condition for early acquisition of passive. These authors attribute the early acquisition of passive in Sesotho to high frequency of Sesotho counterparts of *by*-phrases and the lack of ambiguity between verbal and adjectival passive, present in languages such as English.

Lau (2011) provides convincing argumentation against input-based proposals. Namely, adopting the picture selection paradigm of Maratsos et al. (1985), Lau (2011) examined comprehension of passives in 26 children acquiring Cantonese split into two age groups (3 years olds - age range 3;05.08-3;10.20 and 4 years olds - age range 4;01.11-4;11.02). The results demonstrate that children acquiring Cantonese comprehend passives already at the age of 3. The author attributes the early acquisition of passive in this language to the obligatory presence of an explicit oblique agent realized in the form of the *bei2*-phrase, the counterpart of the English *by*-phrase, which is considered a cue for the passive voice. In contrast to the English *by*-phrase, omitting of the *bei2*-phrase would result in an active clause. Lau (2011) furthermore argues that the role of the input can be completely excluded in this case as its frequency in child-directed speech is extremely low and amounts to 0.09% of the total number of verbal utterances in the corpus study that the author has conducted on the basis of CANCEP corpus (Lee and Wong 1998) included in the CHILDES database (MacWhinney 2000).

A striking unifying property that we find in all the languages in which the early acquisition of passive forms is reported is overt dedicated passive morphology. In Bantu languages, passive forms surface with the special morpheme *-w-*, in Inuktitut, with the morpheme *-jau-* and its allomorph *-tau-* after consonants, while in Jakarta Indonesian with the morpheme *di-*. Mayan passive formation is followed by an insertion of the overt intransitivizing marker, while Cantonese, as argued above, employs obligatory overt realization of the *bei2*-phrase.

As noted above, Sauerland and Alexiadou (2020) argue that passive morphology indicates the presence of a primitive concept PASS (see also Alexiadou et al. (2015) and others). The observed fact that early acquisition of passives correlates with the presence of dedicated passive morphology supports the hypothesis proposed above that acquisition is facilitated in cases where a language has an overt dedicated morpheme as an exponent of the underlying passive concept, since children follow the 1:1 mapping from CRs to morphology. Our proposal is advantageous as it simultaneously accounts for languages in which acquisition of passive is delayed. Namely, in these languages dedicated passive morphology is either absent or syncretic with other forms and thus ambiguous. Under our view, delayed acquisition of passive in languages such as English is expected.

## 7. Outlook: Causative passive in Japanese

We aim to extend our **Overt passive morphology hypothesis**, that straightforwardly follows from Guasti, Alexiadou, and Sauerland (2023), to all other cases where dedicated passive exponence is attested. Our data provide evidence for early production of causative passive in Japanese (16). Similarly to dedicated passive morphology, Japanese employs special causative morphology realized as (s)as(e).

- (16) Ouchi made tob-**as-are**-ch-au?  
 home TERM fly-CAUS-PASS-COMPL-PRES  
 ‘Will I be flown home?’ Ayumi, 3;04

## 8. Summary

In this paper, we presented two findings: early production of Japanese passive and early mastery of long passives. Together with Sauerland and Alexiadou (2020), we assume the concept PASS to underline passive clauses and be overtly realized in languages that have dedicated passive morphology on their disposal. The central proposal of our paper is the **Overt passive morphology hypothesis**, according to which the overt special passive morphology facilitates the early acquisition of passive. In this, we build on the 1:1 mapping principle from conceptual representations (CRs) to morphology, developed in Guasti, Alexiadou, and Sauerland (2023). Our analysis is advantageous as it accounts both for languages in which early passive production has been reported and those where passives are delayed.

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