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Receptive passive competence of secondary students in Germany

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Abstract

Passives are a grammatical feature associated with academic language and frequently assumed to cause comprehension difficulties. The empirical results, however, especially with regard to secondary school students and the target language German, are inconclusive. This study therefore investigated secondary school students' ability to comprehend German passive structures in a picture selection listening task. The task consisted of 30 items which comprised transitive, progressive and resultative passive sentences as well as active sentences and was issued to 143 German secondary school students (Grade 6 and Grade 9). Background variables were obtained through a questionnaire. The results showed that while the large majority of students performed at ceiling, there is some variation in the performance, in particular in transitive passives. Grade 6 students perform somewhat weaker than Grade 9 students, and students who had had more opportunities to encounter academic language use in their homes performed slightly better than the ones who did not. This strengthens the insight that regular secondary school students overall can be assumed to comprehend passives; however, it is to be expected as part of the normal range in regular school classes that some students do not, especially from less advantaged academic backgrounds and in lower grades. Therefore, clarification and learning opportunities need to be given in order to provide good learning opportunities for all students.

Keywords: Passive, comprehension, academic language, secondary school, German

Introduction

Passives are among the language structures that children learn comparatively late (Diessel, 2004), that language users take longer to process (Paolazzi et al., 2022) and that can raise comprehension difficulties (Messenger et al., 2012; Kharkwal & Stromswold, 2014; Meng & Bader, 2021). Passives are considered a typical feature of academic language (Snow & Uccelli, 2019), are used as established measures of text difficulty (Berendes et al., 2017) and are omitted in Easy Language (Schaller & Ewig, 2023). Theoretical explanations operate with processing load or overall frequency in language use which is associated with familiarity and degree of automatization (Guasti, 2016; Heine et al., 2018). Contrary to this evidence, passives have also been reported to be generally understood and produced by children as early as 4 years old (Mills, 1985; Dittmar et al., 2015; Armon-Lotem et al., 2016). It is frequently assumed that passives are acquired by all native speakers during childhood, and therefore by school-age, all necessary grammatical skills are developed so that incomplete grammatical competence only pertains to second language learners (Heppt et al., 2015; but see for critical discussion Ranney, 2012; Snow, 2016). This contrasts findings that also monolinguals

expand their grammatical abilities considerably throughout adolescence (Jisa & Tochinsky, 2009; Berman, 2017) and even well into adulthood, (Hartshorne et al., 2018) and that passive comprehension varies not only in L2, but even in adult L1 speakers (Dąbrowska & Street, 2006). Different types of passive constructions seem to be acquired at different times (Guasti, 2016; Olthoff, 2023). Also, individual variables seem to play a central role in the variance, especially academic attainment and print exposure (Chipere, 2003; Dąbrowska & Street, 2006; Hulstijn, 2018; Dąbrowska, 2019; Sparks et al., 2023).

German has some particular features in passives: Transitive passives *('Die Frau wird* [von der Oma] *getröstet', 'The* woman is comforted [by the grandma]') require a two-part verb with an auxiliary and a main verb form, which is regularly formed with the prefix *ge-* on the main verb stem. Verbs with a prefix syllable such as 'einladen' [to invite] or 'aufhalten' [to hinder] insert the '*-ge-*' between the prefix and the main verb stem: 'wird … ein*ge*laden', 'wird … auf*ge*halten'. In contrast to English, the second verb part, which contains the main semantic verb information, is placed sentence-final, which enhances the processing load in working memory in longer sentences. While in English, adjectival or resultative (German 'Zustandspassiv', Maienborn, 2007) and verbal or progressive (German 'Vorgangspassiv', cf. Maienborn, 2007) passives have an identical form (e.g. 'The apple is cut'), in German, they require different verbs: The resultative passive is formed with the verb 'sein' (as in 'Der Apfel *ist* geschnitten'), whereas the verbal passive requires the verb 'werden' (as in 'Der Apfel *wird* geschnitten'). Some authors, such as Rapp (1996), have considered the resultative passive to be a genuinely different structure than the procedural passive and suggests to regard them as a verbal construction in its own right, with an adjectival character, and therefore to be processed differently (see also Guasti, 2016). There are some indications that adjectival passives might be acquired earlier than verbal passives (Mills, 1985).

Only few studies have investigated the difficulty of passive constructions for German children and adolescents. Eckhardt (2008) found in a listening comprehension study that more academic language features, among them, passives, increased comprehension difficulty with primary school learners. Haag et al. (2013) and Heppt et al. (2015) varied academic language features in mathematical word problems and found difficulty effects, especially in primary school children who did not use German as their home language. Haag and Stanat (2020) found an increase in comprehension from grade 2 to grade 4 students in an expository listening task which increased in academic features including passives, indicating that academic language comprehension improves considerably during this developmental period. Early language competences and the families' SES were strong predictors for later comprehension performance.

Leiss et al. (2024) investigated 9th graders. They varied a range of academic language features, which also included passives, in mathematical word problems, and measured the effect on text comprehension as well as the solution rate of the mathematical tasks (Ehmke et al., 2025). Interestingly, experienced teachers expected the texts with a high degree of academic

language as highly difficult for regular 9th graders, while in fact the actual solution rate of the students was only affected by the amount of linguistic language features to a minor degree (Ehmke et al., 2025). Hackemann's (2023) study on 812 secondary students' comprehension of expository physics texts, employing a similar variation scheme of typical grammatical difficulty markers including passives, showed no effects of text versions with a high vs. a medium and a low amount of academic language features. This was contrary to the students' own perception of the texts – they rated the texts with more academic language features as significantly more difficult. However, since these studies varied several features of which passives were only one, it remains unclear what the overall effect of passives was.

Olthoff (2023) is one of the few empirical studies that focuses on passives. 23 German secondary students rated passive sentences from history and biology textbooks according to perceived difficulty. They did not perceive them as more challenging than their active counterparts; however, passives with abstract (implicit) agents were rated as more challenging than those with a human agent. Since the semantic content was not controlled for in this study, it remains unclear in how far the grammatical structures can be regarded as causal; neither do we know whether the perceived difficulty would indeed result in actual comprehension problems.

Aschermann et al. (2004) used a passive test with preschool children. The tested children solved the test items at ceiling, even in semantically implausible sentences, which indicates that they had full competence to process the grammatical structure.

As this overview shows, there are conflicting findings on passive comprehension: On the one hand, we find empirical evidence that passive competence as part of academic language develops well into adulthood, that passives do raise linguistic difficulty and cannot be assumed to be fully acquired even by all adult L1 speakers; on the other hand, studies indicate that school students, in some studies as early as primary school level, can be assumed to generally understand passive constructions without any difficulties.

Further research in this area is important not only for linguistic theory building, but also for academic language pedagogy in schools; passive comprehension is a necessary pre-requisite for content learning and specifically frequent in the domain of science (Seoane & Hundt, 2017; Olthoff, 2023). Should it be true that at least some passive constructions are not easily understood by all students in regular classrooms, especially at a point when passive constructions are frequently used in teacher explanations and learning material, it can be assumed that this could contribute to academic achievement disadvantages for some students.

Since most theory-building on passive competence development investigated English as a target language, it seems fruitful to investigate passive competence in a different target language to test whether they confirm language-general patterns in passive competence development. Therefore, a study on German passive competence will be reported here. It aims at providing further insight into German passive development on the one hand, but also at

contributing evidence for our understanding of passive competence development in general. The following research questions will be asked:

RQ1: What overall proficiency level and spread of comprehension of German passives is there in a typical secondary school population?

RQ2: Do younger secondary school students perform weaker in a passive comprehension test than older secondary school students?

RQ3: Do the students perform differently in different forms of German passive structures?

RQ4: Do students who have had less exposure to the academic register in German, and thus, passives, during their upbringing, perform weaker in passive comprehension than students with a high exposure?

Methodology

Sampling and Participants

The study was conducted in an urban area in Western Germany, North Rhine-Westphalia, with a high percentage of regular school students with a migrant background. Two different age levels were chosen: Grade 6 students around 11 years of age to represent younger learners who have had some, but no extensive experience with school-related linguistic registers; and Grade 9 students around 15 years of age who were at the end of obligatory schooling (Kirsch et al., 2000; OECD, 2024). The sampling also aimed at gaining insights into a linguistically diverse learner group typically found in many German school classes: While we can expect the majority of participants to have gone through the German educational system from the start, and thus been in contact with German from age 6 at the very latest, it was also expected that some participants had had a more recent immigration history and been in contact with German for only a shorter period of time. Normally, L2 learners are expected to be at least on CFR level B2 in German in order to participate in regular classes[1].

Over 40% of the 6–18-year-olds in North Rhine-Westfalia have a migration history (Ministerium für Kinder, Jugend, Familie, Gleichstellung, Flucht und Integration des Landes Nordrhein-Westfalen, 2021). They equal the number of students with no migration background in comprehensive schools but are strongly underrepresented in Grammar schools. In urban areas, however, it is not uncommon that also in the faster academic tracks much more than 50% of the students stem from families that have immigrated within the last two generations. It could therefore be assumed that a broad range of heritage language usage would be represented in the sample.

A total of 143 students participated in the study: 106 Grade 6 students from six different classes and 37 Grade 9 students from two different classes of one comprehensive school (N = 56*; n Grade 6* = 46, *n Grade 9* = 10) and two Grammar schools (N = 87*; n Grade 6* = 60, *n*

[1] With lower language competences, recently immigrated students are typically kept in separate integration classes. It needs to be noted, however, that the maximum time newly immigrated students can stay in these separate classes is two years and there is no test to validate that B2 really has been achieved – it is therefore potentially possible to find students with lower-than-B2 levels in regular classes.

Grade 9 = 27). 75 students identified as girls, 68 as boys. The age span in Grade 6 was 11–13 years, in Grade 9 students 14–16 years (Grade 6: *M* = 11.59, *SD* =.62; Grade 9: *M* = 14.62, *SD* =.72). Because of the skew towards Grammar school, the academic level of the total sample was expected to be comparatively strong.

Since a convenience sample was used, a preliminary analysis was conducted to characterize the sample to check whether the necessary independent variables were represented. In a background questionnaire, the students provided information about

• their age of onset of learning German (Montrul, 2008)

• self-estimated usage of German and other languages throughout a typical day

• language use at home and language use with friends (De Houwer, 2018; Montrul, 2016)

• school grade in the subject German

• self-perceived competence in listening and reading German as indicators for competence ranking within the sample (Fleckenstein, Leucht, & Köller, 2018)

• home literacy environment/cultural capital, measured in number of books at home (Puglisi, Hulme, Hamilton, & Snowling, 2017; van Bergen, van Zuijen, Bishop, & de Jong, 2017; Sieben & Lechner, 2019)

• an estimate of how much their parents used to read to them in German when they were small (Bus et al., 1995; Deckner et al., 2006; Scarborough & Dobrich, 1994).

The large majority of 122 students (85.3%) reported to have been in contact with German from birth, only 14.7% from kindergarten age or later, so this variable was clearly not parametrically distributed. Only 44 students (30.8 %, *N* = 142, 1 student provided no answer to this item) of the total group reported to use German 100% of their time outside school; most used at least one of Germany's typical heritage languages in their daily lives (most frequent were Polish, Albanian, Arabic, Kurdish, Russian and Turkish), even though 116 students (81.1%) indicated that they used mainly German at home, the remaining 27 (18.9%) predominantly used a heritage language. All but one student (98.6%) reported to exclusively use German when interacting with peers.

More students in the Grade 6 group used a heritage language to any larger extent than in the Grade 9 group. 16 of the Grade 6 students (15.3% of the Grade 6 group, *n* = 104, 2 provided no answer to this item) reported to use German only 50% or less of the time, only 2 of the Grade 9 students (5.4% of the Grade 9 group, *n* = 37).

While preliminary analyses showed that the reported school grades in the subject German and the cultural capital/home literacy variable *Number of books at home* were normally distributed, almost all individuals in the sample were confident to not experience any difficulties in comprehending German. *Amount of having been read to* was also strongly skewed: The majority of students, both at Grade 6 (56.6%) and even more at Grade 9 level (75.5%), reported having been read to in German (almost) daily. In both groups, about a

quarter of the students reported having rarely or never been read to (25.4% in Grade 6 and 24.3% in Grade 9).

Based on this data, the participants in the present study can be regarded as a typical sample in terms of their general language profiles of Grade 6 and Grade 9 school students for the urban region in which the sample was collected (di Venanzio & Cantone, 2016; Roll et al., 2019): A majority of students used a heritage language alongside German in their homes, but this did not at all challenge the status of German as the dominant language in daily life. The amount of usage of German, and, reversely, the active use of a heritage language if German was not used to 100%, did not show any relation with self-reported comprehension ease in German, nor was it in any particular way related to the performance level in German class. We can conclude that all students have had strong exposure to German, but not all of them seem to have had equal opportunities to get introduced to literate language use, and thus passive structures, in their homes, even though the sample was somewhat skewed towards higher home literacy and cultural capital environments. Even though there were clearly no normal distributions of these variables in the sample, there was still a considerable number of students who stemmed from homes with less opportunities to come into contact with literate language use outside school. We can thus conclude that the relevant independent variables needed in order to answer the research questions were represented in the sample.

Data collection

The central instrument in the study is a pictures and sentences test similar the one used in Dąbrowska and Street *(2006), Street and* Dąbrowska (2012) and Dąbrowska (2019), who in turn *adapted* a task originally used by Ferreira (2003). In this test, participants heard simple transitive passive sentences of the type “The girl was kissed by the boy”, after which they were to select the corresponding picture out of a picture pair in which agent and patient were reversed, respectively. Simple sentences and frequent, concrete vocabulary were used to test linguistic competence, not world knowledge, and to avoid testing participants’ processing capacities such as working memory; a listening prompt was used to extract core grammatical competence and not reading ability. *The* advantage of picture selection is that it requires no metalinguistic abilities like, for instance, grammaticality judgments, and is not dependent on more verbal interpretations besides the stimulus sentence (as in true/false test formats) and thus reduces the chance of construct-irrelevant misinterpretation (cf. discussion in Street & Dąbrowska, 2010).

Since in the Dąbrowska studies the picture selection task had revealed performance differences in both adult native and (proficient) non-native speakers of English, the format was maintained for the German school student group with the assumption that comparable differences should be found, and indeed more pronounced in the present study’s younger participants than in the adult samples in Dąbrowska and Street (2006), Street and Dąbrowska (2012) and Dąbrowska (2019). The task was adapted for specific features of German and extended beyond transitive passives in that also progressive and resultative passive items

were included. In a first test set, twelve transitive passive sentences which involved an agent and a patient (e.g., 'Die Oma wird von der Mutter getröstet' [The grandma is comforted by the mother]) were contrasted with a control condition of twelve active sentences expressing a corresponding transitive situation (‘Die Mutter tröstet die Oma’ [The mother comforts the grandma])(see for examples Fig. 1 and 2). Care was taken that the correct pictures were located on the left and on the right in half of the cases to prevent a bias by order of presentation. Also, neutral (Fig. 1) and less plausible agents (Fig. 2) were interchanged in half the items to make sure the sentences were not merely interpretable by semantic plausibility but required syntactic processing. Only actional verbs were used. All were simplex German verbs which only required a simple *ge-* insertion before the stem in the passive condition in German of the type: infinitive = ‘trösten’ – passiv = wird *ge*tröstet (not, e.g.: infinitive = ‘einfangen’ – passiv = ein*ge*fangen). Agents and patients were all animate.

Figure 1. Picture pair for transitive passive comprehension with similar plausibility

Note: This figure shows an example of a picture pair to test comprehension of active and transitive passive sentences, with neutral agent and patient pairing (‘Die Mutter wird von der Oma getröstet’. [The mother is comforted by the grandma.])

Figure 2. Picture pair for transitive passive comprehension with asymmetric plausibility

Note: This figure shows an example of a picture pair used to test comprehension of active and passive sentences, with more unlikely agent–patient pairing ('Der Junge wird von dem Hund gewaschen.' [The boy is washed by the dog.])

In order to capture linguistic passive competence more broadly, the test was expanded with a second test set to test progressive and resultative passives with six items in total by three stimulus sentences each. In the corresponding pictures, a single scenario was shown in which an activity was either still being carried out or had been completed (cf. Fig. 3 and 4). In this test set, progressive and resultative passive were not contrasted with actives, but with each other. Here, the patients were either plants or inanimate entities.

Figure 3. Picture pair used to test progressive passive

Note: The stimulus sentence used with this picture pair was 'Der Baum wird gepflanzt.' [Progressive: The tree is (being) planted.]

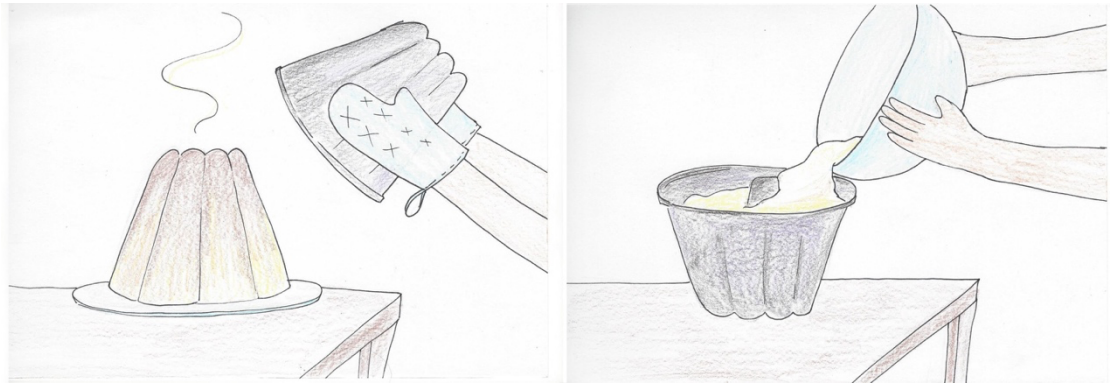

Figure 4. Picture pair used to test resultative passive

Note: The stimulus sentence used with this picture pair was 'Der Kuchen ist gebacken.' [resultative; The cake is baked.]

There were two task versions, each containing the same 30 items but in reverse order to minimize item position effects. The adapted and expanded picture selection task for German passives is accessible at https://www.iris-database.org.

The participants were recruited through local schools. After obtaining informed consent from the schools, the participants' parents and the participants themselves as required by the local protocols, the students filled in the questionnaire in class with researchers and teachers present. The participants were tested individually in a separate room, which took about ten minutes each. Each participant was shown a slide show of picture pairs on a computer and heard a recording of each test sentence (four seconds for each slide, so that there was plenty of time for the students to process the input), after which they were to point out the picture that matched the sentence. The answer was marked on an answering sheet by a researcher. Approximately half of the participants were tested with each test version. The one-on-one setting as well as the brief overall testing time were chosen to make sure the students stayed concentrated, motivated and performed to the best of their abilities.

Data analysis

In order to answer research question RQ1: "What overall proficiency level and spread of comprehension of German passives is there in a typical secondary school population? mean values for the total performance of the sample were calculated. RQ2 – "Do younger secondary school students perform weaker in the test than older secondary school students?"– was explored by running comparative statistics between the test scores of the Grade 6 and Grade 9 students, both for the total scores and the different subsets of scores. The test results were expected not to be normally distributed but skewed towards the upper end of performance in both groups. Therefore, an Independent Samples Mann-Whitney U test was used to establish significance measures between the two student group performances.

For RQ3: "Do the students perform differently in different forms of German passive structures?", the 30 test items were grouped into the 18 passive and 12 active items. Total scores were counted for each subset of items and, because the item number in each sub-test differed, turned into percentages, and mean values were calculated. Because the performance data were non-parametrically distributed, a Related-Samples Wilcoxon Signed Rank Test was used to find out whether the differences between the sub-tests were significant.

For RQ4: "Does the test reveal students who have had less exposure to the academic register in German, and thus, passives, during their upbringing to perform weaker than students with a high exposure?", Spearman's rho analyses were performed due to the non-parametrical nature of the data to test significance of differences between the groups.

Findings

Test performance in the whole group

Table 1 summarizes the findings for the overall test scores and the sub-sets in percentages. The results confirm that correct comprehension of the passive sentences was overall very easy for the students, the large majority reaching 100%.

Table 1. Percentage scores for the total test and each sub-test across all students (N=143)

	Mean (%)	**Mdn (%)**	**Mode (%)**	**Range (%)**	**Min (%)**	**Max (%)**	**SD (%)**
Scores							
Total scores summarized	95.50	96.67	100	26.67	73.33	100	5.05
Total scores actives	97.79	100	100	25.00	75.00	100	4.42
Summarized scores passives	93.98	94.44	100	33.33	66.67	100	7.70
Transitive passives	91.96	91.67	100	50.00	50	100	10.99
Progressive passives	98.60	100	100	33.33	66.67	100	6.71
Resultative passives	97.44	100	100	33.33	66.67	100	8.91
Collated scores progr./result. Passives	98.02	100	100	33.33	66.67	100	5.76

In spite of the general ceiling effect, there were interesting differences in performance between the test sets. The group as a whole does not show any problems interpreting passives. The students performed with similarly high scores in the progressive and the resultative passive subtests as in the active control condition and displayed very little variation: In the active condition (Fig. 5), 33 out of the 143 students made one (29 students), two (3 students) or three mistakes (1 student) in the twelve items; in the progressive passive condition, 6 students made one mistake out of three items, all others made no mistake; in the resultative condition, 11 students made one mistake, all others scored all three items correctly. In the transitive passive sub-test, however, the group reached lower scores, which also showed the largest spread of performance (Fig. 6); there are some students who do not consistently perform at ceiling, even though their performance is above chance. All in all, this indicates a tendency for somewhat less ease in the processing of the transitive passive condition.

The difference in the two types of passives, transitive vs. progressive/resultative, could be interpreted as a confirmatory tendency that the progressive and the resultative passives tap into a different linguistic competence dimension than the transitive passive. Nevertheless, since the progressive and the resultative condition were only elicited with three items each, care needs to be taken not to over-interpret these tendencies.

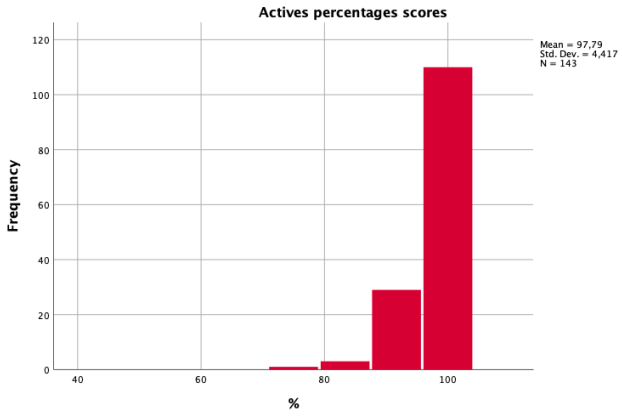

Figure 5. Performance of total group in the active condition

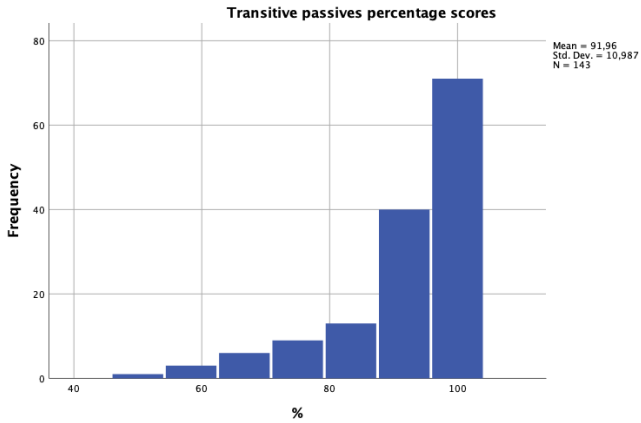

Figure 6. Performance of total group in the transitive passive condition

In Figure 7, a number of extreme outliers in both the active and the passive conditions are visible. Except for one case (student 84), different students produced these outliers in the different conditions, so it is likely that these were due to temporary performance lapses and did not mirror actual competence levels. Student 84, however, seemed to be generally weak in German or had problems with the overall test situation. This individual was in Grade 6, was a late-onset speaker who has been in contact with German as late as primary school, reported using a heritage language at home and German only 50% of the time, even though she uses German as the predominant means of communication with friends. The student has a comparatively low school grade in German (4 out of 6 with 6=lowest, 1=best grade) and provides no information about the number of books at home. All other students who performed weakly on the transitives performed well on the progressives and resultatives, and vice versa.

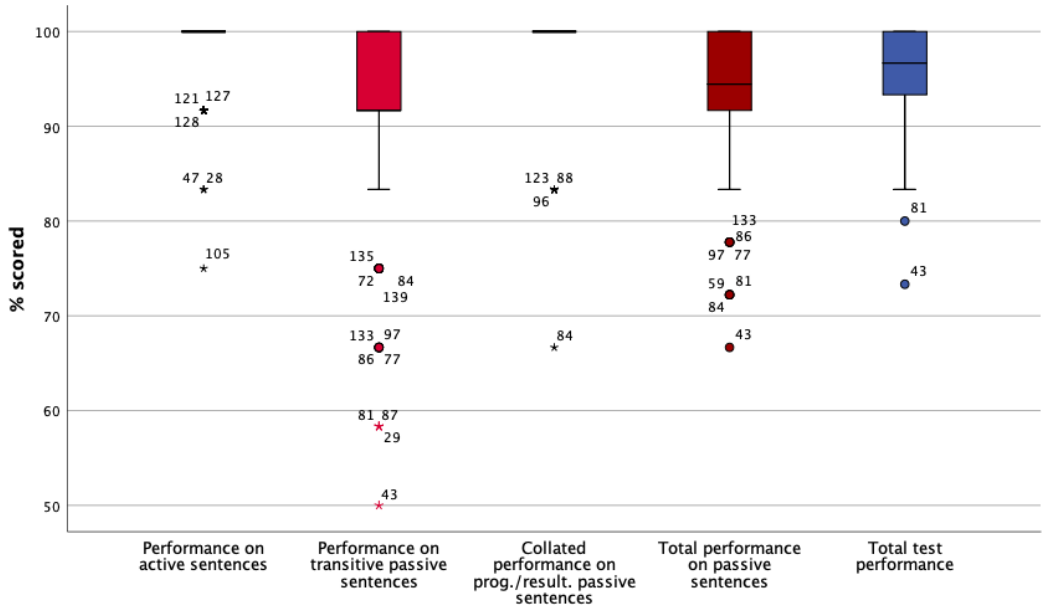

Figure 7. Performance of total group across sub-tests

In order to see if the differences we see between the active and the transitive condition, and between progressive/resultative and transitive condition occurred purely by chance, i.e. the median of differences between the performances in the active and the transitive passive condition equals 0, a Related-Samples Wilcoxon Signed Rank Test was performed. It showed that the differences between the transitive passive and the active condition, and the transitive passive and the progressive/resultative passive condition, are indeed significant: The median score was 100 compared to 91.67% both for the actives and the transitive passives, and progressive/resultative and transitive passives, respectively (transitive passives compared and actives: z = –5.60, p < .001, r = .000; transitive passives and progressive/resultative passives: z= –5.35, p < .001, r= .000). The tests for both pairs show only small effect sizes (Lenhard & Lenhard, 2016).

Differences between Grade 6 and Grade 9 students

Grade 6 students performed largely identically to the Grade 9 students but with somewhat lower mean and median values and a larger spread in results throughout the sub-tests (see Table 2 and Figures 8 and 9).

An Independent-Samples Mann-Whitney U Test revealed a significant difference between the test results on the transitive passive sub-test of the Grade 6 (Md = 91.6, n = 106) and the Grade 9 group (Md = 100, n = 37), U = 2454, z = 2.458, p = .014, d_{Cohen}=.412. The transitive passive condition is thus again the main source of differences in the overall test results and shows the greatest spread in values of central tendencies and standard deviation between both groups. In the active and the progressive/resultative passive condition, on the other hand, there does not appear to be any difference between the age groups.

Table 2. Comparison between Grade 6 and 9 students across (sub-)test scores

School grade	N	M (%)	Mdn (%)	Mode (%)	Range (%)	Min (%)	Max (%)	SD
Total test score								
6	106	94.84	96.67	96.67	26.67	73.33	100	5.29
9	37	97.39	100	100	16.67	83.33	100	3.78
Actives								
6	106	97.56	100	100	25.00	75.00	100	4.74
9	37	98.42	100	100	8.33	91.67	100	3.31
Total passives								
6	106	93.03	94.44	100	33.33	66.67	100	8.12
9	37	96.70	100	100	22.22	77.78	100	5.62
Transitive passives								
6	106	90.80	91.67	100	50	50	100	11.55
9	37	95.96	100	100	33.33	66.67	100	8.46
Collated progressive/resultative passives								
6	106	97.48	100	100	22.22	66.67	100	6.42
9	37	99.55	100	100	16.67	83.33	100	2.74

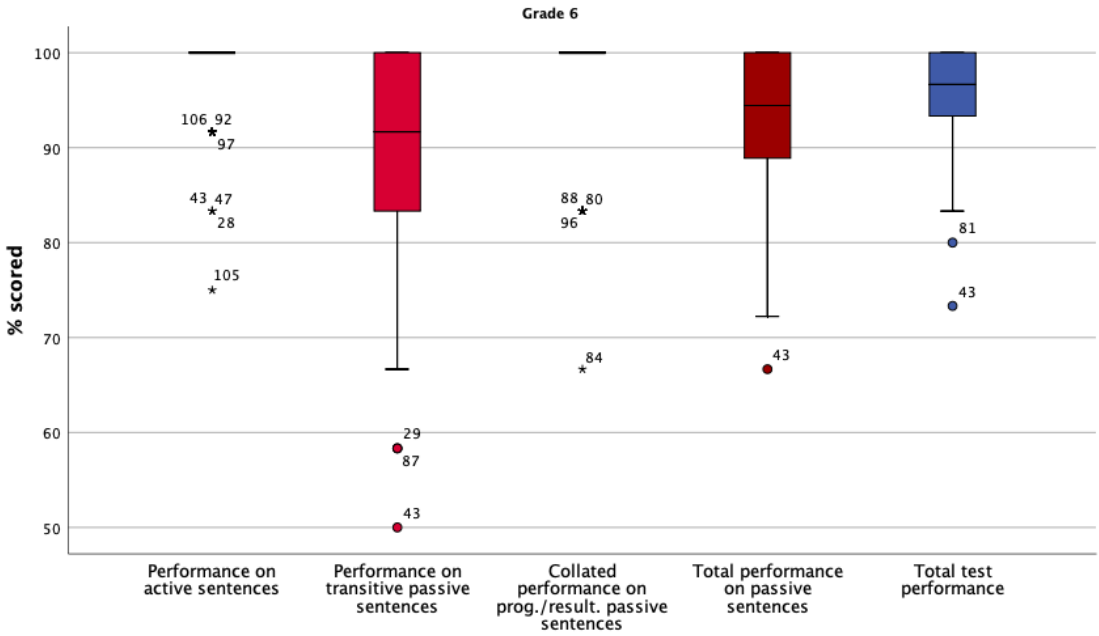

Figure 8. Performance of Grade 6 group across sub-tests

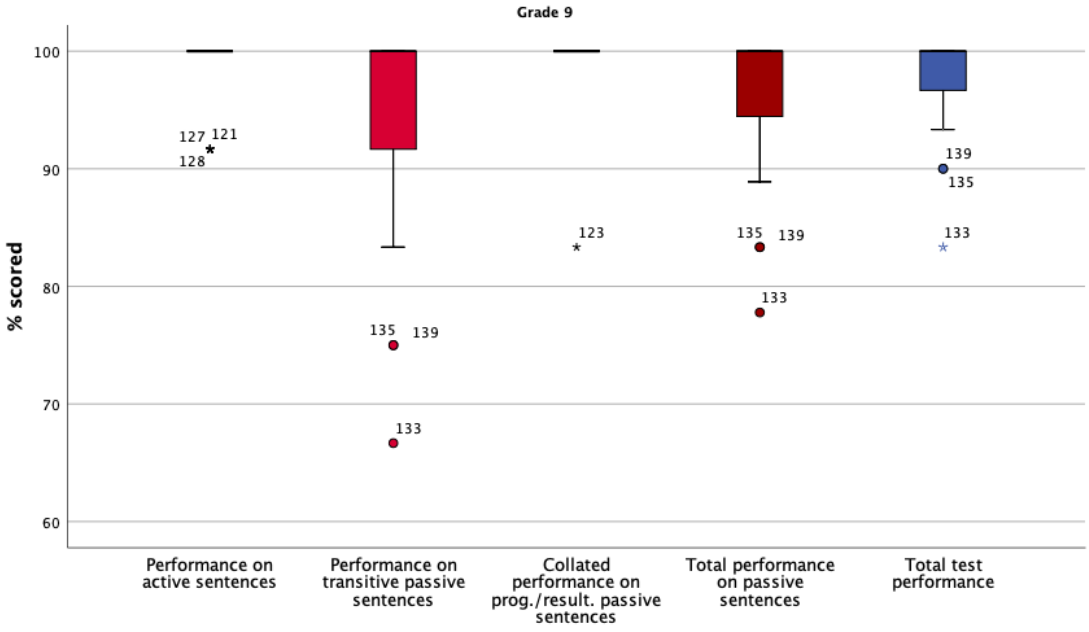

Figure 8. Performance of Grade 9 group across sub-tests

Number of books in the home and being read to in German before school age

It was assumed that students from homes with lower home literacy will achieve significantly lower mean scores than students from higher home literacy environments. In order to see whether there is a relationship between the two home literacy environment variables, number of books in the students' homes and the amount their parents have read to them in German before school age, and the test results in the transitive passive subtest, more Spearman correlation analyses were performed. They showed a weak positive association between transitive passive test performance and the number of books in the student's home (r_S = .121, n = 141, p = .154), but a weak negative association between transitive passive test performance and the amount of having been read to before school age (r_S = –.146, n = 143, p = .081). So, only the book variable can be associated in some way with the spread in test performance in the transitive passive subtest, even though only weakly. The amount of (self-estimated) early reading experience is not indicative of performance in passives.

Discussion

The first aim of this study was to describe what overall proficiency level and spread of comprehension of German passives could be found in secondary school students (RQ1). The reason for this was that passives are frequently assumed to be difficulty-inducing for comprehension, especially in academic contexts, but that the empirical findings on this were inconclusive, particularly with regard to secondary school students. In order to investigate whether passive competence is still under development in secondary school, another aim was to compare younger with older learners (RQ2). Since there were indicators in the research literature that different types of German passives might be processed differently, another subordinate aim was to collect evidence that confirmed or contradicted this assumption (RQ3). Lastly, the study was to find indications whether the comprehension of passives could

be considered a general aspect of language competence or rather pertained to a more specific dimension of academic discourse competence (RQ4). If the last was the case, then there should be variation in the students' performances due to their different degrees of familiarity with academic discourse and the richness and frequency of literacy experiences provided by their homes.

While the convenience sample obtained for this study was skewed towards higher academic attainment and cannot be regarded as fully representative for the overall secondary student population, we can still argue that it did contain a broad range of construct-relevant backgrounds and literacy experiences.

We can interpret the findings as follows:

Most students performed at 100% in the test, with all measures of central tendency above 95%. This indicates that the students did take the test seriously, so that we can assume the performance to mirror their true abilities. Furthermore, the results show that the overwhelming majority of students demonstrated full mastery in their comprehension of passive structures as tested in the picture selection task, with no variation between the age groups. This provides interesting counterevidence to the established assumption that passives as grammatical structures of academic discourse are not fully acquired by everyone and can compromise comprehensibility. We can conclude that our data support the assumption that the acquisition of passives is complete before secondary school age and that passives are a grammatical core feature acquired mainly in childhood. Since the sample was skewed towards higher academic abilities and early onsets of German acquisition, it would be highly relevant to retest this assumption with a sample of students with lower academic abilities and literacy backgrounds, and with students with a later onset of exposure to German.

Interestingly, the transitive passive condition led to somewhat weaker scores, with mean and median values of just over 91% correct answers in the overall group. The statistically significant difference contrasts the clear ceiling performance of 100% across the group for the progressive/resultative and the control condition of active sentences. This supports the assumption that transitive and resultative/progressive passives are indeed different grammatical phenomena: Resultative and progressive passives might as constructions be easier to process than transitive passives and therefore lead to a better performance in a comprehension task. Also, the tendency that there was more variability in the younger learners could mean that resultative and progressive passives are acquired earlier and thus be more automatized than transitive passives. The performance we see in the data suggests that at least in some learners, transitive passives are a construction still under development during secondary school. We need to keep in mind, however, that the variation for transitive passive comprehension was small even in Grade 6 and the performance far above chance level. Also, the number of items for this sub-task was only three; so, our data conform to the

hypothesis of different grammatical phenomena and ongoing development into adolescence but need to be investigated more thoroughly.

The overall student performances showed a comparable score range to the results obtained by adults from different academic backgrounds in Dąbrowska (2019), which tested (English) transitive passives. Also here, only minor differences in passive competence could be found. Our data contribute a more focused hypothesis: It is to be expected that in regular secondary learners, the transitive passive competence is normally fully developed from Grade 6 onwards but can in some students still be under development until upper secondary school age. It does not develop further between upper secondary school age and adulthood.

Even though the grammatical interpretation of passive structures appears to be hardly difficult for secondary students, it seems likely that difficulties might become more pronounced in more ecologically valid school contexts. Passives as a feature of academic language normally co-occur with other features that are potentially difficulty-inducing, such as complex syntactic structures, specific and infrequent vocabulary, longer texts, and cognitively demanding activities. This could explain why passives can nevertheless be useful as a proxy variable for text difficulty. The study's method was designed to capture the grammatical competence; it experimentally minimized potentially conflating difficulty-inducing elements to isolate the actual difficulty of the grammatical feature. Our results indicate that it is not the grammatical structure *per se* that induces difficulty.

Since the present study does not investigate passive competence in realistic learning contexts, it cannot formulate recommendations for successful teaching on an evidence-based foundation. However, our results do not warrant for general avoidance of passives for better comprehensibility. Comprehension support structures for struggling learners which align with our experimental results would use passives, but support processing of accompanying linguistic and extralinguistic features by scaffolding tools which help break down long sentences into shorter ones, organize relevant world knowledge, advance organizers, or vocabulary aids.

In order to gain a deeper understanding, further investigations would be highly relevant that use a passive test with a broader range of transitive passive tasks. They could use the grammar-focusing picture selection task used in the present study at one end of the spectrum, and tasks with more abstract, decontextualized and cognitively more challenging context on the other, while keeping the underlying transitive structure stable. This would allow to capture the impact of different task dimensions in relation to the passive construction in more detail which would also allow to make predictions for the impact of passive use for realistic classroom activities.

RQ4 asked whether measures of literacy would correlate with the passive performance. If passives occur more frequently in academic language than in everyday language use, a higher degree of familiarity with activities involving such registers should correlate positively with higher passive competences; also, more educated speakers have more access to language in

general (see Dąbrowska, 2019, for discussion). The book variable has been shown to be a strong proxy for cultural capital and contains the construct of literacy as a facet. In our study, the number of books in the students' homes correlated indeed with the test results in their transitive passive performance. The correlation was, however, only weak, which can at least partly be explained by the strong skew towards high passive performance. Our data nevertheless confirm the link between cultural capital in the students' homes and linguistic abilities for the case of passive performance.

Because cultural capital does not grasp literacy experiences per se, student reports of the amount of early literacy experience through parental reading-aloud were used. This variable had not been tested for its validity in a similarly thorough way than the book variable, but it was expected that the parental reading-aloud would correlate with the book variable and with the passive performance. This assumption, however, could not be confirmed: Instead, a negative correlation with the transitive passive performance was found. This could indicate that this variable and the way it was elicited did not measure literacy exposure validly, possibly because the students had to estimate experiences from several years ago. It is plausible that these estimates were less valid than estimates of the more tangible number of books at home. We recommend for future studies to use different measures of literacy exposure than self-reported literacy experiences.

Conclusion

Passives are frequently assumed to raise comprehension difficulty and a core feature of academic language which is not acquired by every language user to full degrees. The present study, investigating passive competence in German secondary school students, contributed to our understanding that this assumption needs to be questioned, or at least strongly mitigated. The central results suggest that all learners can comprehend German progressive and resultative passives by early secondary school, and that also transitive passives are comprehended without any difficulty by the large majority of six-graders. By the end of secondary school education, all forms of passives are comprehended by all students with ease. This could indicate that passives are generally acquired in childhood, but that it is normal that there is still some residual development in individual learners during secondary school.

The study also shows that a highly multilingual student population typical for German urban regions is far more homogeneous in this regard than is often assumed. The study provides more evidence to the overall insight that the use of a heritage language at home does not impact negatively on the competence in the majority language – a highly important aspect for policy makers, who still focus on migration-based multilingualism as a problem for educational success. Since there were only few students with lower academic capabilities and no students with a late onset of learning German in the sample, we might find a broader performance range in a more representative sample. Since the study provides evidence that some students, especially younger ones, do not show stable command of transitive passives, and since passives normally occur together with other features that can raise difficulty, the

use of passives in school settings can still be more challenging than the test results in the study indicate. But if comprehension difficulties around passives arise, it seems plausible to assume that these are caused by accompanying features such as lexicon, sentence length, or cognitively demanding content, and not the grammatical construction itself.

Conflict of interests

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