

AN EMPIRICAL L2 PERSPECTIVE ON POSSESSIVES: GERMAN/NORWEGIAN

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ABSTRACT

The present paper reports on two empirical studies concerning the acquisition of possessive systems by L2 learners of Norwegian and German respectively. The first study investigates comprehension and production in written translation while the second study is a set of offline experiments testing the interpretation of possessives by both native speakers and German learners of Norwegian. Norwegian distinguishes between reflexive and irreflexive possessives, while German does not. The reflexive stem form *si** is phonologically similar to German *sein**, but may correspond to *ihr**, a feminine or plural possessor, as well. These differences make the acquisition of Norwegian and of German as a foreign language a complex procedure of restructuring both at the phonological and the grammatical level. Results of the study indicate that the only partly overlapping forms and structural constraints on possessives in the two languages are cognitively demanding in L2 acquisition and subject to transfer effects.

[1] INTRODUCTION

When grammatical systems diverge, there is reason to expect L2 learner difficulties. As shown in the overview paper by [Fabricius-Hansen et al. \(2017\)](#), the possessive systems of German and Norwegian exhibit crucial differences that will require a certain amount of cognitive restructuring by the L2 learner in order to be fully acquired. This leads to the assumption that before full restructuring is automatized, *transfer effects* will result from the L1 or another of the learner's languages in both comprehension and production of the L2. The goal of the present paper is to spell out these general assumptions on the basis of the systemic and morpho-phonological contrasts between German and Norwegian and test them against (*production and comprehension*) data collected in two different studies. The first study (section [3]) is based on translation from German and Norwegian L2

learners of their respective languages. The second study (section [4]) takes a comprehension perspective, investigating interpretation of the possessives in L1 and L2 German through offline multiple choice tests. Our hypotheses are primarily based on studies on cross-linguistic influence (CLI) phenomena (see for instance Ellis (2008); Jarvis & Pavlenko (2008); Meisel (2000); Odlin (2003); Weinreich (1953)), and restructuring theory (McLaughlin 1990) as presented in Fabricius-Hansen et al. (2017).

The paper is organized as follows: In section [2], we will give a brief contrastive presentation of the systems of pronominal possessives in the two languages and formulate our basic assumptions. In section [3.1] we present the empirical basis for the translation study. Precise hypotheses on production and comprehension, based on work by Bie-Lorentzen (2012) and Fabricius-Hansen et al. (2017), are formulated in section [3.2] (for Norwegian as L2) and in section [3.3] (for German as L2), against which translation data is analyzed. Section [3.4] gives a short summary of the findings.

Section [4] takes a *comprehension* perspective on possessives for this language pair. We report on three offline experiments that have been conducted in order to test how native German learners interpret Norwegian reflexive and irreflexive possessives, based on a single finite structure varying the possessive item. The design of the experiments is described in section [4.2]. Results of the learners' comprehension (section [4.5]) as compared with control group responses by native Norwegians on the one hand and German native speakers' responses on the same structures in their mother tongue on the other (sections [4.3] and [4.4]), are summed up and discussed briefly in relation to transfer in section [4.6]. Section [5] sums up the studies and presents plans for ways in which the results of the present studies can be furthered to get deeper into an understanding of the accommodation and assimilation required to restructure and automatize a grammatical system that diverges from that of a foreign language learner's mother tongue.

[2] PRELIMINARIES: CONTRASTS AND GENERAL ASSUMPTIONS

Tables 1 and 2 below summarize the properties of the German and the Norwegian third person possessive systems (from Ramm & Fabricius-Hansen (2012)).¹

The problematic areas (divergence-convergence of forms) described in Fabricius-Hansen et al. (2017, section 4.1 and figure 3 vs. 4) can be represented, somewhat simplified, as in figure 1.

Obviously, the German learner of No2 has to deal with many more possessive items than the Norwegian Ge2 learner due to the reflexive-irreflexive distinction and the additional possessor-related feature \pm human. On the other hand, the

[1] The possessives *si**, *sein** and *ihr** are inflected for possessum number, gender, and case (*sein**, *ihr** alone). The unstarred possessives – genitive forms of third person pronouns – cannot be (further) inflected; see Fabricius-Hansen et al. (2017) for details.

Inherent properties of antecedent (possessor) DP/referent	Possessive	Reflexivity (Binding condition)
Sg. masc./neut.	<i>sein*</i>	} Neutral (\pm local binding)
Sg. fem.	} <i>ihr*</i>	
Plur.		

TABLE 1: German third person possessives

Inherent properties of antecedent (possessor) DP/referent	Possessive	Reflexivity (binding condition)
No restrictions	<i>si*</i>	Reflexive (local binding)
Sg. masc. human	<i>hans</i>	} Irreflexive (non-local)
Sg. fem. human	<i>hennes</i>	
Sg. comm. nonhuman	<i>dens</i>	
Sg. neut. (nonhuman)	<i>dets</i>	
Plur.	<i>deres</i>	

TABLE 2: Norwegian third person possessives

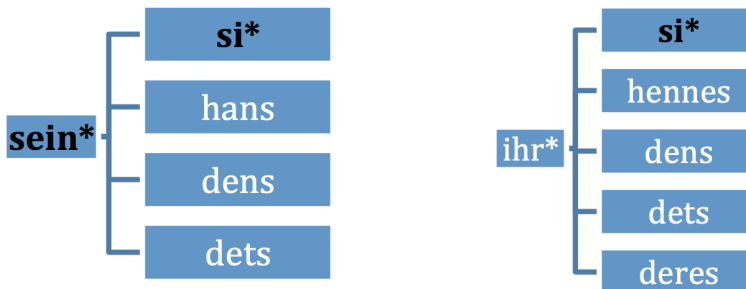


FIGURE 1: German-Norwegian divergence-convergence (Bie-Lorentzen 2012, 44).

Norwegian learner of Ge2 has to keep in mind that the Norwegian reflexive *si** may correspond to either *sein** or *ihr**, depending on the grammatical gender of the possessor. These observations lead to the following general assumptions concerning L2 production and comprehension by our two groups of L2 learners:

- A1 *German No2 learners* have difficulties choosing correctly between the Norwegian reflexive possessive *si** and the irreflexive possessives (*hans/hennes/dens/dets/deres*) in No2 production tasks (*A1-production*). *German No2 learners* show a grammatically less constrained interpretation of Norwegian reflexive and irreflexive possessives than No1 interpreters. More specifically, these learners' errors reflect the underspecification of their L1 system with respect to binding conditions, which may give rise to interpretations inconsistent with Norwegian grammar (*A1-comprehension*).
- A2 *Norwegian Ge2 learners* have difficulties choosing correctly between the German possessives *sein** and *ihr** in Ge2 production tasks (*A2-production*). *Norwegian Ge2 learners* are confused by the ambiguity of *sein** between *si** and *hans/hennes/dens/dets*. They will tend to restrict the interpretation of *sein** to *si** and of *ihr** to *hennes* (*A2-comprehension*).
- A3 For *both groups of learners*, the phonological similarity between *si** and *sein** leads to a skewed distribution of error types: We expect (i) *si** to be wrongly 'equated with' *sein** more often than with *ihr** in Ge2 production and No2 comprehension by the two learner groups; likewise in the other direction, we expect (ii) *sein** to be wrongly 'equated with' *si** more often than with any of the irreflexive alternatives in No2 production and in Ge2 comprehension by the same groups.²

As for A3, it should be noted that the morpho-phonological similarity between *sein** and *si** at one level may favor semantic-functional overgeneralization, i.e. extending the meaning/function of the L2 item to all areas covered by its morpho-phonological counterpart in L1; under certain conditions such a restructuring failure will surface as lexical errors in *production* and referential misunderstanding in *comprehension*. On the other hand, even if the learner has successfully restructured to the L2 core system, the morpho-phonological similarity may hamper automatization, priming for a potentially false lexical choice independently of semantics, so to speak. Such 'shallow' priming effects would seem particularly plausible in *translation* tasks involving an s-possessive in the source text, be it translation into the foreign language, i.e. so-called *Hin-Übersetzung* (in our case:

[2] Depending on the circumstances, the expression 'equated with X' means 'translated as X', 'referentially understood as X' or 'used in the sense of X under the given binding conditions'.

Ge1→No2, No1→Ge2) or – notably – into the mother tongue, i.e. *Her-Übersetzung* (Ge1←No2, No1←Ge2).

On the basis of A1–A3 we present in section [3] a set of more precise hypotheses relating primarily to translation alone (in both directions and for both L1/L2 pairs), along with – admittedly preliminary – learner language data that, by and large, seem to corroborate these hypotheses.

Section [4] targets the comprehension issue alone. Here we present three offline experiments testing (i) whether No1 speakers under specific syntactic conditions actually do interpret No1 *si** vs. *hans* in accordance with the reflexivity (local vs. non-local binding) parameter; (ii) whether or not Ge1 speakers under the same conditions exhibit a bias for a reflexive (locally-bound) interpretation of referentially ambiguous *sein**; and (iii) how German No2 learners under the same conditions interpret No2 *si** vs. *sein**. The experiments have been conducted as pretests to online (visual-world) experiments designed to test specific comprehension hypotheses derived from A3 above.

Sections [3] and [4] both focus on (translation, comprehension) *products* as opposed to *processing*. We shall briefly take up the latter issue in the concluding section [5].

Note finally that throughout we abstract from the inflectional possessum-related features since they are to some extent present in both languages, although far more complicated by morphological case marking in German, which is a well-known cause of learning problems.

[3] TRANSLATION DATA (L1→L2, L1←L2)

[3.1] *Empirical basis*

Our translational data are based on two preliminary investigations: A master thesis by [Bie-Lorentzen \(2012\)](#) and a follow-up study conducted 2013 (henceforth FU 2013).

[Bie-Lorentzen \(2012\)](#) has shown that mastering the possessive system of the L2 (in translation) is not an easy task, whether for Norwegian learners of German or for German learners of Norwegian. His investigation was based on translation data from 53 participants (27 No1 and 26 Ge1). The informants were students of German and Norwegian at the University of Oslo, the Humboldt University and the University of Vienna, respectively. All students were at a comparable, advanced level of proficiency in their L2. For both groups of informants, the tasks consisted in the translation of two texts, one into their learner language, the other in the opposite direction, i.e. into their native tongue. The texts were put together from excerpts from the Internet and constructed sentences in such a way as to contain

the relevant possessives in different environments.³ The testing time was limited to 30 min and the translations were done by hand (not typed). As a matter of fact, the time allocated to the task turned out to be too short, with the result that more than one third of the Norwegian test persons translating into their mother tongue, left their translations unfinished.

In an attempt to engage a larger group of informants, and to pursue the investigation at a deeper level, we conducted a follow-up investigation (FU 2013) that largely confirmed the findings in [Bie-Lorentzen \(2012\)](#). 27 Ge1 and 29 No1 participated, with a comparable level of proficiency. The task was the same as in the previous study although new texts were compiled, this time presenting the same possessive environments for both groups of test persons. The translations were done on the computer and the time limit was extended to 45 min. In addition, more detailed data concerning the language background of the informants were collected.

In the following, we will use examples from both studies to illustrate the error patterns. Since the number of error possibilities crucially differs in the two studies, we will calculate the error rates when this seems necessary for comparing the two groups and the two translation directions. The procedure for the computation will be spelled out in the following section.

Some remarks concerning particular limitations of the design are in order, though. Certain recurring features of the texts/the test design seem to influence the results. One general feature that makes a rigorous evaluation of the actual proficiency level difficult is the possibility to either just drop the possessive or paraphrase the construction in the translation. Whether these solutions are means to circumvent the problem or results from the test person's judgment of idiomaticity or personal style is hard to establish. As we will propose in section [\[5\]](#), further investigations such as translation under eye tracking, key logging or other processing measurements could help provide an answer, along with post-test interviews. Elimination of the possessive may also be triggered by various factors. Clearly, one such factor is the somewhat forced accumulation of possessives in one text, another factor involves differences between the languages with respect to certain types of possessive relations, such as the inalienables; see [Holthe \(2016\)](#) and [Fabricius-Hansen et al. \(2017, section 3\)](#). A different type of problem is related to the structuring of the text with respect to cohesion as it seems that topicalization of the host DP may contribute to an erroneous identification of the possessor. All these are elements that cannot be controlled for in a free translation task.

[3] Unfortunately, Bie-Lorentzen manipulated the text length somewhat when it was presented to informants translating into their mother tongue, on the assumption that translation into L1 would pose less of a problem than translation into L2. The numbers of occurrences of possessives differ as a consequence of this manipulation. This crucially affects the (control) comparison between the two learner groups.

[3.2] Norwegian as L2 (Ge1/No2)

Translation into L2 (Ge1→No2)

As far as translation products are concerned, i.e. No2 target texts (T) based on Ge1 source texts (S), assumptions A1 and A3 in the previous section allow us to make the following more specific hypotheses:⁴

H1→No2 (A1) No2 translations from Ge1 show a relatively high frequency of translation errors concerning the choice between the reflexive possessive *si** and the irreflexive possessives *hans*, *hennes*, *dens*, *dets* and *deres*.

This hypothesis is corroborated by [Bie-Lorentzen \(2012\)](#) (and in fact, it was one of two hypotheses Bie-Lorentzen set out to test). In all translations into No2 with errors concerning possessives, (in 21 out of 24 translations), these errors were related to (ir)reflexivity. In 90% of the translations, the wrong choice between the two were the only errors, while only 10% contained inflectional errors relating to the possessum. Notably, 52% of the translations exhibited errors concerning third person singular and plural possessives, 43% only the third person singular and 5% the third person plural. These percentages reflect the complexity of the gender distinctions in third person singular.

H2→No2 (A3ii) In No2 translations from Ge1 non-locally bound *sein** is erroneously translated as the reflexive possessive *si** more often than locally bound *sein** is erroneously translated as irreflexive *hans*.⁵

The two error types – *si** for *hans* and *hans* for *si** – are illustrated in (1) and (2) respectively (both from [Bie-Lorentzen \(2012\)](#)).

- (1) S (Ole Einar Bjørndalen_i ist ein norwegischer Biathlet. Zum Biathlonsport kam er_j durch seinen vier Jahre älteren Bruder Dag.) Sein_j kleiner Bruder Hans Anton_i begann auch später mit Biathlon.
Lit. ‘Ole Einar Bjørndalen is a Norwegian biathlete. He_i came to the biathlon through his older brother Dag. His_i little brother Hans Anton started later also with biathlon.’
T *Sin_i (√hans_i) lille bror Hans Anton_i begynte også med skiskyting.

[4] In the following discussion, problems relating to the non-locally bound *dens* and *dets*, referring to a non-human masculine and neuter possessor respectively, will not be taken up although they clearly constitute a challenge to Ge1 No2 learners who do not have the human/non-human distinction in their native system.

[5] Note that the German possessives are inherently underdetermined with respect to local vs. non-local binding and consequently open for corresponding referential ambiguity in practice. The expression ‘locally/non-locally bound *sein*/ihr**’ used in this and the following hypotheses then should be read as ‘an occurrence of *sein*/ihr**’ that in the given (source) context must be understood as locally/non-locally bound’.

- (2) S *Er_i* konnte aber den Leistungen *seiner_i* beiden Brüder nicht gerecht werden.
Lit. ‘He could however not live up to the performances of his older brothers.’
- T *Han_i* kunne ikke leve opp til prestasjonene til **hans_i* (*√sine_i*) eldre brødre.

As witnessed by (1) and (2) both types of errors occur. The erroneous use of *si** for the non-locally bound *sein* illustrated in (1) occurs more often than the use of *hans* for locally bound *si**, in Bie-Lorentzen’s (2012) data with an error rate of 13% versus 4% — albeit not in FU 2013 (see below).⁶

A note on the notation practice seems in order: Although we mark both the erroneous occurrence of *si** in (1) and *hans* in (2) by *, there is a difference: only (1) is ungrammatical exhibiting a reflexive possessive without a local binder while (2) is ungrammatical/erroneous only as a translation of the source text. In both instances, however, we suspect a lexical error and not an interpretation problem since there is no alternate referent in the context that the possessive could refer to. While priming by the possessive in the source text can be responsible for the error in (1), in (2) such priming could only be induced by the subject pronoun *han* ‘he’.

H3→No2 (A1, A3i) Locally bound *ihr** (with a feminine singular possessor) is erroneously translated as (irreflexive) *hennes* more often than non-locally bound *ihr** (with a feminine singular possessor) is erroneously translated as (reflexive) *si**.

The two error types — *hennes* for *si** and *si** for *hennes* — are illustrated in (3) (from the FU 2013) and (4) (from Bie-Lorentzen (2012)), respectively.

- (3) S *Merkel_i* ist bekannt für *ihre_i* gute Beziehung zu Jens Stoltenberg.
Lit. ‘Merkel is known for her good relationship with Jens Stoltenberg.’
- T *Merkel_i* er kjent for **hennes_i* (*√sitt_i*) gode forhold til Jens Stoltenberg.
- (4) S (Magdalena) *Neuners_i* Erfolge lösten ein großes Medieninteresse aus und steigerten binnen kurzer Zeit *ihre_i* Popularität in Deutschland.
Lit. ‘Magdalena Neuners success initiated a big interest from the media and rapidly increased her popularity in Germany.’
- T Suksessene til Magdalena *Neuner_i* førte til en stor medieinteresse og forstørret populariteten **sin_i* (*√hennes_i*).

[6] The error rate is calculated by dividing the number of actual errors concerning a possessive by the total of error possibilities for this possessive, i.e. the number of occurrences in the text multiplied by the number of candidates (Fabricius-Hansen 1981, 68–72).

Hypothesis H3→No2 seems confirmed by both studies: there are more cases where *hennes* erroneously is chosen for (locally-bound) *ihr** than *si** for non-locally bound *ihr** (six out of 23 test persons versus two in Bie-Lorentzen (2012), nine out of 27 test persons versus four in the FU 2013). In either case, a misinterpretation of the source text can be ruled out, there being no other candidate as a binder in the context. We interpret the low number of errors of the type in (4) to mean that the Ge1 No2 learner transfers the gender distinction in the German possessive system (*sein** for masculine vs. *ihr** for feminine) to the No2 (*hans* vs. *hennes*).

H4→No2 (A1) In No2 translations from Ge1, locally bound *ihr** (with a plural possessor) is erroneously translated as (irreflexive) *deres* more often than non-locally bound *ihr** (with a plural possessor) is erroneously translated as (reflexive) *si**.

The example sentences (5) and (6), taken from Bie-Lorentzen (2012), illustrate the erroneous use of the irreflexive *deres* instead of locally bound *si** and of *si** for *deres*. The error depicted in (5) was made by ten test persons while the error in (6) only occurred in two translations (out of 24), hence corroborating the hypothesis.

- (5) S Zusammen mit *ihren_i* jeweiligen Teamkollegen gelten *sie_i* bei der dies-jährigen Biathlon-WM als Favoriten.
Lit. 'Together with their respective team colleagues they count as favorites in this year's biathlon WM.'
- T *De_i* er favoritter i årets skiskyting-VM sammen med **deres_i* (*√sine_i*) teamkollegaer.
- (6) S [*Neuner* und *Bjørndalen*]_i gehören zu den erfolgreichsten Biathleten der letzten zehn Jahre und allein *ihre_i* Weltcupstatistik zählt über 130 Einzelsiege.
Lit. 'Neuner and Bjørndalen are among the most successful biathletes of the last decade and their world cup statistics counts over 130 individual medals.'
- T [*Neuner* og *Bjørndalen*]_i er blant de mest suksessrike biatleter de siste ti årene og bare **sine_i* (*√deres_i*) verdenscupstatistikk teller mer enn 130 enkeltseire.

Example (6), lacking a local binder for the reflexive possessive, is ungrammatical, while (5) is erroneous with respect to the source text.⁷ In section [3.1], we briefly mentioned that topicalization of the possessive phrase might obscure a local binding relation. Considering the translation T in (5), however, topicalization may

[7] Unfortunately, (5) was not part of the translation intended for No1 speakers and can therefore not answer the question whether the context – and especially the adjective *respective* – might provoke a *distributive* reading which eventually could explain the use of the irreflexive *deres*.

not be what is at stake: *deres* is used although the phrase containing the possessive follows the local binder.

Summarizing our observations, the follow-up study (FU 2013) confirms the general assumptions A1 and A3 (section [2]) and the findings of [Bie-Lorentzen \(2012\)](#): 26 out of 27 test persons made at least 3 possessive-related errors. In 19 out of 26 (73%) translations, all errors are related to the (ir)reflexivity distinction, corroborating H1→No2.

At the face of it, the FU 2013 data do not seem to confirm H2→No2, the error rate for the erroneous use of *si** for *hans* being 22% and for *hans* for *si** 30% (where the error rate is calculated only for non-locally bound *sein**). A closer examination of the contexts in which the possessives occur reveals that there is one occurrence of (non-locally bound) *sein** with only one erroneous possessive in the translation while the other two instances of (non-locally bound) *sein** give rise to a larger number of deviant constructions. More specifically, nearly all mistakes are made in the first two occurrences of the possessive *sein**, while the only instance of erroneous *si** for *hans** is found towards the end of the text. As to why these three examples in particular give rise to problems, we may suggest that the context is to blame: the third occurrence of non-locally bound *sein** stands by itself in an environment of feminine *ihr** – while the others are embedded in a sequence of sentences with six occurrences of *sein** with different binding relations, i.e. local and non-local, possibly leading to confusion. Yet another matter may have had an influence on the outcome: among the 27 test persons, six do not use *si** at all while one test person does not use *hans**, a solution that could be taken as a learner strategy of handling/avoiding problematic constructions. If we eliminate these from the count, we get an error rate of 27% in the *si** for *hans** examples and of 24% in the *hans** for *si** occurrences, which would corroborate the hypothesis.

As to H4→No2, there are no instances of *si** erroneously used for *deres* in the translation of non-locally bound *ihr** (referring to a plural possessor) in the FU 2013 corpus, while 14 out of 27 test persons erroneously use *deres* (instead of *si**) for the locally bound *ihr** plural. Hence, hypothesis H→No2-4 seems corroborated as well.

It seems plausible that not too advanced German No2 learners in non-translational production tasks make errors of the same kind as those specified by H1→No2 through H4→No2, i.e. that they tend to neglect the reflexivity distinction in Norwegian, using *si** for any possessive relation with a male or neuter possessor and *hennes* or *deres* under conditions demanding *ihr** with a singular fem. or plural possessor, respectively. This assumption, however, will have to be tested. As a matter of fact, it is possible that free production, as opposed to translation, does not involve priming effects or at least does so to a smaller degree. Transfer from the L1, though, is still expected.

Translation into L1 (Ge1←No2)

The main problem for the Ge1 No2 learner translating into their mother tongue consists in the divergence of *si** into *sein* and *ihr** (feminine or plural possessor) (see figure 1). The convergence of *hans* and *si** into *sein** and of *hennes/deres/si** into *ihr**, on the other hand, does not have to be of any concern to this group in this translation direction; at least misinterpretation will not reveal itself as an error. In fact, it appears impossible to tell whether the test person has understood the source sentence correctly in such cases. In the case of *si** diverging into *sein** and *ihr**, however, the learner has to decide on the gender of the possessor to make a correct choice in the translation, which means that an erroneous interpretation can be detected, for instance as a gender clash as in (7) below. As a consequence, relevant hypotheses will only be formulated with respect to the divergence of *si**.

Relating our assumptions A1 and A3 (section [2]) to translations from No2 into Ge1, we may derive H1←No2 and H2←No2 as counterparts of H1→No2 and H2→No2:⁸

H1←No2 (A3) Ge1 translations from No2 show a relatively high frequency of errors involving the possessives *sein** versus *ihr**.

H2←No2 (A3i) In Ge1 translations from No2 the Norwegian (reflexive) possessive *si** (with a singular possessor) is (erroneously) translated into the singular (masc./neut.) possessive *sein** more often than *si** is (erroneously) translated as the singular (fem.)/plural possessive *ihr**.

The error type *sein** for *ihr** is illustrated in (7) (from Bie-Lorentzen (2012)), where apparently the divergence of *si** into *sein** (male possessor) and *ihr** (female or plural possessor) is ignored. Example (7) might, of course, be an instance of ‘shallow priming’ (see section [2]) since in the absence of another referent a misinterpretation of the sentence is rather unlikely. (8) is constructed since errors of the type *ihr** for *sein** do not occur in our data.

- (7) S Vamp er et norsk band fra Haugesund. **Bandet**_i har fått mange tilhengere gjennom **sin**_i folk-inspirerte musikk og sine_i norske tekster. Lit. ‘Vamp is a Norwegian band from Haugesund. The band has had many fans due to their folklore-inspired music and their Norwegian texts.’
- T Vamp ist eine norwegische Band aus Haugesund. Durch ***seine**_i (**√ihre**_i) volksnahe Musik und ***seine**_i (**√ihre**_i) norwegischen Texte hat **die Band**_i viele Anhänger.

[8] Of course, translating *si** as *sein** may be caused by phonological association/priming in Ge1 target text production rather than by misunderstanding the No2 target text.

- (8) S Mens Eva er bortreist maler Petter_i huset sitt_i.
 Lit. Lit. ‘While Eva is away Petter paints his house.’
 T Während Eva verreist ist, streicht Petter_i *ihr_i (√sein_i) Haus an.

Four out of 25 Ge1 test persons produced the error in (7) which, although the number is low, is still somewhat astonishing: Quite generally, we assume that a native speaker knows his/her L1. For the Ge1 speaker specifically, we might assume that the awareness of the gender distinction reflected in both determiners (*der*/die*/das**) and possessives (*sein*/ihr**) of the L1 grammar overrules the erroneous binding suggested by the source text possessive, thus counteracting possible priming by *si**. (For comparison: ten out of 27 No1 speakers produced a gender error in the example, two of these, however, using the neuter determiner for the possessor DP; see below in section [3.3.1].⁹) As yet an explanation for the Ge1 speakers’ somewhat strange choice of *sein* referring to *die Band* (7), it might be worth mentioning that there seems to be a tendency in German to overuse the masculine/neuter possessive *sein** for collective nouns in general (Zifonun 2005, 94).

As to the lack of error examples of *ihr** for *sein** in the translation of *si**, as illustrated in (8), the morpho-phonological resemblance between *si** and *sein** as well as the morpho-phonological difference between *si** and *ihr** might make the choice of *ihr* (establishing *Eva* as the possessor) rather unlikely. A misinterpretation of the reflexive *si** as referring to *Eva* in (8) could only be induced by a serious effort of making the sentence coherent: What has *Eva*’s trip to do with *Petter* painting the/his house?

Such pragmatic considerations, however, do seem to play a role in the choice of possessive. In the following example the error could be explained by the test persons’ choice of a salient referent (*Toft*) in the context as the binder:

- (9) S Avslutningen på Tofts karriere som vokalist ble markert med et samlealbum. *Bandet*_i bevarte likevel *sitt*_i særpreg på de neste albumene.
 Lit. ‘The end of *Toft*’s career as a singer was marked by a compilation album. The band nevertheless kept its special features.’
 T Das Ende von *Tofts* Karriere als Vokalist wurde mit einem Compilation Album markiert. *Die Band*_i bewahrte trotzdem **seine*_i (√*ihre*_i) Eigenart.

Again, as in (7) above, the correct choice of the feminine determiner for the possessor DP *Band* would seem to rule out any problem concerning the gender distinction. (Five out of 25 Ge1 test persons and nine out of 27 No1 Ge2 learners made

[9] The same argument, i.e. awareness of the gender distinction in the Ge1, can be advanced for the apparent lack of problems with respect to the distinction *hans/hennes*, giving clues to the gender distinction roughly corresponding to *sein*/ihr**.

the error.) Of course, morpho-phonological priming cannot be excluded, neither (at least for the Ge1) the abovementioned tendency to use masculine/neuter *sein** for collective nouns.

Note that H2←No2 above relates to the reflexive with a singular possessor. A plural parallel to H2 could be formulated on the observation that the use of *si** with a plural possessor in Norwegian may erroneously translate into *sein** more often than would the plural irreflexive *deres*. We disregard here the possible priming of Norwegian plural *deres* into the German demonstrative pronoun *deren*, due to their phonological similarity.¹⁰

[3.3] German as L2 (No1/Ge2)

Translation into L2 (No1→Ge2)

According to [Bie-Lorentzen \(2012\)](#), errors involving possessives were found in 20 out of 27 No1→Ge2 translations. In 13 out of the 20 translations with errors, these concerned the choice between *ihr** (referring to a feminine possessor) and *sein** (referring to a masc./neuter possessor).

As far as translation products are concerned, i.e. Ge2 target texts (T) based on No1 source texts (S), our assumptions A2 and A3 in section [2] lead to the following more precise hypotheses:

H1→Ge2-1 (A2) In translations from No1 into Ge2, (reflexive) *si** with a singular binder/possessor is erroneously translated as *sein** more often than *si** with a singular binder/possessor is erroneously translated as *ihr**.

Note that H1→Ge2 for Norwegian Ge2 learners corresponds to H2←No2 for German No2 learners. Example (10) from the FU (2013) illustrates the – presumably dominant – error type *sein** for *ihr**. Both groups of learners translated the same sentences, however, as expected, the Ge1 speakers did not produce the error illustrated in (10) although a few made the mistake (*sein** for *ihr**) in a similar example sentence (7) in [Bie-Lorentzen \(2012\)](#). Notably, in (10) there is no non-local binder available, so the sentence is ungrammatical. As was the case for the Ge1 No2 learners, there are no error examples of *ihr** for *sein** in the corpus, so (11) is constructed and corresponds to (8).

- (10) S [Nina Hagerup](#)_i opptrådte ofte sammen med mannen [sin](#)_i.
Lit. ‘Nina Hagerup performed often with her husband.’
T [Nina Hagerup](#)_i trat oft mit *[seinem](#)_i ([vihrem](#)_i) Mann auf.
- (11) S Mens Eva er bortreist maler [Petter](#)_i huset [sitt](#)_i.
Lit. ‘While Eva is away Petter paints his house.’

[10] *Deren* is a genitive (singular or plural) form of the demonstrative pronoun *der/die/das* that can be used instead of the possessive in contexts where misunderstandings are likely to occur.

T Während Eva verreist ist, streicht **Petter**_i ***ihr**_i (√**sein**_i) Haus an.

Note that the type of error in (11) is rather unlikely for No1 speakers: we expect the No1 speaker to understand the sentence and pick the local binder for the reflexive *si**. A production error is not very likely either once the possessor is identified.

H2→Ge2 (A3i) (Reflexive) *si** with a plural binder/possessor is erroneously translated as *sein** more often than (irreflexive) *deres** (with a plural binder/possessor) is erroneously translated as *sein**.

The error types described in the hypothesis are illustrated in the examples (12) and (13), both from the FU 2013 study.

- (12) S På Trolldhaugen blir det også arrangert konserter med **band**_i fra både inn- og utland som kommer til Bergen med **sine**_i tolkninger av Griegs sanger.
Lit. 'On Trolldhaugen concerts were arranged with bands from both Norway and abroad who come to Bergen with their interpretations of Grieg's songs.'
- T An Trolldhaugen wird es auch Konzerten mit **Banden**_i von In- und Ausland arrangiert, die_i kommen nach Bergen mit ***seiner**_i (√**ihren**_i) Interpretationen.
- (13) S I 1867 giftet [Grieg seg med Nina Hagerup]_i som faktisk var hans kusine. **Deres**_i eneste barn døde bare 13 måneder gammel.
Lit. 'In 1867 Grieg married Nina Hagerup who actually was his cousin. Their only child died only 13 months old.'
- T In 1867 heiratete [Grieg_i sich mit **Nina Hagerup**]_j, die eigentlich seine Kusine war. ***Sein**_k (√**ihr**_k) einziges Kind starb nur Monate alt.

There are four (out of 29 translations) occurrences of the error type illustrated in (12) and two of the type in (13). Note that the erroneous choice of *sein** for *ihr** in (13) could have a pragmatic explanation, *Grieg* being the prominent referent in the context. Hence, the sentence is not ungrammatical, it just does not correspond to the source sentence.

Translation into L1 (No1←Ge2)

According to **Bie-Lorentzen (2012)**, No1 Ge2 learners have more difficulties when translating from the L2 into their L1 than Ge1 learners of No2 have, seemingly confused by the lack of (ir)reflexivity in the new possessive system and the ambiguity of *sein** between local and non-local binding as well as the ambiguity of *ihr** between singular and plural. In other words, it seems that *divergence* (of *sein** into *si** and *hans*, and of *ihr** into *hennes* and *deres* for the No1 interpreting Ge2) is more

difficult to handle than *convergence* (of *si** and *hans* into *sein** for the Ge1 speaker interpreting No2). As mentioned in section 3.2, the Ge1 speakers are confronted with one instance of divergence as well, i.e. the divergence of *si** into *sein** and *ihr**. The difference in the percentage of errors is small, though: 39.13% versus 36% of erroneous choice. However, as noted by Bie-Lorentzen (2012), the No1 Ge2 learners were expected to do better since they had been exposed to the L2 for a longer period. The following hypotheses based on our assumptions A2 and A3 (section [2]) attempt to describe the problems for No1 Ge2 learners more precisely.

H1←Ge2 (A3ii) Translations from Ge2 into No1 show a relatively high frequency of errors involving *si** versus *hans/hennes/dens/dets/deres*.

H2←Ge2 Norwegian Ge2 learners erroneously translate non-locally bound *sein** as (reflexive) *si** more often than they erroneously translate locally bound *sein** as (irreflexive) *hans*.

The following examples (from FU 2013) illustrate the errors predicted by the hypothesis. Bie-Lorentzen's data did not contain a non-locally bound occurrence of *sein**.

- (14) S **Der Staatsminister_i** und **sein_i** Land hätten verstanden, dass Frieden und Freiheit nicht durch Abschottung zu erreichen sind.
Lit. 'The Prime Minister and his land had understood that peace and freedom could not be attained by isolation.'
- T **Statsministeren_i** og ***sitt_i** (√**hans_i**) land har forstått at fred og frihet ikke oppnås gjennom isolasjon.
- (15) S Stoltenberg war im Januar in der Bundeshauptstadt, wo **er_i** den Willy-Brandt-Preis für **seine_i** Antwort auf die Anschläge in Oslo bekommen hat.
Lit. 'Stoltenberg was in the capital in January where he received the Willy-Brandt reward for his answer for the attacks in Oslo.'
- T I januar var Stoltenberg i hovedstaden, hvor **han_i** mottok Willy-Brandt-prisen for ***hans_i** (√**sitt_i**) svar på angrepene i Oslo.

FU (2013), however, does not corroborate the hypothesis as only two No1 Ge2 learners (out of 29) erroneously chose *hans* for *si** in (15) and none *si** for *hans* in (14). While non-locally bound *sein** results in mainly correct translations/interpretations (*hans/hennes*) for No1 Ge2 learners, these are the cases where Ge1 No2 learners make (production) mistakes (cf. section [3.2.1]): 12 test persons (out of 21) use *si** for *hans* in (14) and 7 *hans* for *si** in (15). Again, it seems that translating into the L1 is rather straightforward once the sentence is understood correctly. And in (15) it seems clear that nobody receives a prize for somebody else's deed.

So for the German No2 learners, the problem most likely is confusion concerning the ambiguity of *sein** although priming by the subject pronoun *han* ‘he’ cannot be ruled out. The argument is the same as the one we proposed for the error in (2).

H3←Ge2 (A2) Locally bound *ihr** (with a feminine singular binder/possessor) is erroneously translated as (irreflexive) *hennes* more often than non-locally bound *ihr** is translated as (reflexive) *si**.

In (16), identical to (3), the irreflexive possessive *hennes* is wrongly used to translate locally bound *ihre*. There are no examples in Bie-Lorentzen (2012) or in FU (2013) where non-locally bound *ihr** (with feminine singular possessor) erroneously is translated as *si** by No1 Ge2 learners. Example (17), repeated from (4) illustrates the error as it was made by Ge1 No2 learners.

- (16) S *Merkel_i* ist bekannt für *ihre_i* gute Beziehung zu Jens Stoltenberg.
Lit. ‘Merkel is known for her good relationship with Jens Stoltenberg.’
T *Merkel_i* er kjent for **hennes_i* (√*sitt_i*) gode forhold til Jens Stoltenberg.
- (17) S (Magdalena) *Neuners_i* Erfolge lösten ein großes Medieninteresse aus und steigerten binnen kurzer Zeit *ihre_i* Popularität in Deutschland.
Lit. ‘Magdalena Neuners success initiated a big interest from the media and rapidly increased her popularity in Germany.’
T Suksessene til Magdalena *Neuner_i* førte til en stor medieinteresse og forstørret populariteten **sin_i* (√*hennes_i*).

*ihr** in (16) can, of course, refer to a non-local feminine possessor, but not so in this context, i.e. being known for somebody else’s property, hence the translation is (semantically) ungrammatical.

Since the hypothesis above also describes the problem Ge1 No2 learners encounter in their production (see H3→No2 (A1, A3i)), it is interesting to compare the numbers of erroneous structures in the two groups: nine out of 29 No1 Ge2 learners (erroneously) translated *ihre* as *hennes* in example (16) while eight out of 27 Ge1 No2 learners did, i.e. nearly one third in each learner group chose to translate *ihr** with a feminine singular possessor as the irreflexive *hennes*. Again, we do not suspect a misinterpretation of the possessive relation.

The following example can also be taken as support for H3←Ge2 although the source sentence is ambiguous with respect to the binding relation (that is, ambiguous between non-locally bound singular and locally bound plural):

- (18) S (Merkel_i ist bekannt für ihre gute Beziehung zu Jens Stoltenberg.) In *ihrer_{i/j}* Amtszeit haben *beide_j* sich mehrmals getroffen.
Lit. ‘Merkel is known for her good relations to Jens Stotenberg. In her/their term they both have met several times.’

T I**deres_j* (√*sin_j*/√*hennes_i*) regjeringstid har *de_j* truffet hverandre ofte.

ihrer (Amtszeit) in (18) can be interpreted as non-locally bound by the subject (Merkel) in the previous sentence, an interpretation which would result in the irreflexive *hennes*. Alternatively, it can refer to the subject *beide/de* (both/they) and will then require the reflexive *si**. What is not acceptable is the irreflexive *deres*. Although ambiguous examples should be avoided, (18) may reveal something about the preferences in the different groups. Nine out of 27 Ge1 No2 and 14 out of 29 No1 Ge2 learners chose the irreflexive *hennes* (acceptable under the interpretation that *ihrer* refers to Merkel) while only 1 out of 27 Ge1 No2 learners and seven out of 29 No1 Ge2 learners translated *ihrer* by the reflexive *si**. Among the Ge1 speakers, 15 (wrongly) chose the irreflexive *deres* as opposed to eight No1 speakers, thus confirming H1→No2 (section [3.2.1]).

Considering the different responses to sentences such as (18), it seems clear that a more careful choice of test sentences is required. In addition to ambiguities of the kind described in connection to (18), sentences with two possessives or in consecutive sentences related to the same binder should be avoided since these are conditions which seem to favor a freer translation/paraphrases without possessives. This concerns especially translations into the L1.

[3.4] Summary

Our hypotheses concerning the problems with restructuring to the L2 system are, to some extent, corroborated by the data: Ge1 No2 learners tend to neglect the (ir)reflexivity distinction (from their perspective the divergence of *sein** into *si** and *hans*, *hennes*, *deres*) while No1 Ge2 learners overlook the gender distinction in the L2, i.e. the divergence of *si** into *sein** and *ihr**. In other words, the problems reported can be regarded as transfer effects from the L1.

Still, for both groups of learners a priming effect of the s-possessives seems to be involved, i.e. the cross-linguistic morpho-phonological resemblance of the s*-possessives favors the erroneous constructions. On the other hand, in the absence of formal resemblance, there are far less and in some cases no error examples at all relating for instance the *si** possessive to *ihr**, *deres* to *sein** or *sein** to *deres*.

As to interpretation products, or more precisely: translation into the L1, we note far less errors. This result can be explained by the general observation that learners do know their L1. Furthermore they are competent readers, and know about cohesion and coherence. This is important for the No1 Ge2 learners in handling the divergence of *sein** into *si** and *hans*. The errors that occur will most likely have to do with specific words or contexts rather than deficiencies in their choice of possessives in their mother tongue. Of course, the absence of errors is no guarantee that the binding relation is correctly understood. Regarding the

partial ‘false friends’ *si** and *sein** it seems clear that adequate translations of either *si** as *sein** or vice versa are not sufficient evidence that the learner has actually internalized the new system.

[4] L2 COMPREHENSION DATA: NORWEGIAN AS L2

[4.1] *Introductory remarks*

This section presents experimental data from three experiments investigating the offline interpretation of Norwegian reflexive and irreflexive possessives. The experiments compared the interpretation of Norwegian possessives by Ge1 No2 learners with that of a control group of native speakers of Norwegian. We investigated the comprehension aspect of Assumption A1 (*A1-comprehension*), here repeated for convenience.

A1-comprehension Ge1 No2 learners show a grammatically less constrained interpretation of Norwegian possessives than No1 interpreters. More specifically, learners’ errors reflect the underspecification of reflexivity in the German possessive system that gives rise to ambiguities in No2 comprehension inconsistent with Norwegian No1 grammar.

The experiments were designed in such a way that the possessive could either refer to the subject referent within the same finite clause (= local referent) or to a referent outside the clause (= non-local referent). Furthermore, the constructions were chosen in such a way that their German counterparts, even though ambiguous, strongly biased the interpretation towards resolution to a particular possessor, here the local referent. The Norwegian stimuli were unambiguous due to the use of a reflexive (*sin*) versus an irreflexive form (*hans*). The logic underlying our experimental study was that interpretation errors due to transfer (see e.g. [Benati & Angelovska \(2016\)](#); [Ellis \(2008\)](#); [Meisel \(2000\)](#); [Odlin \(2003\)](#), and the references therein) are especially likely when the encoding of reflexivity in Norwegian enforces an interpretation that goes against the preferred interpretation of the respective possessive expression in German. In order to test *A1-comprehension* we conducted three offline experiments. Here is a summary of the experimental findings to be reported below.

- (i) EXPERIMENT 1: For No1 speakers, the distinction between irreflexive and reflexive possessive pronouns is fully grammaticalized as far as the construction under investigation is concerned. To study this, we tested whether reflexivity is a grammatical constraint as strong as gender – at least for the construction under investigation.

A comparison with Norwegian L1 data is especially important because Norwegian reflexive and irreflexive possessives show more complex interpretation

possibilities than what would be expected on the basis of Binding Theory (Chomsky 1981, 1986). We refer the reader to Fabricius-Hansen et al. (2017, section 3.1) for a discussion of the exceptional binding properties of Norwegian possessives.

- (ii) EXPERIMENT 2: In the construction under investigation Ge1 speakers have a clear preference for a local interpretation of German possessives but their non-local interpretation is still possible, that is the German equivalents of the Norwegian possessives in the construction under investigation exhibit ambiguity.
- (iii) EXPERIMENT 3: Advanced Ge1 No2 learners at least at a level of B1 (Council of Europe 2011) have gained explicit knowledge about the encoding of reflexivity in the Norwegian system, yet in their interlanguage the feature of reflexivity is not fully grammaticalized comparable to gender, which is also encoded in their own possessive system (*sein* versus *ihr*).

The predicted errors could be persistent and still be present in even more advanced learners (No2 at least at the level of B2).

The No2 interpretation of reflexive and irreflexive possessives relates to existing psycholinguistic work on the application of the binding principles in L2 syntax. The L2 processing and interpretation of reflexive pronouns and personal pronouns has been investigated in a number of psycholinguistic studies (see Felser & Cunnings (2012); Patterson et al. (2014) and the references therein). One finding is that during online processing in the L2 – but not in the L1 – the binding principles (Chomsky 1981) do not act as an immediate filter on the set of possible referents. Felser & Cunnings (2012) showed that highly proficient German L2 speakers of English violated Binding Condition A during their online comprehension of reflexive pronouns: in their initial interpretation they considered non-local antecedents for reflexive pronouns (type A expressions; in Chomsky’s (1981) terminology ‘anaphors’). Similarly for Binding Condition B, Patterson et al. (2014) provided eyetracking evidence that highly proficient German L2 speakers of English initially considered local referents for personal pronouns, i.e. type B expressions that must not be interpreted locally. However, in offline reference choice tasks similar to the one employed in our study, advanced German learners of English did not differ significantly from a control group of native English participants. Thus, even though the product of the interpretation process was essentially the same, the interpretation process differed between L2 and L1 processing. Felser & Cunnings (2012), and Patterson et al. (2014) employed the *Shallow Syntax Hypothesis* put forward by Clahsen & Felser (2006) and interpreted the observed difference between L2 and L1 processing in terms of a general learner effect with impoverished syntactic representations in the L2.

The experiments reported below investigated transfer effects on L2 interpretation (Benati & Angelovska 2016; Ellis 2008; Odlin 2003). We hypothesized that negative transfer from the German possessive system to the Norwegian system would result in comprehension errors. Furthermore, we were interested to see whether these errors persist across different levels of linguistic proficiency. Even very advanced Ge1 No2 comprehenders might still experience a cross-linguistic influence from their L1. Evidence for these assumptions comes again from investigations on anaphora resolution. Roberts et al. (2008) conducted an experimental study explicitly addressing L1 influences on the interpretation of Dutch personal pronouns. They investigated the online processing as well as the offline interpretation of L2 Dutch by comparing a group of German learners with a group of Turkish learners. The offline interpretation data showed that the group of Turkish learners chose different referents for personal pronouns than the German learners who patterned with a Dutch L1 control group. The interpretation of Dutch personal pronouns by the Turkish group strikingly resembled the anaphora resolution expected for Turkish personal pronouns, which signal a different cognitive status (in the sense of Gundel et al. (1993)) than Dutch or German personal pronouns. Unlike Dutch or German, Turkish includes null pronominal forms in its pronominal system. Consequently, anaphora resolution of a Turkish personal pronoun does not involve the simplest pronominal form but involves a marked, inherently more complex expression than the null pronominal. The observed differences in interpretation possibilities point to a persistent L1 influence since the learners tested in the study were highly proficient L2 speakers of Dutch.

Another line of experimental research investigated L2 errors related to reflexivity. During the 1980s and 1990s second language acquisition researchers within the tradition of the Government and Binding Theory (Chomsky 1981, 1986) investigated whether the L2 is necessarily in accord with Universal Grammar, and whether the parameters responsible for cross-linguistic variation can be reset (cf. Fabricius-Hansen et al. (2017, section 4.1)) when adults acquire an L2 that differs from their L1 (for the Principles and Parameters approach to language learning, see, e.g. Chomsky (1991); Wexler & Manzini (1987)). The question whether parameters could be reset was investigated in a number of studies testing locality conditions for reflexive pronouns in L2 grammar contingent on the grammatical properties of their L1s (see e.g. Finer (1990); Finer & Broselow (1986); Hirakawa (1990); Thomas (1991); Yuan (1994)). Even though it is assumed to be a universal principle that reflexives (or rather anaphors) must be bound within their local domain, languages vary in two respects (see the proposal in Wexler & Manzini (1987)): They have different constraints on what can count as a binder in the first place, namely only the subject or other arguments, too. Secondly, locality conditions are themselves subject to cross-linguistic variation. While some languages allow long distance binding into an infinitive clause, this is prohibited in others.

The abovementioned studies suggest that some L2 learners are able to fully adopt a parametrically different system (but see Yuan (1994)). However, other participants in these experiments showed negative transfer from their L1 systems. Still others even developed an interlanguage different from both systems. What these studies and the present one have in common is the question whether learners can fully adapt to a grammatical system different from their own.

In the experiments reported below we used constructions in which local referents are clearly subject to locality conditions even under the most exclusive parameter settings since they are the subjects of a finite clause c-commanding the possessive. As a consequence, locality conditions are not at issue here. It is the encoding of reflexivity in the possessive system that we are interested in. This is by no means intended to imply that Ge1 speakers do not know about reflexivity at all. Interestingly, there is another domain where Ge1 and No1 speakers both have reflexivity built into their systems, i.e. the distribution of reflexive pronouns (Norwegian *seg (selv)* and German *sich (selbst)*) versus pronouns (*han/hun* and *er/sie*). We will come back to this when we discuss implications for planned work investigating the L1 vs. L2 online processing of reflexivity in section [5]. Whether the L2 parsing system can become fully native-like, transfer or not, is still an open issue that can only be resolved going beyond interpretation data and studying the online processing of grammatical features such as reflexivity (see e.g. Clahsen & Felser (2006)).

[4.2] *Designs and Materials used in the experiments*

The target sentences of the experimental items were constructed in the conditions (19) and (20). A sample item in the *sin* and *hans* conditions in Norwegian is illustrated in (19a) and (19b); (20) is the corresponding German item.

- (19) Det er en kald høstdag i skogen. Emil_{LOCAL} har på seg et skjerf og Magnus_{NON-LOCAL} har på seg lue.
 ‘It is a cold autumn day in the forest. Emil is wearing a scarf and Magnus is wearing a cap.’
- a. Mens Emil_{LOCAL} passer på [den lille hunden sin], klatrer Magnus_{NON-LOCAL} i den gamle eika.
 ‘While Emil takes care of [the little dog sin], Magnus climbs on the old oak tree.’
- b. Mens Emil_{LOCAL} passer på [den lille hunden hans], klatrer Magnus_{NON-LOCAL} i den gamle eika.
 ‘While Emil takes care of [the little dog hans], Magnus climbs on the old oak tree.’
- (20) Es ist ein kalter Herbsttag im Wald. Emil_{LOCAL} trägt einen Schal und Magnus_{NON-LOCAL} hat eine Mütze auf. ‘It’s a cold autumn day in the forest. Emil

is wearing a scarf and Magnus is wearing a hat.’

- a. Während Emil_{LOCAL} auf seinen kleinen Hund aufpasst, klettert Magnus_{NON-LOCAL} in der alten Eiche herum. ‘While Emil takes care of his small dog, Magnus is climbing in the old oak tree.’

All items consisted of discourses with three sentences. The first two sentences set up the context and the third sentence was the target sentence. The first context sentence introduced a scenario without any mention of the referents. Two referents were then introduced in the second context sentence. This was always done using sentence coordination, which should make both referents equally salient. Furthermore, half of the items had coordinations with reference to the local referent (R_{LOCAL}) in the first conjunct while the other half introduced this referent in the second conjunct. The target sentences started with a subordinated *mens/während* (*while*) clause with R_{LOCAL} as the subject followed by a possessive phrase with either a reflexive possessive pronoun *sin* (*his/her own*) or an irreflexive possessive pronoun *hans* (*his*). In the German experiment, only the singular masculine form of the possessive (*sein*) was used. The matrix clause with the non-local referent ($R_{NON-LOCAL}$) as the subject followed the subordinated *while* clause. Within the target sentences reference to the non-local referent thus involved a cataphoric dependency, whereas the local referent preceded the possessive phrase and allowed for an anaphoric dependency. This should lead to a strong preference for local interpretations in the constructions used in our experiments. A consequence of this bias towards the local interpretation is that the experiments reported below were mainly aimed at testing Ge1 No2 comprehension errors with respect to Binding Principle B and not Principle A.

Two baseline control conditions were added to these conditions. The first baseline control condition added another disambiguation beyond reflexivity towards local binding of *sin*. The target sentence with *sin* was therefore split into two independent sentences. In the following we will refer to this condition as *unambiguous local* condition:

- (19) c. Emil_{LOCAL} passer på den lille hunden sin. I mens klatrer Magnus_{NON-LOCAL} i den gamle eika.
‘Emil watches [the little dog sin]. Meanwhile Magnus climbs on the old oak tree.’
- (20) b. Emil_{LOCAL} passt auf seinen kleinen Hund auf. Währenddessen klettert Magnus_{NON-LOCAL} in der großen Eiche herum.
‘Emil takes care of his little dog. Meanwhile Magnus is climbing in the old oak tree.’

An *unambiguous non-local* condition was generated by manipulating the gender of

R_{LOCAL} and changing the male name to a female name throughout the discourse. (19d) and (20c) are discourses with gender-disambiguated reference to $R_{NON-LOCAL}$:

- (19) d. Mens Emma_{LOCAL} passet på [den lille hunden hans], klatrer Magnus_{NON-LOCAL} i den gamle eika.
 ‘While Emma watches [the little dog hans], Magnus climbs on the old oak tree.’
- (20) c. Während Emma_{LOCAL} auf seinen kleinen Hund aufpasst, klettert Magnus_{NON-LOCAL} in der alten Eiche herum.
 ‘While Emma takes care of his little dog, Magnus is climbing in the old oak tree.’

To summarize, the Norwegian experiments (EXPERIMENT 1 and EXPERIMENT 3) employed a 2x2 within design manipulating the factors *possessive* (*sin* vs. *hans*) and *baseline* (possessive form as the only disambiguating information vs. additional disambiguation). The German experiment (EXPERIMENT 2) employed a within design with three discourse conditions (ambiguous vs. unambiguous local vs. unambiguous non-local).

32 completely parallel items such as (19) and (20) were constructed in Norwegian and German. In addition, 70 filler discourses were constructed in a Norwegian and a German version. These fillers systematically distracted away from various properties of the items. The distractors used other types of pronouns than possessive pronouns, they differed in the number of referents and so forth.

A Latin square design was used to create four lists in the Norwegian experiments and three lists in the German experiment such that each participant received each item in only one condition and each item was tested equally often across conditions.

[4.3] *Experiment 1: No1 speakers*

Methods

Participants: 21 No1 speakers (mean age 35.3 years, range 22–67 years, 15 female) from the Oslo region participated in the experiment. The number of participants was comparable across lists: four participants in the first list, six in the second list, six in the third list, and five participants in the fourth list.

Procedure: The experiment was conducted over the internet. It was implemented using the freely available Onexp software. An experimental session started with written instructions and a collection of relevant participant data. Then the experiment followed with the 102 discourses in a single block. The texts were presented in individually randomized orders of presentation. All experimental materials including instructions were in Norwegian and participants were told that the experiment was part of a larger study including learners of Norwegian.

Condition	Local referent	Non-local referent	Total
<i>Sin</i>	168 (100.0%)	0 (0.0%)	168
Unambiguous local	167 (100.0%)	0 (0.0%)	167
<i>Hans</i>	3 (1.8%)	165 (98.2%)	168
Unambiguous non-local	1 (0.6%)	165 (99.4%)	166
Total	339	330	N = 669

TABLE 3: Absolute and relative number of local vs. non-local referent choices in EXPERIMENT 1.

Interpretations were measured using a forced choice referent selection task. Each discourse was presented together with three potential choices after a question asking for the possessor, e.g. *whose dog is it*: (i) R_{LOCAL} , (ii) $R_{\text{NON-LOCAL}}$, and (iii) *ingen av dem/keiner von beiden (neither of them)*. The alternatives were displayed below each other with *neither of them* always being at the bottom. The presentation order of the local and the non-local referent was counterbalanced across items. Each discourse was presented together with the question and the three answer alternatives on a single screen. After marking their choice by clicking on a radio button, participants moved to the next screen by clicking on a *go on* button. There was no time limit for providing an answer.

Data analysis: Choices of the local referent were coded as local judgments. Choices of the non-local referent or of *neither of them* were coded as non-local judgments. For the items, *neither of them* was chosen only 0.4% of the time. On three occasions the server failed to log an answer in the experimental trials. These were treated as missing values.

In this experiment and in the other two experiments the data were submitted to logit mixed effects model analyses including maximal random effects structures for participants and items (Barr et al. 2013; Jäger 2008). In case at least one cell in the contingency tables reported in the descriptive statistics in the tables below consisted of less than five cases, we computed Fisher's exact test on 2x2 contingency tables instead of logit-mixed-effects analyses.

Results and discussion

Participants chose the correct answer for the fillers 94.9% of the time. All participants scored above 88.0% correct showing that they paid attention to the task.

Table 3 presents the results for the possessive items. In both the *sin* and the unambiguous local condition there were 100% local judgments. In the *hans* and the unambiguous non-local condition there were 98.2% and 99.4% non-local judgments, respectively. Fisher's exact test revealed that the numerical 1.2% difference between these conditions was not reliable (one-tailed test: $p = 0.32$).

Condition	Local referent		Non-local referent		Total
Ambiguous	311	(90.9%)	31	(9.1%)	342
Unambiguous local	334	(97.9%)	7	(2.9%)	341
Unambiguous non-local	27	(7.9%)	313	(92.1%)	340
Total	672		351		N = 1023

TABLE 4: Absolute and relative number of local vs. non-local referent choices in EXPERIMENT 2

The results of EXPERIMENT 1 show that for the constructions used in our study reflexivity is in fact a strong grammatical constraint making binding/coreference between *sin* and a non-local referent and *hans* and a local referent impossible. The disambiguating effect of reflexivity without further gender disambiguation was as strong as the disambiguating effect of the two cues in combination.

[4.4] *Experiment 2: Preferences in German*

Methods

The German experiment employed the same methods as the previous experiment. All experimental materials including the instructions were in German.

Participants: 32 native German speakers (mean age 30.6 years, range 20–74 years, 20 female) from the region of Tübingen participated in the experiment. 10 participants were randomly assigned to the first list, and 11 participants were tested in the second and third list, respectively.

Results and Discussion

The filler trials were judged correctly 92.8% of the time and all participants judged at least 85% of them correctly. Thus, all participants paid attention to the task.

Table 4 presents the number of local versus non-local referent choices in this experiment. The unambiguous local baseline condition led to local referent choices 97.9% of the time. The unambiguous non-local baseline condition received on average 92.1% non-local referent choices. This implies that in 7.9% of all cases participants incorrectly chose a local female referent for a masculine possessive pronoun – clearly an error. The relatively high proportion of errors in this condition already indicates that establishing a non-local possessor relation to a referent not mentioned yet is highly dispreferred and can thus lead to errors.

The ambiguous condition with two male referents overwhelmingly led to local judgments. This shows that the tested materials have in fact a very strong bias towards local referent choices. The 9.1% non-local referent choices, on the other, suggest that the ambiguous condition is in fact ambiguous and that in line with our assumptions non-local possessor interpretations are possible. That the

difference between the ambiguous and the unambiguous local baseline control was reliable was confirmed by a significant fixed effect of condition in a logit mixed effects analysis. We analyzed the number of local referent choices in the ambiguous condition versus the unambiguous local baseline. The model equation of the computed glmer model in R syntax is provided in (30) (lme4 package).

(21) `referent choice ~ condition + (1+condition|participant) + (1+condition|item)`

The analysis revealed a significant effect of *condition* (*estimate* = 2.50, *z-value* = 3.49, *p* < .01) due to significantly more non-local referent choices in the ambiguous conditions than in the unambiguous local baseline condition.

The analysis of the German data suggests that the German learners of Norwegian in EXPERIMENT 3 should experience difficulty in the *hans* condition. In this condition, Norwegian grammar requires them to interpret the possessive non-locally, even though in their L1 a local interpretation of a possessive pronoun is strongly preferred for the tested constructions.

[4.5] *Experiment 3: German learners of Norwegian* *Methods*

The methods were the same as those of EXPERIMENT 1 with the following modifications.

Participants: 25 native German learners of Norwegian enrolled in the department of Scandinavian Studies at the University of Göttingen (mean age 24.6 years, range 19–65 years, 20 female) participated in the experiment for payment of Euro five. Six participants completed the first, five participants the second, six participants the third, and eight participants the fourth list, respectively. Learners were recruited from two courses. Twelve of them attended the course *Norwegian III* requiring a level of Norwegian of at least B1 according to the European Reference System, and 13 attended *Norwegian V*, or a *literature course* with a level of Norwegian of at least B2, but also including three speakers with level C1.¹¹

The participant information data showed that the two groups clearly differed in their acquisition level. The B1 group had on average spent 1.4 years learning Norwegian, and the B2+ group had on average spent 3.1 years learning Norwegian (independent samples t-test: $t(23) = 5.25$, $p < .01$). Furthermore, the participants in the B1 group had on average only spent 1 month in Norway, the B2+ group had on average spent six months in Norway.

When asked after the experiment both groups of students of Scandinavian Studies were generally able to correctly state the rules governing the use of reflexive and irreflexive Norwegian possessives and documented that they had been

[11] According to their self-report and that of their course instructor, Victor Hansen (p.c.).

Condition	Local referent		Non-local referent		Total
<i>Sin</i>	198	(99.0%)	2	(1.0%)	200
Unambiguous local	199	(99.5%)	1	(0.5%)	200
<i>Hans</i>	18	(9.0%)	182	(91.0%)	200
Unambiguous non-local	2	(1.0%)	198	(99.0%)	200
Total	417		383		N = 800

TABLE 5: Absolute and relative numbers of local vs. non-local referent choices in EXPERIMENT 3.

taught about their proper use. Also, both groups were able to understand the vocabulary used in our experimental materials. This was confirmed by a vocabulary test asking for translations of the intuitively most difficult word of each of the items (B1: 87.5% correct, B2+: 91.4% correct).

Procedure: The first part of the experiment was identical to EXPERIMENT 1. After the main experiment a brief vocabulary test was added asking for translations for the most difficult 32 words used in the items (one word from each item). Participants were shown the word together with a list of four potential German translations with only one being correct.

After the vocabulary test participants were explicitly asked for grammatical rules that govern the correct use of the Norwegian possessive forms *sin*, *hans*, *hennes* and *deres*. They were also asked whether they had been taught about the proper use of Norwegian possessive forms.

Results and Discussion

The filler trials were judged correctly 90.3% of the time and all participants except for one (78% correct) judged at least 85% of them correctly. Thus, all participants paid attention to the task.

The performance was almost native-like for the experimental items, too. The *sin* condition and the local unambiguous baseline condition both received 99% local referent choices, Fisher's exact test revealed that the two conditions did not differ significantly from each other (one tailed test: $p = 0.50$). However, this result should not be surprising given the bias towards local referent choices in the constructions tested.

Performance in the *hans* condition showed that the learners were generally able to overcome this bias in accordance with the requirements of irreflexive Norwegian possessive pronouns. In more than 90% of the experimental trials they chose the non-local referent. However, they did so slightly less often than in the unambiguous non-local condition where 99% non-local referent choices were observed. A logit mixed effects model analyzing these two conditions revealed a

Level/condition	Local choices		Non-local choices		Total
B1					
<i>sin</i>	96	(100%)	0	(0%)	96
Unambiguous local	96	(100%)	0	(0%)	96
<i>hans</i>	6	(6%)	90	(94%)	96
Unambiguous non-local	1	(1%)	95	(99%)	96
B2+					
<i>sin</i>	102	(98%)	2	(2%)	104
Unambiguous local	103	(99%)	1	(1%)	104
<i>hans</i>	12	(12%)	92	(89%)	104
Unambiguous non-local	1	(1%)	103	(99%)	104
Total	417		383		N = 800

TABLE 6: Local vs. non-local choices in EXPERIMENT 3 contingent on linguistic proficiency.

marginally significant fixed effect of *condition* ($estimate = -6.27, z = -1.73, p = 0.08$), see (21) for the model equation. Thus, even though this happened only very rarely learners failed to apply Binding Principle B. This finding clearly contrasts with what we have observed for the Norwegian L1 speakers in EXPERIMENT 1 with absolutely no difference between the *hans* condition and the unambiguous non-local baseline control condition.

Finally, we looked into the number of local vs. non-local referent choices in the four conditions contingent on linguistic proficiency to investigate whether proportions of errors decrease with proficiency. Because the two groups were too small for inferential statistics only descriptive statistical analyses were conducted. The results are summarized in table 6. Both subgroups made errors. The B2+ group had even somewhat higher error rates than the B1 group. In summary, both groups showed an almost native like command of Norwegian possessive pronouns, but the rarely occurring errors concerning Principle B seem to be persistent across learner groups and can even be found in rather advanced learners. We would like to emphasize that this has to be considered a preliminary result. Larger samples are needed to validate these claims

[4.6] Summary: No2 interpretation by Ge1 comprehenders

In this section we have reported three experiments that provide evidence for transfer effects on the interpretation of No2 possessives by Ge1 No1 learners.

Only in case reflexivity enforced an interpretation inconsistent with their L1 preference for resolving the possessor argument of ambiguous possessives, the learners slightly deviated from the Norwegian system. These errors due to negative transfer from their L1 turned out to be rather small, though. The effect was a less than ten percent increase in error rates relative to the unambiguous irreflexive *hans* condition. This shows that overall learners were quite successful in acquiring the reflexivity feature of the Norwegian possessive system crucially absent in their L1.

We also compared the observed learner errors in the *hans* condition for the two learner subgroups. Even though the sample sizes are too small to draw firm inferences, the observed errors seem to be persistent across the two groups of different proficiency levels. Further experiments testing more participants and even more advanced learners ideally in immersion contexts are needed to confirm these first, preliminary results.

Why do we interpret the observed learner errors as a transfer effect instead of a general learner effect (in the sense of [Clahsen & Felser \(2006\)](#))? A general learner effect should probably affect the interpretation of both, reflexive and irreflexive possessives. However, errors were only observed for irreflexive possessives. We think that this asymmetry in the distribution of errors nicely fits the German system; cf. the preferences observed in EXPERIMENT 2. In addition, in our planned online study to be outlined in the next section we will distinguish more precisely between general learner effects, on the one hand, and effects of linguistic transfer, on the other. Studying the online interpretation of possessives opens up the possibility to separate these two prominent aspects of L2 processing from each other in a methodologically sound way.

[5] SUMMARY, CONCLUSION AND OUTLOOK

In this paper we have presented two types of studies on the acquisition of the possessive systems of Norwegian and German by speakers of German and Norwegian respectively. The first study consisted of an error analysis of translation data from and into the L1 against which we tested our hypotheses concerning the difficulties to be expected on the basis of the systemic differences. Our hypotheses were largely confirmed by the data (translation products): For the German learners of Norwegian, the divergence of *sein** into *si** and *hans*, *hennes*, i.e. the (ir)reflexivity condition of the Norwegian possessive, was shown to represent the greatest difficulty, while the divergence of the reflexive *si** into *sein** and *ihr** constituted the main obstacle for the Norwegian learners of German. In both cases, there seemed to be a tendency to translate on the basis of the L1 system although morpho-phonological priming cannot be ruled out.

The second study (section [4]) employed an offline interpretation task and investigated the NO2 interpretation of possessives by Ge1 No2 learners. Referent

choices in NO2 were compared to the No1 and Ge1 interpretation. The results show that the interpretation of Norwegian possessives by German learners slightly differs from that of L1 speakers of Norwegian. Furthermore, the findings suggest that even quite advanced learners are still prone to errors. We interpreted the observed errors as effects of negative transfer from German to Norwegian because errors were restricted to the syntactic condition in which the preferences for German work in the opposite direction than the syntactic constraint on the interpretation of the irreflexive Norwegian possessives.

We think this is a likely interpretation. However, it must be emphasized that this interpretation goes well beyond what the presented data really show (see, e.g. Meisel (2000) and Roberts et al. (2008) for a discussion on the methodological challenges to distinguish transfer from other L2 effects). The present study can therefore only serve as a first step. Future research should extend the reported research in two directions.

First, No2 learners with different language backgrounds should be tested on the materials used in our study. In particular, learners with an L1 also marking reflexivity in its possessive system as, for instance, Russian (see Fabricius-Hansen et al. (2017)) would be a highly relevant sample for comparison. If our assumption is correct that the reported errors are in fact mainly due to language transfer, these learners should make fewer errors relating to local versus non-local binding than German No2 learners or even be indistinguishable from the No1 control group.

Secondly, instead of comparing different language samples we can compare different parts of the pronominal system even within the same sample of Ge1 No2 speakers. In our future research we will contrast the interpretation of Norwegian possessives by Ge1 No2 learners with the same speakers' interpretations of reflexive and personal pronouns. Importantly, the respective systems of ordinary pronouns are not subject to cross-linguistic differences and we would therefore expect to see no interpretation errors in this part of the (pro-)nominal system. This offers us the opportunity to study transfer in individual speakers by comparing application of the binding principles in two domains — the first subject to cross-linguistic differences versus a second domain that is cross-linguistically stable. We would like to note that for 'ordinary' reflexive and irreflexive pronominal forms exactly the same design can be used as the one employed in the experiments reported in the previous section:

- (22) Sarah und Maren haben sich gestern auf eine Tasse Tee getroffen. Während Maren_{LOCAL} eine Tasse Tee für sich zubereitete, schnitt Sarah_{NON-LOCAL} den Kuchen in Stücke.
 Lit.: 'Sarah and Maren met yesterday to have a cup of tea together. While Maren was preparing a cup of tea for herself, Sarah cut the cake into pieces.'

- (23) Während Maren_{LOCAL} eine Tasse Tee für sie zubereitete, schnitt Sarah_{NON-LOCAL} den Kuchen in Stücke.
 Lit.: 'While Maren was preparing a cup of tea for her, Sarah was cutting the cake into pieces.'

As mentioned in the course of the discussion, (free) translation as a test has its limits, since it allows informants to opt for solutions that may disguise his/her actual attainment of the foreign language. In order to avoid priming by the source text items, data from free production should be elicited. The offline interpretation study reported on in section [4] is a first approximation to test comprehension more systematically. This test design should be extended to include other carefully structured syntactic environments for the possessives in order to get a better picture of the learners' acquired competence and the levels of restructuring attained. Structured monolingual production tests are needed to avoid the limitations inherent in offline translation tests.

From a cognitive point of view it would be highly welcome to complement our analyses of error rates with online measures sensitive to the interpretation processes during realtime interpretation (see, e.g. Clahsen & Felser (2006), for a discussion on online vs. offline L2 interpretation). The design used in the interpretation experiments reported above is also appropriate for experiments using the visual-world paradigm (cf. Cooper (1974); Huettig et al. (2011)). Currently, we are preparing these online experiments and the experiments from Section [4] will serve as point of comparison between online and offline interpretation data. Based on the results reported above and the literature on L2 processing we expect to find clear differences in the time course of native and non-native possessive interpretation. These differences will probably turn out to be much stronger than the rather subtle offline effects reported above. Translation under eye tracking and key logging is also an interesting testing ground to be developed for further study (see Behrens (2017) for such a study on the language pair English-Norwegian).

REFERENCES

- Barr, Dale J., Roger Levy, Christoph Scheepers & Harry J. Tily. 2013. Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68. 255–278.
- Behrens, Bergljot. 2017. Processing possessives in translation between unequal systems: An exploratory study. *Oslo Studies in Language* 9(2). 105–136.
- Benati, Alessandro G. & Tanja Angelovska. 2016. *Second language acquisition. a theoretical introduction to real world applications*. London: Bloomsbury.

- Bie-Lorentzen, Sjur. 2012. *Possessiva als Lernproblem – Norwegisch-Deutsch/Deutsch-Norwegisch*. Oslo: University of Oslo.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Knowledge of language: Its nature, origin, and use*. Westport, Connecticut: Praeger.
- Chomsky, Noam. 1991. Some notes on economy of derivation and representation. In R. Freidin (ed.), *Principles and parameters in comparative grammar*, 417–454. Cambridge, Massachusetts: MIT Press.
- Clahsen, Harald & Claudia Felser. 2006. How native-like is non-native language processing? *Trends in Cognitive Science* 10. 564–570.
- Cooper, Roger M. 1974. The control of eye fixation by the meaning of spoken language: A new methodology for the real-time investigation of speech perception, memory, and language processing. *Cognitive Psychology* 6. 84–107.
- Council of Europe. 2011. *Common European framework of reference for languages: Learning, teaching, assessment*.
- Ellis, Rod. 2008. *The study of second language acquisition*. Oxford: Oxford University Press.
- Fabricius-Hansen, Cathrine. 1981. *Kontraster og fejl: indføring i kontrastiv beskrivelse og elevsprogsanalyse på norsk-tysk grundlag*, vol. 7. Oslo: Germanistisk institutt, Universitetet i Oslo.
- Fabricius-Hansen, Cathrine, Hans Petter Helland & Anneliese Pitz. 2017. An L2 perspective on possessives: Contrasts and their possible consequences. *Oslo Studies in Language* 9(2). 3–39.
- Felser, Claudia & Ian Cunnings. 2012. Processing reflexives in a second language: The timing of structural and discourse-level constraints. *Applied Psycholinguistics* 33. 571–603.
- Finer, Daniel L. 1990. Modularity and lexical parameterization in the adult grammar. *Linguistics* 28. 905–927.
- Finer, Daniel L. & Ellen I. Broselow. 1986. Second language acquisition of reflexive binding. *North Eastern Linguistic Society* 16. 154–68.
- Gundel, Jeanette K., Nancy Hedberg & Ron Zacharski. 1993. Cognitive status and the form of referring expressions. *Language* 69. 274–307.

- Hirakawa, M. 1990. A study of the L2 acquisition of English reflexive. *Second Language Research* 6. 33–52.
- Holthe, Enid. 2016. *Mein Kopf oder der Kopf? Die Verwendung von externen und internen Possessoren im Deutschen im Vergleich zum Norwegischen*. Oslo: University of Oslo.
- Huettig, Falk, Joost Rommers & Antje S. Meyer. 2011. Using the visual world paradigm to study language processing: A review and critical evaluation. *Acta Psychologica* 137. 151–171.
- Jarvis, Scott & Aneta Pavlenko. 2008. *Crosslinguistic influence in language and cognition*. London: Routledge.
- Jäger, T. Florian. 2008. Categorical data analysis: Away from ANOVAs (transformation or not) and towards Logit Mixed Models. *Journal of Memory and Language* 59. 434–46.
- McLaughlin, Barry. 1990. Restructuring. *Applied Linguistics* 11(2). 113–128.
- Meisel, Jürgen M. 2000. On transfer at the initial state of L2 acquisition. In C. Reimer (ed.), *Kognitive Aspekte des Lehrens und Lernens von Fremdsprachen (Festschrift für Willis J. Edmondson zum 60. Geburtstag)*, 186–206. Tübingen: Narr.
- Odlin, Terence. 2003. Cross-linguistic influence. In Catherine J. Doughty & Michael H. Long (eds.), *The handbook of second language acquisition*, 436–486. Oxford: Blackwell.
- Patterson, Clare, Helena Trompelt & Claudia Felser. 2014. The online application of binding condition B in native and non-native pronoun resolution. *Frontiers in Psychology* 5.
- Ramm, Wiebke & Cathrine Fabricius-Hansen. 2012. Deutsche und norwegische Nominalflexion im Kontrast: Possessiva und nominale Pluralbildung. In A. Hagen & Cathrine Fabricius-Hansen (eds.), *Flexionsmorphologie des Deutschen aus kontrastiver Sicht*, 145–196. Tübingen: Stauffenburg.
- Roberts, Leah, Marianne Gullberg & Peter Indefrey. 2008. Online pronoun resolution in L2 discourse. *Studies in Second Language Acquisition* 30. 333–357.
- Thomas, Margaret. 1991. Universal grammar and the interpretation of reflexives in a second language. *Language* 67. 211–39.
- Weinreich, Uriel. 1953. *Languages in contact: Findings and problems*. New York: Linguistic Circle of New York.

- Wexler, Kenneth & M. Rita Manzini. 1987. Parameters and learnability in Binding Theory. In Thomas Roeper & Edwin Williams (eds.), *Parameter setting*, 41–76. Dordrecht: Reidel.
- Yuan, Boping. 1994. Second language acquisition of reflexives revisited. *Language* 70. 539–545.
- Zifonun, Gisela. 2005. *Grammatik des Deutschen im europäischen Vergleich: Das Pronomen. Teil III: Possessivpronomen*. Mannheim: Institut für Deutsche Sprache.

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