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Dagmar Barton*, Nadine Kolb and Tanja Kupisch

Definite article use with generic reference in German: an empirical study

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Abstract: This study is concerned with the distribution of the definite article in German with plural nominals that have a generic reading. In Standard German, genericity is typically expressed by bare nouns (*Tiger sind gefährlich* 'Tigers are dangerous'). Many researchers have claimed that there is variation in article use in the expression of generic reference in German (e.g., Brugger 1993; Longobardi 1994; Krifka et al. 1995; Chierchia 1998; Dayal 2004; Oosterhof 2008), but very little empirical evidence has been provided to support this claim. Besides filling this research gap, we investigate which factors influence the use of articles in plural subjects with generic reference. In doing so, we include linguistic factors (kind-level vs. individual-level predicates) as well as sociolinguistic factors (age and regional background). Results show that with generic plural subjects definite articles are optional but bare subjects are preferred; definite subjects are accepted more often with kind-level predicates than with individual-level predicates.

Keywords: generic reference, German, definite article, grammaticalization, variation

1 Introduction: Definite article semantics in Romance and Germanic

One of the prominent issues in the literature on article use has always been the contrast between "Germanic" and "Romance". It has long been shown that argument nominals in the Romance languages require articles more often as compared to Germanic languages. In their seminal papers, Chierchia (1998) and

***Corresponding Author: Dagmar Barton,** Institut für Germanistik, Universität Hamburg, E-Mail: Dagmar.Barton@gmail.com
Nadine Kolb, Englisches Seminar, Universität zu Köln, E-Mail: nadinekolb@gmail.com
Tanja Kupisch, Fachbereich Sprachwissenschaft, Universität Konstanz, E-Mail: tanja.kupisch@uni-konstanz.de

Longobardi (1994) have proposed that with respect to article use, languages within the Romance family largely pattern alike in allowing nouns without articles, i.e. bare determiner phrases, only in a very limited and well-defined number of contexts (e.g., as syntactic objects or complements of prepositions). Germanic languages also pattern alike but they allow bare nouns in a comparatively wider range of contexts, including subject positions. Longobardi (1994) and Chierchia (1998) have independently captured these differences in terms of a parameter, distinguishing "Romance" from "Germanic".[1] While it is more than clear by today that there exist numerous exceptions to the broad generalizations adhering to the parameters proposed back then, it is an undeniable fact that the Romance languages have more limited possibilities for bare nouns than the Germanic languages. At the same time, there may be subtle differences across languages pertaining to the same parameter. For example, Longobardi (1994) notes that in some cases where English requires bare nouns, article use is "optional" in German. The present paper relates to these observations, investigating this alleged "optionality" in definite article use in German.

In many Germanic and Romance languages, the definite article can encode definiteness (e.g., *the* in English). According to Lyons (1999: 278), definiteness can be seen as the grammaticalization of "semantic/pragmatic definiteness". Languages with definiteness marking vary considerably in terms of the contexts in which articles are used. Generally speaking, article grammaticalization can be seen as the use of articles in an increasing number of semantically and pragmatically defined contexts. Definite articles typically develop from demonstratives, which are essentially deictic; subsequently their use is extended to less deictic (i.e., nonspecific) functions, e.g., contexts in which no specific object is referred to, as in generalizations about a class of objects (*Apples are healthy*) or reference to an unspecified number of objects belonging to a particular class (*Let's buy apples*).[2]

One major difference between English vis-à-vis French and Italian is that generic plural subjects tend to be constructed with a definite article in French and Italian but not in English. From a diachronic perspective, it is interesting to note that Old French and Old Italian were similar to Modern English, allow-

1 The parameter is based on syntactic properties according to Longobardi (1994), and on semantic properties in the case of Chierchia (1998), but the difference is not relevant here.

2 The grammaticalization of definite and indefinite articles is independent from each other, as there are languages with definite articles but no indefinite ones (e.g., Icelandic), as well as languages with no definite but indefinite articles (e.g., Turkish).

ing bare plural and mass nouns for generic reference (Lyons 1999; Epstein 1994). According to Lyons (1999: 337) the spread of definiteness marking by means of articles into the generic function can also be observed for other languages. Italian, Greek and Portuguese use the definite article even more than French. Lyons (1999: 337) proposes the following hierarchy:

Table 1: Grammaticalization hierarchy proposed by Lyons (1999: 337).

Step	Language	Use of the definite article
1	English	simple definite
2	French	simple definite, generic
3	Italian	simple definite, generic, possessive
4	Greek	simple definite, generic, possessive, proper noun

The Romance languages (particularly French, Italian and Portuguese) exhibit the most grammaticalized article systems. In English, singular generics, and even plural count and mass generics can be preceded by definite articles as well (e.g., *the Germans are pedantic*), but the range of contexts for such "definite subjects" is extremely limited. Examples like these may be taken to suggest that English is in the process of spreading definiteness into the generic function. Another indicator of an advanced stage of definite article grammaticalization is its use with possessive pronouns, as found in Italian, e.g., It. *la mia casa* (the my house) 'my house'. Moreover, some varieties of Italian, similar to Portuguese, use articles also before proper nouns (PNs), e.g., It. *la Maria* (the Mary) 'Mary' (Longobardi 1994). Lyons (1999) saw these facts as an indication that Italian may be moving in the direction of Greek, where articles are obligatory with PNs. Germanic languages are considered not to have progressed as far on the grammaticalization scale because they allow subjects without articles (henceforth "bare subjects") (Harris 1980; Lyons 1999; Longobardi 2001). Like English, German does not allow article use with possessive pronouns neither in written nor in spoken varieties, e.g., **das/ein mein Haus* (the/a my house). French patterns with German in this case, e.g., **la/une ma maison* (the/a my house).

As Lyons (1999) points out, the scale illustrated above may not represent a universal implication in the strict sense, i.e., a series of diachronic stages languages necessarily pass through. Nevertheless, it is plausible to assume that a language starts using the article with PNs only when it already makes extensive use of the article in other contexts. According to Leiss (2000: 196, 274), article use with PNs can be seen as the last stage of definite article grammaticalization.

The existence of definite articles with PNs in some varieties of German suggests that German is a particularly interesting case: according to the hierarchy, the use of the definite article in generic plural subjects would be expected, which is not necessarily the case.

The present study relates to these issues on article grammaticalization because the use of the definite article in generic subjects is generally considered to be an indicator of a relatively advanced degree of article grammaticalization. The paper is structured as follows: Section 2 summarizes cross-linguistic differences in article use in the expression of genericity and relevant facts concerning variation in definite article use, focussing on Germanic and Romance. Section 3 presents our empirical study on definite article use in generic plural expressions in monolingual German speakers followed by our results in Section 4. Finally, we analyze our results in the discussion and conclusion in Sections 5 and 6.

2 Definite articles with plural generics

Generic expressions denote regularities in the world. Krifka et al. (1995) differentiate generic noun phrases (i.e. kind NPs) from generic sentences (i.e. *characterizing sentences*) as follows: "[...] with kinds we abstract away from particular objects, whereas with characterizing sentences we abstract away from particular events and facts." (Krifka et al. 1995: 4) The linguistic means to express such generalizations about entire classes of objects or facts varies across languages (see Vergnaud and Zubizarreta 1992; Longobardi 1994; Longobardi 2001; Chierchia 1998 comparing English and Romance languages). Although there is no particular morphological feature which functions as a generic marker (Lyons 1999: 179), the generic meaning can normally be inferred from the structure of the subject noun phrase, the context and the meaning of the predicate (see Krifka et al. 1995: 8–14 for diagnostic tests for genericity).

Generic reference can be reinforced by the use of lexical devices, e.g., frequency adverbs, such as *typically* and *generally* (Lyons 1999: 179), as in *Tigers are generally dangerous*. Adverbs like *usually* emphasize the fact that there might be exceptions to the rule (Krifka et al. 1995: 9). The comparison of (1a) and (1b) shows that the insertion of *usually* in a sentence with an individual-level predicate results in a minor difference in meaning; (1a) allows for exceptions more readily than (1b):

(1) a. *Tigers are usually striped.*
b. *Tigers are striped.*[3]
c. *The tigers are usually striped (but today they wear a yellow shirt which hides the stripes).*

Note that an adverb is no generic marker in itself, as it can also occur with a specific definite subject, as in (1c). Plural utterances with kind-level predicates like *be extinct*, despite being generic, are incompatible with frequency adverbs because they do not allow exceptions (Duden 2009).

As demonstrated, article use has mainly been contrasted in English and Romance languages. Since German differs from English by being more tolerant with regards to generic definite plural subjects, it is necessary to compare German to English and Romance languages. The following section compares the distribution of the definite article in generic plural expressions in Romance and Germanic languages since we are interested in whether German exhibits more similarities with English or Romance. We will first discuss generic sentences with individual-level predicates before turning to kind-level predicates.

2.1 Individual-level predicates

Individual-level predicates express a property that can be assigned to single members of a species (see Carlson 1977; Kratzer 1995; Chierchia 1998). As shown in Table 2, Italian and French subject nominals in the plural must be preceded by an article, while bare nouns are ungrammatical. The Romance examples (b, d) in Table 2 are semantically ambiguous as they can refer to beavers/lions in general (generic reference) or to specific beavers/lions (e.g., beavers in the local zoo). Despite this ambiguity, experiments with L1 speakers of Spanish and Italian show that adult speakers of Romance languages have a strong tendency to interpret definite subjects as generic, even if they are presented in ambiguous contexts in which specific and generic readings are available (81% generic interpretations in Montrul and Ionin 2010, 72% in Pérez-Leroux et al. 2004 and Kupisch and Pierantozzi 2010).

3 Note that bare plural subjects in English also allow a non-generic reading. For example, by changing *are striped* to *are playing under the tree*, the sentence in (1b) becomes existential.

Table 2: Article use with individual-level predicates in some Romance and Germanic languages (default readings underlined).

Language	Bare	Semantics	Definite	Semantics	Reference
ROMANCE					
Italian	a. ***Castori** sono intelligenti.[4]	–	b. **I castori** sono intelligenti.	Generic/ Specific	(b) from Brugger (1993: 12)
French	c. ***Lions** savent grimper aux arbres.	–	d. **Les lions** savent grimper aux arbres	Generic/ Specific	Devos et al. (1991: 43)
GERMANIC					
English	e. **Tigers** are dangerous	Generic	f. **The tigers** are dangerous	Specific	
German	g. **Biber** bauen Dämme.	Generic	h. **Die Biber** bauen Dämme.	Generic/ Specific	Longobardi (1994: 653)

In English, generic nominals must be bare: "English never tolerates the use of the definite article with plural and mass generics [...]." (Longobardi 1994: 653)[5] For example, English bare subjects can be interpreted as generic, referring to tigers in general rather than to specific tigers (see Table 2). The definite subject in the English example (f) is not ungrammatical, but it refers to a specific group of tigers rather than tigers in general. Unlike the equivalent Romance sentences, it is not ambiguous. To our knowledge, no variety of English allows a generic interpretation for sentences like those like (f) in Table 2. Nevertheless, under experimental conditions, monolingual English adult speakers have been found to allow generic interpretations of definite subjects exceptionally (e.g., 8 % in Montrul and Ionin 2010 and 10 % in Kolb 2014[6]).

German differs in article use from the Romance languages, but it does not seem to pattern with English either. According to the overview in Table 2, German resembles English in allowing both bare and definite subjects. However,

4 According to an anonymous reviewer, *Castori sono intelligenti* is not ungrammatical. We are not aware of any references in the literature supporting this claim, but it is important to keep in mind that there are minor exceptions to most of the generalizations we are making. For example, bare plural subjects are possible in Italian when they are made extra-heavy by modification (e.g., Chierchia 1998, and see Slabakova 2006 for further examples).

5 Since our study deals with plural count nouns, we will refer to mass nouns only marginally.

6 Kolb gives an in-depth analysis of the results of Kolb (2014) in her dissertation "Child second language acquisition of generic determiner phrases: A study on L2 French and L2 German" (work in progress, University of Cologne).

the German example with an article in (h) is ambiguous, unlike its English equivalent in (f), but comparable to the definite generic subjects in Romance in (b, d). The standard reference Grammar of German (*Duden – Die Grammatik* [Duden 2009]) identifies bare nouns as the default structure for generic plural nominals (Duden 2009: 296), which mirrors the case of English (see example [g]). All examples for generic sentences with individual-level predicates consist of bare nouns, but in some cases definite generic subjects are given as an additional option (Duden 2009: 295–298). Longobardi (1994) notes that "in many varieties of German" bare and definite subjects are interchangeable in generic expressions since "the article is possible with generics" (Longobardi 1994: 653–654) (see examples [g] and [h]). This suggests that bare subjects are the default in German, but some (not further specified) varieties of German allow definite articles as well. According to Oosterhof (2004, 2008), Standard German allows articles with plural count nouns but not with mass nouns, whereas many non-standard varieties of German allow definite articles before plural count *and* mass nouns (Oosterhof 2004: 16).[7] He explicitly points to a difference between Standard German and non-standard varieties, but only with respect to mass nouns, not plural count nouns. Brugger (1993) claims, similar to Longobardi (1994) and Oosterhof (2004), that both bare and definite subjects can have generic reference in German. With respect to individual-level predicates, he assumes that definite subjects in German are like definite subjects in Italian, showing ambiguity between a specific and a generic interpretation (Brugger 1993: 12). He does not prioritize one interpretation over the other.

Empirical evidence of the expression of generic reference in German has only been provided as part of control data in (bilingual and second) language acquisition studies, so far. Monolingual adult speakers of German allow more generic readings with potentially ambiguous sentences than English speakers, but fewer than speakers of Romance languages (30 % in Kupisch and Pierantozzi 2010, 21 % in Kolb 2014).[8] Adult simultaneous bilinguals (German-French

7 He refers to Standard German in terms of "High German", but we assume that he takes the two terms to be equivalent.

8 In both studies many speakers (even children) explicitly commented on the availability of both readings in German, although they were not asked to do so. In other words, they allowed a generic and a non-generic interpretation for nominals with definite articles. Similar results of 29 % of generic readings in a German TVJT with comments on the ambiguity of the definite structure were found by Barton in her dissertation "Generische Nominalphrasen bei deutsch-französischer Zweisprachigkeit: Zur Verwendung des Definitartikels bei erwachsenen Herkunftssprechern" (submitted to the University of Hamburg).

and German-Italian) tolerate generic readings with definite subjects in German more often when they are dominant in their Romance language, compared to when they are dominant in German, which points to an influence from Romance (Kupisch and Barton 2013).

2.2 Kind-level predicates

All the empirical studies reviewed above included individual-level predicates, but not kind-level predicates. Kind-level predicates (such as *be extinct*, *be rare*, *be widespread*) cannot refer to single individuals. They force subject NPs to refer to well-established kinds. The predicate *be extinct* in Table 3 is a kind-level predicate, as individual dinosaurs cannot be extinct. In the Romance languages, generic subjects with kind-level predicates require the definite article in order to be acceptable (like those with individual-level predicates). However, these kind NPs are unambiguously generic (unlike those with individual-level predicates, as shown in Table 2). In English, by contrast, bare subjects obtain a kind reading; use of a definite article is infelicitous here because sentences containing a kind-level predicate do not allow specific readings (unlike sentences with individual-level predicates, see Table 2).

According to Krifka et al. (1995: 68), in kind subjects in German, "mass nouns, and, to a somewhat lesser extent, plural count nouns *can* employ the

Table 3: Article distribution with kind-level predicates in some Romance and Germanic languages.

Language	Bare	Semantics	Definite	Semantics	Reference
ROMANCE					
Italian	a. ***Dinosauri** sono estinti.	–	b. **I dinosauri** sono estinti.	Generic	
French	c. ***Dodos** sont éteints.	–	d. **Les dodos** sont éteints.	Generic	Krifka et al. (1995: 68)
GERMANIC					
English	e. **Dinosaurs** are extinct.	Generic	f. #**The dinosaurs** are extinct.	–	(f) from Krifka et al. (1995: 93)
German	g. **Pandabären** sind vom Aussterben bedroht.	Generic	h. **Die Pandabären** sind vom Aussterben bedroht.	Generic	Krifka et al. (1995: 68)

definite article" [emphasis ours]. This again suggests that there is optionality, and that the definite article is not the default with plural count nouns. In their overview, Krifka et al. (1995: 68) only refer to German kind-level predicates (see Table 3). They do not postulate any semantic differences between bare and definite subjects, nor do they specify the contexts or varieties in which German article use is optional. In line with Krifka et al. (1995), Dayal (2004) claims that in German both definite and bare subjects can refer to kinds, yet without providing new empirical evidence. She refers to German as a "mixed type [between English and Romance] in allowing plural kinds to be definite or bare" (Dayal 2004: 397), with no differences in semantics. According to the German standard reference Grammar, generic utterances with kind-level predicates appear with the definite article by default (in contrast to individual-level predicates, see 2.1); bare subjects are an additional option (Duden 2009: 296). According to Brugger (1993: 5), "English bare plurals can denote kinds; German ones cannot." He claims that the German definite article is necessary when referring to the whole kind; bare subjects can only refer to a subspecies.[9] In this respect, Brugger differs from Krifka et al. (1995), who do not assume semantic differences in kind NPs with/without the definite article (see Table 3).

In summary, there have been several claims in the literature that the use of definite articles is variable with generic expressions in German, but they are only partially substantiated by empirical data and differ vastly when it comes to details. It therefore remains unclear which factors determine this variation. In this contribution, we investigate to what extent predicate choice, adverb use and certain sociolinguistic factors could determine variation.

2.3 Article use with proper names in German

Article use with proper names (PNs) in German has been investigated in more depth than with generics so far, and may therefore indicate relevant factors determining article distribution at more advanced stages of grammaticalization. According to Longobardi (1994), German allows PNs with a definite article without any change in meaning:

9 Two anonymous reviewers do not agree with Brugger's judgment of bare nominals with kind-level predicates. To both of them, bare nominals with kind reading are perfectly fine. We agree with the reviewers. To one reviewer, definite marked nominals are awkward (native speaker of German).

(2) a. *Hans ist angekommen.*
Hans is arrived
b. *Der Hans ist angekommen.*
The Hans is arrived
'Hans arrived.'
(Longobardi 1994: 653)

Longobardi (1994: 654) also claims that this is true for certain dialects of German, but he does not specify these dialects any further. According to the German reference grammar, Standard German requires bare PNs (Duden 2009: 299), while in spoken German, PNs with definite articles are spreading from Southern and Northwestern Germany towards other regions: PNs with articles have recently even been used in particular written contexts, such as internet fora, e.g., *Hallo, ich bin die Anna* ... (Hello, I am *the* Anna) (Duden 2009: 301).

There have been several empirical studies of regional constraints on PNs with definite articles in German (Bellmann 1990; Eichhoff 2000; Werth 2014; Werth in press). Bellmann (1990) and Eichhoff (2000) collected data from younger adults (below age 30), comparing different regions in Germany. Based on his study, Bellmann (1990) proposes that Germany can be divided into three major areas with respect to article use with PNs: Speakers in the South and some West Central German areas (e.g., Stuttgart, Mainz and Köln) have a strong preference for definite articles; speakers in Northern German cities (e.g., Hamburg and Berlin) prefer bare PNs; speakers in the rest of Central Germany show no clear preference for any of the two options. In Northern Germany variation depends on grammatical and contextual factors; e.g., the definite article is not accepted in contexts of self-reference (e.g., "I am *the* Anna" when answering the phone) and when introducing someone to a third person. Moreover, the definite article is accepted more often in combination with the dative than the accusative case. Bellmann concluded that in contemporary German (in the 1980s), PNs are accepted with or without the article (Bellmann 1990: 281). Eichhoff (2000) found similar differences between Northern Germany, where the article is hardly ever used before PNs, and Mid-German and Southern regions, where it is almost always used.

Werth (2014, in press) focuses on varieties in Hessen (Midwest) and Northern Germany. Similar to Bellmann (1990) and Eichhoff (2000), he shows that Northern German speakers preferred bare PNs (84 %) over definite PNs (Werth 2014), whereas the majority of speakers in the Hessen-area (79 %) preferred PNs with a definite article (Werth in press). No community in Hessen rejected PNs with articles across the board, but speakers from Southern Hessen allowed definite PNs more often than speakers from Northern Hessen. Similar to the Hessen-

study, Werth (2014) found that in the Northern parts of the investigated Northern German area, definite PNs occurred less often than in its Southern parts. Werth concludes that article grammaticalization is more advanced in Southern Hessen than in Northern Hessen (Werth in press) and that within Northern Germany, different areas have reached different stages of article grammaticalization (Werth 2014: 170).

The aforementioned studies included data from several age groups. Werth (2014) found that in the North speakers around 20 years of age used definite PNs significantly less (2%) than speakers above the age of 45 (9%). In his study, most of the youngest speakers (around 20 years of age) were not users of a regional variety. Werth (2014: 148–149) proposes that there is a correlation between age and amount of regiolect/dialect use, which appears to contradict Bellmann's study, according to which younger speakers accept definite PNs more readily (Bellmann 1990: 278).

All aforementioned studies on PNs show regional constraints on article use, with Northern German varieties being more conservative than Southern and Western parts of Germany. Age appears to play a major role.

2.4 Summary and research questions

In summary, for definite marked plural nouns, L1 Romance speakers prefer a generic reading, while L1 English speakers hardly ever allow generic readings. L1 German speakers allow more generic interpretations than L1 English speakers but fewer than L1 Romance speakers.

In many Romance languages, as exemplified by Italian and French, generic expressions require a definite subject with both individual-level and kind-level predicates. In sentences with individual-level predicates, the NP structure is semantically ambiguous between a generic and a specific reading. In English, by contrast, plural generics are formed with a bare subject noun with both individual-level and kind-level predicates. For German, the theoretical literature assumes that definite articles are optional in generic sentences with individual-level predicates (Longobardi 1994; Oosterhof 2004; Brugger 1993), and with kind-level predicates (Krifka et al. 1995; Dayal 2004).

In short, there is some evidence that speakers of German accept definite plural subjects with a generic reading but the dimensions of article spread in this context are not yet fully explored. In studies with PNs, whose distribution might resemble that of generic definites, age and regional origin (i.e. the amount of regiolectal speech in the input and in production) were shown to have an effect on article use in studies with PNs. Cross-regional differences

with respect to article use have already been discussed in the context of article grammaticalization.

So far, there is no systematic study on article use with generics testing monolingual speakers in German. Based on the aforementioned observations, the present study will address the following questions:

[I] To which degree is article use in generic utterances in German optional, and what is the role of the following factors?
  i) Individual-level predicates vs. kind-level predicates;
  ii) presence vs. absence of frequency adverbs;
  iii) sociolinguistic constraints, specifically age, regional origin, education and knowledge of foreign languages.

[II] How do our results relate to theories of article grammaticalization?

3 Study on article use with generic plural nominals

The data collection was carried out in 2011. Each participant completed a questionnaire about his/her (socio)linguistic background and an acceptability judgment task (AJT). The questionnaire assessed information on age, gender, regional background (including the participants' parents' regional background), foreign language skills and educational background.

3.1 Participants

The participants were native speakers of German (n = 54) who grew up monolingual with German-speaking parents. At the time of testing, they were between 19 and 62 years old (M = 37.4 years); 17 male and 37 female. The participants were recruited in five regions in Germany (see Table 4) that they had never left for more than six months before the age of 18. All spoke Standard German and some had additional knowledge of the regional variety. At the time of testing, all but two were still living in the area in which they grew up. These two participants (20 and 44 years old) could not be assigned to a specific region because they had moved within Germany during their childhood.

Table 4: Overview of the participants' regional backgrounds.

Region (Localization)	*n*	Mean Age (years)	Age min-max (years)
Hamburg (North)	11	34.1	22–49
Berlin (East)	9	33.9	25–45
Köln (West)	6	22.0	19–25
Rhein-Main[11] (West)	15	50.1	24–62
Freiburg (South-West)	11	35.7	24–61

The participants' educational background included (i) lower education ("Haupt-/Realschule") with a subsequent apprenticeship (n = 13; henceforth: low education), (ii) high school ("Abitur") and a subsequent apprenticeship but no university degree (n = 6; henceforth: medium education) and (iii) university (n = 35; henceforth: high education). We also assessed their foreign language proficiency, since we wanted to find out whether high proficiency in one or several second languages (L2s) can affect their judgments on definite article semantics. According to self-reports, the speakers did not acquire an L2 before the age of 10, and all participants were most proficient in German.[11] In terms of their self-rated L2 proficiency, they can be divided into three groups: (i) advanced or near-native speakers only in L2 English (n = 30), (ii) advanced or near-native in L2 English and in a Romance L2 (n = 8), (iii) low-proficiency in any L2 (n = 14). The reason for this division was the assumption that highly proficient L2 English learners might show cross-linguistic influence from English, which would result in a relatively lower acceptance rate of the definite article, while low L2 proficiency might not have any influence on linguistic judgments. With respect to the group that is highly proficient in English and a Romance language, we have no specific expectations (e.g., it is possible that there are influences from both languages which cancel each other out, or that this group differs from the others due to higher metalinguistic awareness), which is why we keep them as a separate group. Two participants did not match any of the predefined categories; one was more advanced in Romance than in English, and one did not learn any L2. These two will be excluded in the analysis of L2 proficiency.

10 Data from the two cities Hanau and Mainz, which are geographically close, were merged to form the group "Rhein-Main".

11 We consider any foreign language acquired after the age of 10 as an L2, even if it was the speaker's third or fourth language.

3.2 Acceptability judgment task

The acceptability judgment task (AJT) consisted of 36 items: 18 test sentences and 18 distractors. All test sentences were preceded by a context which biased them towards a generic interpretation (e.g., *Jedes Kind weiß* ... 'Every child knows ...'). Two different types of test sentences were included.

The first type of test sentence was constructed with individual-level predicates (n = 12, see examples in [3]). Among these, four included bare subject nominals (3a) and (3b), and eight included subject nominals with a definite article (3c) and (3d).[12] Test sentences including individual-level predicates were further distinguished in terms of whether they included an adverb cueing the generic reading (such as *im Allgemeinen* 'in general' or *normalerweise* 'normally', n = 4), as in (3b) and (3d), or no further cue (n = 4), see (3a) and (3c).

(3) a. *Kaninchen sind Einzelgänger.*
rabbits are loners
'Rabbits are loners.'

b. *Schafe sind normalerweise weiß.*
sheep-PL are normally white
'Sheep are normally white.'

c. *Die Pferde sind Herdentiere.*
the-PL horses are gregarious animals
'Horses are gregarious animals.'

d. *Die Haie sind normalerweise gefährlich.*
the-PL sharks are normally dangerous
'Sharks are normally dangerous.'

The purpose of adding frequency adverbs was to find out whether the presence of an adverbial cue in sentences including subjects with generic reference had an influence on the acceptance or rejection of the article.

The second type of test sentence included kind-level predicates (n = 6). Half of them were constructed with definite subjects and the other half with bare subjects (4a) and (4b). The reason for including more items testing article

12 As for the number of bare vs. definite nominals, we suspected that the former would never be corrected, while the latter might be corrected into bare nominals. Had we used a higher portion of bare nominals, and under the assumption that definite nominals would also be accepted, the result would have been a comparatively high portion of sentences that were perceived to sound fine (likely far more than 50 %).

use with individual-level predicates than with kind-level predicates was that we were primarily interested in the former, which had been discussed more often in the literature (albeit without providing empirical evidence for German). We nevertheless included sentences with kind-level predicates to control whether speakers showed different patterns of article use in the two types.

(4) a. *Blauwale sind vom Aussterben bedroht.*
Blue whales are of-the extinction threatened
'Blue whales are facing extinction.'

b. *Die Eisbären sind vom Aussterben bedroht.*
the-PL polar bears are of-the extinction threatened
'The polar bears are facing extinction.'

There were four types of distractors, targeting comparatives (5a), case (5b), gender (5c) and pronoun reference (5d). All of them were preceded by a context sentence, similar to the test items, and three represented phenomena whose acceptability is subject to variation depending on colloquial habits, but not appropriate in Standard German, see the examples in (5a)–(5c). They were roughly balanced with respect to acceptability in Standard German.[13]

(5) a. Comparatives (n = 4)
*Trotzdem ist Katja größer *wie Tatjana.*
Nevertheless is Katja taller as Tatjana
'Katja is nevertheless taller than Tatjana.'

b. Dative/genitive case (n = 4)
*Für mich war es trotz *den Regenmonate*n ein schönes Jahr.*
For me was it despite the-DAT rainy months-DAT a nice year
'Despite of the rainy months, for me it was a good year.'

c. Gender of articles preceding foreign nouns (n = 4)
**Die Mozzarella war schon letztes Jahr abgelaufen.*
the-FEM mozzarella cheese was already last year expired
'The mozzarella cheese had already expired last year.'

13 The number of acceptable vs. non-acceptable items depends on regional varieties.

d. Pronominal reference (n = 6)
*Kathrin hat einen Kuchen gebacken. *Sie schmeckt gut.*
Kathrin has a-MASC cake-MASC baked. *She tastes good
'Kathrin baked a cake. It is tasty.'

The items testing pronoun reference (5d) controlled whether participants paid attention to the preceding context, which was also crucial for our task. These items are not acceptable, irrespective of regional or spoken varieties.

3.3 Procedure

All participants were tested individually. Instructions were given by a native speaker of German in Standard German. Participants were told that they would hear and read a series of sentences. They were instructed to judge each sentence and repeat it if they thought it was a well-formed sentence or to correct it if it did not sound like a well-formed sentence to them.[14] They were also told to respond quickly and spontaneously. There was a training period with three examples of phenomena that were unrelated to article use and showed variation in spoken German (e.g., *Julia hat sich als Einzigste gut vorbereitet*. 'Julia was the only one well prepared.', where Standard German requires the form *Einzige*). The purpose of these examples was to ensure that participants understood the task and to sensitize the participant to the fact that some sentences might be used in particular varieties, although they would be judged as deviant from Standard German. We encouraged the participants to judge the sentences with respect to their own spoken variety, and told them explicitly that this test was not intended to investigate their knowledge of Standard German. There were two pseudo-randomized test versions, which differed in the order in which stimuli were presented. Half of the participants took version 1, the other half version 2. Stimuli were presented acoustically and visually by means of an MS Office PowerPoint® presentation on a computer screen. Test sentences appeared in yellow, context sentences in white. The participants were told that only the sentences in yellow had to be repeated or corrected. The test sequence was audio-taped and for the analysis the responses were double-checked independently by two of the authors.

14 The participants were asked to judge the sentences according to their speaking habits, rather than according to the rules of Standard German or those of their regional dialect. (And not all speakers were fluent in a dialect.)

4 Results

In what follows, we present the acceptance rates for bare and definite subjects, taking into account the type of predicate involved (individual- vs. kind-level) and the presence of adverbs (e.g., *im Allgemeinen* 'in general', *normalerweise* 'normally') (4.1), and sociolinguistic factors such as age, regional origin, educational background and knowledge of foreign languages (4.2). The results are summarized in 4.3.

4.1 Article use in generic subjects: Type of predicate and presence of adverbial cues

Figure 1 shows the relative number of times participants accepted definite and bare subjects in all 18 generic sentences. As expected, bare subjects were accepted almost 100 % of the time (*SD* = 2.96 %). Out of 373 sentences with kind-level and individual-level sentences (with and without adverbial cues), only two bare nominals were rejected and changed to nominals with definite articles. While subject nominals with definite articles were predominantly accepted as well, mean acceptance rates (*M* = 67.7 %) are significantly lower than those for bare subjects (paired t-test, $t[53] = 7.303$, $p < .001$). There is considerable individual variation (*SD* = 31.64 %).

Figure 2 shows within-group variation in the acceptance of definite subjects with kind-level sentences ($n = 3$) and individual-level sentences ($n = 6$). Senten-

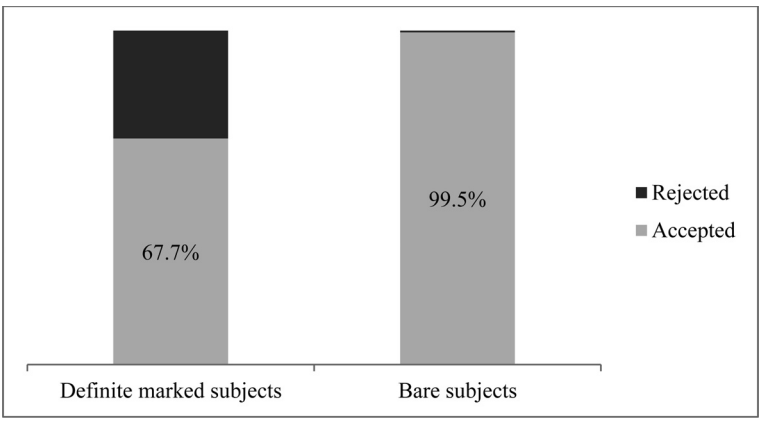

Figure 1: Acceptance and rejection (mean) of definite vs. bare subjects with generic reference.

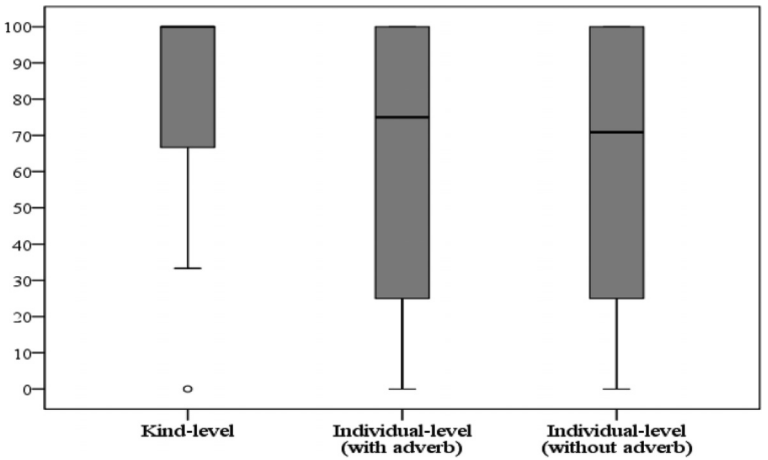

Figure 2: Acceptance (%) of definite subjects with generic reference in three item subtypes.

ces with individual-level predicates are divided further into the two subconditions "with adverb" (n = 3) and "without adverb" (n = 3). The boxplots show individual variation in all three item types with participants accepting between 0 %–100 % of the sentences.

Figure 2 shows that the acceptance rate of definite articles is relatively high in all three subtypes. Participants responded more consistently in the kind-level condition than in the two individual-level conditions. The acceptance of definite articles in the conditions "individual-level (with adverb)" and "individual-level (without adverb)" does not differ significantly (paired t-test: t[53] = .844, p > .1). In the following table we will therefore merge these two subcategories into one ("individual-level"). Table 5 illustrates the mean acceptance rates of definite subjects and standard deviations with kind-level and individual-level predicates, showing higher acceptance rates in the kind-level condition (M = 84.9 %) than in the individual-level condition (M = 61.9 %).

A paired t-test confirms a highly significant difference between kind-level and individual-level conditions for article acceptance (t[53] = 5.877, p < .001).

Table 5: Acceptance of definite subjects in sentences with kind-level and individual-level predicates.

	Kind-level	Individual-level
Mean	84.9 %	61.9 %
SD	24.5 %	36.2 %

In what follows, we will therefore continue to distinguish between the kind-level and individual-level condition.[15]

4.2 Sociolinguistic factors: Age, regional background and education

Female and male participants did not differ significantly in article acceptance, neither in the kind-level nor in the individual-level condition. With respect to age, we compared four groups (see Table A in the Appendix for more details). Figure 3 shows the average article acceptance for each of these groups, comparing kind- and individual-level condition. As in the overall comparison, all groups accepted more articles in the kind-level condition than in the individual-level condition. The difference in article acceptance between these two conditions declines with age. Paired t-tests suggest that only the two younger speaker groups differentiate significantly between article use with kind-level and individual-level predicates (for 19–29 year olds: $t[21] = 4.349$, $p < .001$; for 30–39 year olds: $t[9] = 3.641$, $p < .01$).

Furthermore, older participants accepted more definite subjects than younger participants. A univariate analysis (ANOVA) reveals significant differences between the four age groups, both in the kind-level condition ($F[3, 50] = 3.05$, $p < .05$) and in the individual-level condition ($F[3, 50] = 4.590$, $p < .01$). A

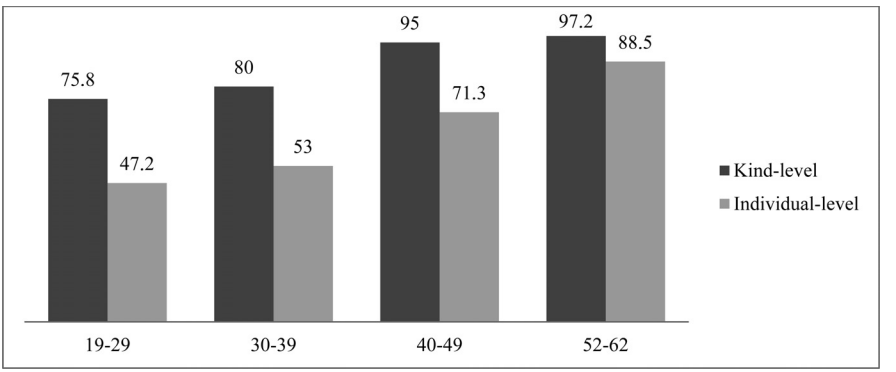

Figure 3: Mean values (in %) in definite article acceptance in the four age groups.

15 According to an unpaired t-test, the order of presented items (i.e. version 1 and version 2) did not have a significant effect on article acceptance, neither in the kind-level condition nor in the individual-level condition.

Table 6: Acceptance of definite subjects in generic utterances across regions in 19–49 year olds.

	n	Kind-level	Individual-level
Hamburg	11	80.3 %	42.5 %
Berlin	9	90.7 %	69.4 %
Köln	6	63.9 %	54.2 %
Rhein-Main	6	91.7 %	77.1 %
Freiburg	8	77.1 %	35.9 %
Total	40	81.3 %	54.2 %

post hoc test shows that a significant difference exists only between the youngest and the oldest participant groups in both the kind-level condition ($p < .05$) and the individual-level condition ($p < .05$).

Given that the results showed increasing tolerance of article use with age, we took age into account when investigating the role of regional backgrounds. This analysis included only participants aged 19 to 49 years ($n = 40$). The 12 participants older than 49 years were all part of the Rhein-Main group and the Freiburg group. Therefore, exclusion of participants between 52–62 years results in changes of the mean values only in these regions. Table 6 confirms previous analyses, showing differences in each regional subgroup between the kind- and individual-level conditions. In addition, there appear to be regional differences in the overall rate of article acceptance. However, the variation across regions does not appear to be systematic, e.g., the Hamburg group (Northern Germany) and the Freiburg group (Southern Germany) look similar in accepting fewer definite articles than, e.g., the Rhein-Main group (West Central Germany).

Among the 19–49 year olds, an ANOVA shows no significant differences with respect to regional background, neither in the individual-level condition ($F[4, 35] = 1.966$, $p > .1$) nor in the kind-level condition ($F[4, 35] = 1.223$, $p > .1$). Figure 4 shows similar acceptance rates across the 19–49 year old participants in the five regions tested for sentences with individual-level predicates.

As outlined above, the 54 participants fall into three categories with regard to education: low, medium and high. Figure 5 shows that the group with the lowest educational background accepted the highest number of definite articles ($M = 100\,\%$ in the kind-level condition, $M = 92.3\,\%$ [$SD = 14.9\,\%$] in the individual-level condition). A univariate ANOVA and a subsequent post hoc test confirm that this group differs significantly from the group with the highest education in the kind-level condition ($F[2, 51] = 3.657$, $p < .05$) and in the individual-level

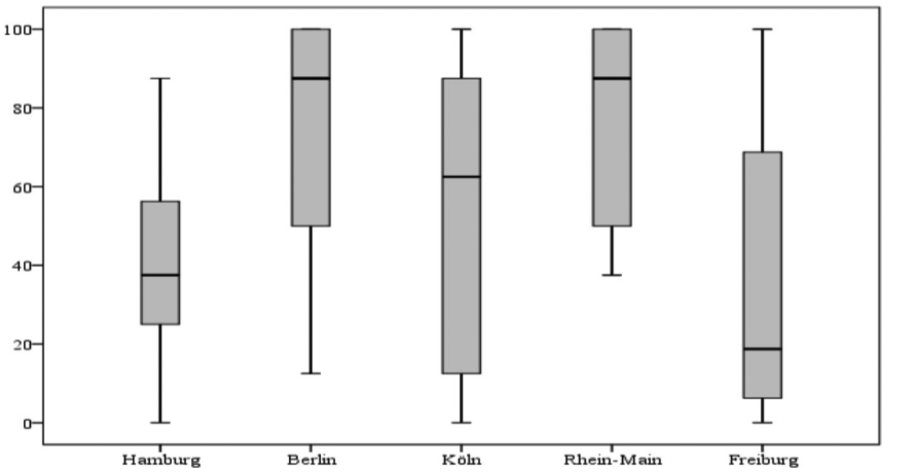

Figure 4: Acceptance (%) of definite subjects with generic reference (with individual-level predicates) across five regions in 19–49 year olds.

condition ($F[2, 51] = 7.620$, $p < .05$). No significant differences were found between participants with medium and high education, or between those with lower and medium education.

Again, speakers in the low education group, who accepted the highest number of definite articles, correspond to the oldest participants ($M = 51.9$ years), compared to participants with medium and high education ($M = 32.0$ and $M = 32.9$ years respectively). Nevertheless, even when the oldest age group (above 49 years) is excluded, the differences between the low and high educa-

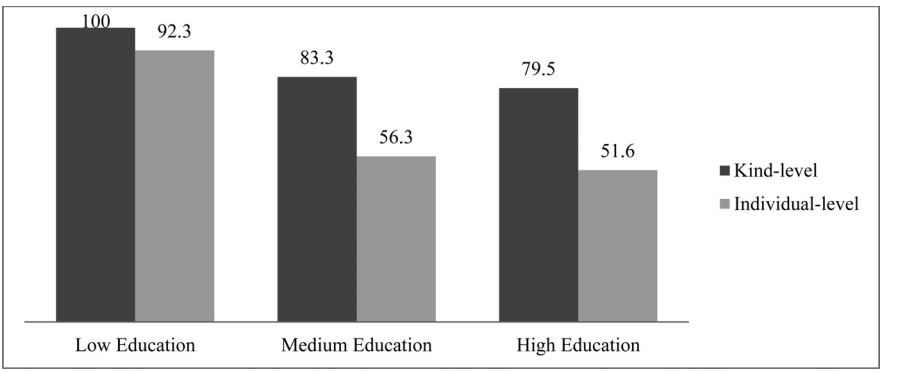

Figure 5: Mean values (in %) in definite article acceptance depending on educational background.

tion groups (mean acceptance then 97.5 % and 47 % respectively) remain statistically significant in the individual-level condition (ANOVA with a subsequent post hoc test, $F[2, 39] = 4.885$, $p < .05$).

Finally, we investigated whether high proficiency in one or several L2s influenced the acceptance of definite articles. All participants (n=52) had acquired English as an L2 but claimed to speak it at different levels. Recall that participants were divided into three groups based on their self-rated L2 proficiency in English and/or Romance languages. In the kind-level condition, there is no significant difference between these three speaker groups (see Table B in the Appendix for all mean values). In the individual-level condition, the difference between article acceptance in the group "L2 English advanced" (M = 48.5 %) and the group "no advanced L2" (M = 83.9 %) is significant (ANOVA with a subsequent post hoc test, $F[2, 49] = 5.472$, $p < .05$). In other words, advanced and near-native speakers of L2 English accepted fewer definite subjects in their L1 German than the participants with low proficiency in foreign languages. However, the group with advanced proficiency in L2 English was significantly younger (M = 33.9 years old) than the group with no advanced L2 proficiency (M = 46.9 years old). When the oldest age group is excluded, differences in article use based on L2 proficiency are no longer significant in individual-level sentences (ANOVA, $F[2, 38] = 2.704$, $p > .05$).

4.3 Summary of results

The analysis has shown that in generic sentences, adult speakers of German accept bare subjects 99.5 % of the time, with no difference between kind- and individual-level predicates. At the same time, they also accept definite subjects (67.7 % of the time), albeit with some variation across speakers. Among definite subjects, there was a clear difference between kind-level sentences (acceptance rate around 85 %) and individual-level sentences (acceptance rate around 62 %). The presence of frequency adverbs had no impact.

We further investigated whether age, regional background, education and L2 proficiency determine article acceptance in generic sentences. Older speakers (aged 52–62) accepted significantly more articles than younger speakers in both the kind-level and the individual-level condition. When this group was excluded, effects of age, sex, regional origin, or L2 proficiency ceased to be significant. Education remained a predictor of article use irrespectively of whether the oldest age group was included or not: speakers with the lowest education accepted significantly more articles than the groups with medium and high education.

5 Discussion

Our study was based on two major research questions concerning optional definite article use in generic utterances in German and its relation to article grammaticalization scales that had previously been proposed in the literature (e.g., Lyons 1999).

Bare subjects were accepted 100 % of the time but definite subjects with generic reference were also accepted 68 % of the time, though with a considerable standard deviation of 32 %. Our results thus indicate that both bare and definite subjects are acceptable in the expression of generic reference in German, suggesting optional article use in these contexts. While the use of frequency adverbs such as *usually* did not influence acceptance rates for definite subjects, definite subjects were accepted more readily with kind-level predicates than with individual-level predicates (85 % and 62 % respectively). Moreover, the amount of individual variation was lower in sentences with kind-level predicates than in sentences with individual-level predicates. As for these latter findings, we can only speculate about possible explanations. It is easy to see how a sentence with an individual-level predicate like *Tigers are striped* can potentially be applied to every single member of this class. By contrast, a sentence like *Dinosaurs are extinct* refers to the entire (total) kind, and cannot be applied to single members of this kind. Totality has been identified as a possible component of definiteness (Hawkins 1978). Since subjects of kind-level predicates do not allow for exceptions to the respective kind, they may be perceived more clearly as "definite" compared to subjects of individual-level predicates. Given that totality is strongly associated with definiteness, speakers may be more likely to use definite subjects with kind-level predicates than with individual-level predicates. Our test was not ideally balanced with regard to kind vs. individual-level predicates, partially because we included additional factors and tried to limit the total number of items to prevent fatigue effects. Ideally, future studies should be designed with a stricter focus on the role of the predicate choice.

Among the sociolinguistic factors we tested, age appeared to be most important: speakers above 49 years accepted more definite subjects than younger speakers. However, our sample was not perfectly well balanced regarding the participants' age-range across regions. While data from all regions included speakers aged 19–49, only the data from Rhein-Main and Freiburg included speakers aged 52–62. This age difference is of relevance since previous research on PNs has shown that definite article grammaticalization is most advanced in these Southwestern and Southern regions (e.g., Bellmann 1990). Given that older speakers tend to be more proficient in the regiolectal varieties than younger

speakers, it is possible that age and regiolect combined led to higher acceptance rates of definite subjects in our study. Furthermore, nine of our twelve oldest speakers had no higher education and seven of them did not speak a second language at an advanced level. Since it is plausible to assume that metalinguistic awareness increases with higher education and foreign language proficiency, the oldest speakers' metalinguistic awareness may have been lower compared to the other speakers'.[16] In sum, these observations suggest that it was not age exclusively that influenced the speakers' acceptance of articles, but a combination of several factors, including age, regional background, education and L2 proficiency. In our data, we cannot disentangle these factors due to the low number of participants in each subgroup.

As we found no effect of regional background on definite article use with plural subjects among the 19–49 year old speakers, regional background might be relevant only among older speakers. Collecting data from age-matched older speakers from additional Northern varieties in future research may help to specify the role of age independently of regional background. In this study we focused on Standard German, and regional variation was only one of several factors that we explored. Follow-up studies could investigate further whether the mode (i.e., oral vs. written) and variety (Standard German vs. dialect) in which the stimuli are presented influences the speakers' judgments.

Since the speakers in our study accepted definite marked generic subjects most of the time, while also accepting bare subjects almost 100 % of the time, we can conclude that with respect to definite article use, German and English pattern quite differently, given that the definite article is unacceptable in English in generic plural subjects. German then looks similar to the Romance languages, which require definite plural generics in the subject position, except that article use is still optional. German thus appears to be somewhere in-between a "Germanic" and a "Romance" stage. Within Lyons' (1999) hierarchy, the degree of article grammaticalization in German could be situated between stage 1 (English: simple definite) and 2 (French: simple definite, generic). A study analyzing article use in generics, proper names and possessives in the same population of speakers could provide further clarification on the degree of article grammaticalization in German.

16 We could have used think-aloud protocols to substantiate these claims. However, at the time of testing, we were interested in the speakers' spontaneous judgments, which is why we did not assess metalinguistic awareness.

6 Conclusion

This study focused on definite article use in generic plural subjects in spoken German. We confirmed previous claims on the use of the definite article in generic subject nominals empirically, showing different acceptance rates for generalizations over kinds vs. individuals, although bare subjects were clearly the preferred structure in both conditions. Unlike in research on definite articles with proper names in German, we found no differences between speakers from Northern and Southern Germany. However, this may be due to the exclusion of the oldest participants (between 52–62 years) in the present study. Moreover, for future studies, it is necessary to disentangle regional origin and age, as well as age and educational level. The variation we found in the use of articles in German bears similarities with article use in French and Italian. The fact that German articles are optional with plural generics (and with proper nouns, see e.g., Werth 2014), may be an indicator of grammaticalization in progress. Future research will have to show whether this variation is stable or whether German is moving further into the direction of Romance.

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Appendix

Table A: Participants by age groups.

Age groups	*n*	Mean Age (years)
19–29	22	24.5
30–39	10	32.9
40–49	10	44.6
52–62	12	58.9

Table B: Article acceptance (mean %) with respect to L2 proficiency.

	L2 English advanced	No advanced L2	L2 English + L2 Romance advanced
Kind-level	79.5 %	96.4 %	81.3 %
Individual-level	48.5 %	83.9 %	64.1 %