



Developmental stages challenging cross-linguistic transfer: L2 acquisition of Norwegian adjectival agreement in attributive and predicative contexts

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RESEARCH

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ABSTRACT

This study presents cross-sectional data on adjectival agreement in second-language (L2) learners of Norwegian with four different first languages (L1s). The target language has full noun phrase agreement between article, adjective and noun, and the source languages represent different agreement conditions, similar to or different from the target language. Sixteen learners participated in the study, and their oral production of adjective agreement was analysed individually. Two hypotheses were proposed. First, learners will develop adjectival agreement in a piecemeal way and follow the developmental stages predicted by Processability Theory (Pienemann, 1998), with attributive and predicative agreement implicationaly ordered. Second, learners with adjective agreement in the L1 will transfer that into the L2, whereas learners without agreement in the L1 will not use agreement. Under the first hypothesis, we expect the learners to be distributed along a developmental scale, with some learners applying agreement in attributive positions only and others applying agreement in both the attributive and predicative positions. Under the second hypothesis, we anticipate a difference between the groups: Learners with agreement in their L1 will mark agreement in all contexts where it occurs in the L1, whereas learners who do not have agreement in their L1 will fail to mark agreement overall. The comparison demonstrates larger differences within the L1 groups than between the L1 groups. This suggests a gradual acquisition of agreement, with the agreement features and positions emerging one by one rather than being transferred from the L1.

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The objective of the present study is to examine the influence of the first language (L1) in learners' second-language (L2) production of Norwegian adjectival number and gender agreement in attributive and predicative contexts. These structures are present in two of the L1s (Albanian and Arabic), not present in one (Kurdish) and restricted in one (Somali). If there is transfer from the L1, this is expected to affect both attributive and predicative agreement similarly and to affect gender and number agreement similarly. Therefore, attributive and predicative agreement in number and gender is expected in the learners with Albanian and Arabic as L1s, whereas neither should occur in the Kurdish-speaking learners. If the Somali-speaking learners rely on transfer, they will either fall into the first group (use both attributive and predicative agreement) or into the second group (use neither attributive nor predicative agreement) because agreement is optional in their L1, but it occurs in both positions if it is realized.

It is well-known that different languages influence each other in bilingual individuals. There is plenty of evidence for cross-linguistic influence, from foreign accents and the use of loanwords, code-switching and translanguaging to subtle indices such as overextensions of meanings and overuse of specific structures (e.g., Grosjean, 1989; Lemmens & Perrez, 2010; Gardner-Chloros, 2011; Alferink & Gullberg, 2014; Wei, 2018). The concept of cross-linguistic influence or transfer has a long history, as it has been discussed in L2 acquisition research since the field began to take form in the 1950s (Weinreich, 1953; Lado, 1957).

However, it is also a well-known fact that learner language is systematic and develops along a continuum with "predictable paths with predictable stages in the acquisition of a given structure" (VanPatten & Williams, 2015, p. 10). Studies focussing on gradual development tend to find that language grows out of the learners' communicative needs (Klein, 1986; Klein & Perdue, 1997; Dimroth et al., 2013; Givón, 2018) or from an increasing cognitive maturity that helps learners to deal with the input through operating principles (Andersen, 1984) or the incremental growth of processing prerequisites needed (Pienemann, 1998).

The seemingly contrasting views can be combined if we incorporate a timeline into the picture and take a micro perspective of what the learner is doing. Most theoretical perspectives see a balance between the initial state and the effect of exposure on the target language, but there are many unanswered questions about why and when there is a role for the L1. In his seminal article on transfer, Jarvis (2000) draws attention to the lack of consensus among researchers about the timing of transfer. He points to six different directions found in empirical studies: The role of L1 transfer decreases as the learners become more proficient, the role of transfer increases, it remains constant during the whole process, it decreases towards the end, it increases towards the end or it is constantly fluctuating. Jarvis concludes by saying these inconsistencies "make one wonder whether transfer researchers have truly been investigating the same phenomenon" (p. 247).

One answer to this problem may be that it is the same phenomenon, but there are specific timing demands on different structures. It has proven to be fruitful to decompose linguistic features into minimal factors. In their study on L2 acquisition of Spanish intransitive/inchoative structures, Cabrera and Zubizarreta (2005, p. 39) found that "different L1 grammatical properties are transferred at different levels of L2 proficiency". Klein (1986, p. 27) argues that "the possibilities for transfer increase as knowledge of the second language increases". Zobl (1980, p. 43) suggested that "L2 developmental stages (...) activate L1 transfer along a time axis".

For the structure analysed in this paper, noun phrase agreement, studies have come to different conclusions about transfer. Noun phrase agreement markers are usually acquired rather late in the developmental process. It has been argued that they are acquired so late that when transfer is possible, the level of development is already high (Zobl, 1980, p. 55). However, when the surface agreement forms are broken down into minimal factors, such as number, gender and attributive and predicative positions, they can be analysed one by one and reveal details of a systematic pattern (Bley-Vroman, 1983; Pienemann, 1998; Glahn et al., 2001; Norris & Ortega, 2003; Pallotti & Pelosi, 2008).

The remainder of this paper is structured as follows. In Section 2, we introduce Processability Theory (PT) and the place of transfer in PT. In Section 3, we present the target structure, adjectival

agreement in L2 Norwegian, and how it is realized in attributive and predicative positions. In Section 4, we present earlier research on the L2 acquisition of adjectival agreement. In Section 5, we present our own study, data, methodology and results. In Section 6, we discuss the results. In Section 7, we present the discussion and conclusion.

2. PROCESSABILITY THEORY (PT)

PT (Pienemann, 1998, 2005, 2015; Pienemann & Håkansson, 1999) is a cognitive L2 theory explaining and predicting the gradual and incremental development of L2 morpho-syntax. The basic premise is that the procedural skills emerge in stages:

The task of acquiring a language includes the acquisition of the procedural skills needed for the processing of the language. It follows from this that the sequence in which the target language (TL; covers both L1 and L2) unfolds in the learner, is determined by the sequence in which processing routines develop that are needed to handle the TL's components. (Pienemann, 1998, p. 1)

The processing routines refer to Levelt's (1989) model of sentence generation. This model contains several processing components: The conceptualiser, the formulator and the articulator. PT takes up the grammatical encoding in the formulator. This is where the lemma information is activated, and the conceptual message is translated into grammatical structures. Adult native speakers have automatized processing procedures, which makes it possible to handle communicative situations in real time: Listening to others at the same time as planning and performing own utterances. Learners have to acquire these processing procedures, and PT suggests a stepwise development, with stages in an implicational hierarchy. Each stage provides the processing prerequisites for the next stage, which will be unlocked after the previous one is processable (Pienemann, 1998, 2005, 2015).

To describe the morpho-syntactic stages in the developmental hierarchy, PT uses the grammatical formalism of Lexical Functional Grammar (Bresnan, 2001). Lexical Functional Grammar is a performance grammar, where the unification of features is a central concept (see Bresnan; Falk, 2001). This unification of functional features “allows us to represent together features that belong to a single conceptual part of the syntactic structure even if the features come from several parts in the actual syntactic structure” (Falk, p. 17). This is demonstrated in the Norwegian noun phrase attributive agreement, where article, adjective and noun are marked with gender, number and definiteness and also in predicative agreement where subject and predicative adjective are marked with gender and number. In the latter case, the features come from different parts of the syntactic structure (the subject and the predicate). The development of morpho-syntax progresses through a gradual expansion of feature unification, to be effective first between words, then between phrases, between clauses and finally between sentences. Learners start with words and move into increasingly more complex grammatical structure through stages that are acquired in implicational order. The first stage implies that words are learned and the lexicon is annotated, with forms and meanings and with syntactic categories. In the second stage, when the lexicon is categorized, local affixes can be added. When this is processable, feature unification takes place between words in a phrase (e.g., as attributive agreement). Then the window opens to assignment of sentence functions, and here, the predicative agreement is processable. The last stage of development entails the processing of subordination. **Table 1** illustrates the hierarchy of processing procedures, the scope of feature unification exemplified by examples of Norwegian grammar for each stage. The table is ordered from the bottom and up, to illustrate that the stages are based on each other, with one stage as a precondition for the next.

PROCESSING PROCEDURES	FEATURE UNIFICATION	OUTCOME: NORWEGIAN GRAMMAR
Stage 5: Subordinate clause procedure	Main and subclause	Subclause word order
Stage 4: Sentence procedure	Between phrases	Predicative agreement
Stage 3: Phrasal procedure	Within phrases	Attributive agreement
Stage 2: Category procedure	No (local morph.)	Tense
Stage 1: Words	No	Invariant words

Table 1 Processing procedures, feature unification and examples of Norwegian grammar.

2.1. THE DEVELOPMENTALLY MODERATED TRANSFER HYPOTHESIS

Cross-linguistic influence, or transfer, is predicted to interact with the processability hierarchy. The Developmentally Moderated Transfer Hypothesis predicts that transfer of L1 structures is constrained by the processability of the structures. Learners can only produce forms that they can process, and it is not possible to use structures for which they do not have the processing prerequisites (Håkansson et al., 2002; Pienemann et al., 2005). Empirical studies on the emergence of L2 Russian case (Artoni & Magnani, 2015) and the stage-wise development of L2 German word order (Håkansson et al.) demonstrate that learners do not skip stages and transfer structures of a higher stage, even if the grammatical structure of this stage is part of their L1.

3. ADJECTIVAL AGREEMENT (ATTRIBUTIVE, PREDICATIVE)

Agreement has been defined as a “systematic covariance between a semantic or formal property of one element and a formal property of another” (Steele, 1978, p. 610). This occurs in many of the world’s languages and involves many different phenomena, such as agreement in the noun phrase and agreement between subject and verb. In order for agreement to take place, there must be some controller that determines the features that will be matched by the target (Corbett, 2006). In the type of agreement that we will discuss, the adjectival agreement, the adjective is the target, and the noun is the controller.

Adjectival agreement is realized in gender, number, case and definiteness. Gender is a lexical feature of the noun, and in order to use gender agreement “its value has to be available in the lexicon” (Corbett, 2006, p. 126). In other words, the gender of the noun has to be known for the speaker. If learners do not know the gender, it is hard to assess whether they know agreement or not. There may also be a difference between gender assignment and gender agreement in learner language. For example, if a singular noun of common gender (*en bil* ‘a car’) is erroneously assigned neuter gender by the learner (*et bil*) and the adjective agrees in the neuter gender (*et gult bil* ‘a yellow car’), the learner demonstrates knowledge of gender agreement but not gender assignment (Glahn et al. 2001, p. 397).

Gender is said to be “the most puzzling of the grammatical categories” (Corbett, 1991, p. 1). It seems unnecessary in the sense that it does not seem to mark relevant cognitive distinctions, unlike, for instance, number, which marks uniqueness vs. multitude. This is reflected in the fact that some languages, such as German, display widespread use of gender, while others, such as Finnish, do not feature this category at all. In many languages, gender cannot be read from the form of the noun but has to be found in the agreement; “Genders are classes of nouns reflected in the behaviour of associated words” (Hockett, 1958, p. 231). In other words, languages with gender agreement mark the gender feature on words that stand in syntactic relation with the noun, even if it cannot be seen on the noun itself (Sinnemäki & Di Garbo, 2018).

Adjective inflections are often complex expressions of a fusion of features, such as number, gender, definiteness and case. The marker has to be there but is hard to identify for learners because of the fusion of features; thus, “one form or affix simultaneously encodes gender, case and number” (Dolberg, 2013, p. 123). This is in direct opposition to Andersen’s (1984) proposal about the “one-to-one principle” in learner language, which suggests that learners first go for forms with one function.

Turning to the target language in the current study, Norwegian has a three-gender system, with masculine, feminine and neuter gender. However, in many dialects there is a syncretism between masculine and feminine, and they are treated as one gender, the common gender (Rodina & Westergaard, 2015). Gender is visible on articles and on adjectival inflections with nouns in singular indefinite form.

Adjectives are also inflected for number and definiteness. Number is marked as a suffix on the noun. There is no gender difference in the plural. Definiteness will not be discussed in this paper, but we will examine adjectival inflections in indefinite contexts: Number (singular and plural)

and gender (common and neuter). Agreement between adjective and noun is examined in the attributive and the predicative positions. Norwegian adjectives are inflected for gender and number, as illustrated in *Table 2*.

FEATURES	ATTRIBUTIVE	PREDICATIVE
Singular common	∅	∅
Singular neuter	-t	-t
Plural common	-e	-e
Plural neuter	-e	-e

Table 2 Inflection of adjectives in the attributive and predicative positions in Norwegian.

4. PREVIOUS RESEARCH ON THE L2 ACQUISITION OF ADJECTIVAL AGREEMENT

Interest in the L2 acquisition of adjective agreement is considerable, and there is an extensive body of literature on this topic. We will give overviews of studies focussing on attributive/predicative positions and number/gender and will then present studies on L1 influence.

4.1. ATTRIBUTIVE/PREDICATIVE

Adjective agreement in an attributive position is usually acquired before agreement in a predicative position, and it is generally explained by the longer distance between the target and the controller (e.g., Kupisch et al., 2013). A number of studies with L1 English learners acquiring L2 Spanish show this pattern, irrespective of methodology: Eye-tracking (Keating, 2009), acceptability judgement (Lichtman, 2009), event-related potential (Gillon Dowens et al., 2009), and sensitivity to errors (Foote, 2011). In learner’s oral production there is an implicational order of emergence of attributive and predicative agreement; all learners who produce predicative agreement also produce attributive agreement but not the opposite (Glahn et al., 2001, for L2 Scandinavian languages; Bonilla, 2014, for L2 Spanish). However, when using accuracy as a measure, the opposite has been found. When analysing pre-advanced and advanced learners of L2 French, the accuracy rates were higher for predicative than attributive positions (Bartning, 2000; Dewaele & Veronique, 2001).

4.2. NUMBER AND GENDER

Studies on adjectival agreement often conflate number and gender and present results on general target-language accuracy (e.g., Bartning, 2000; Dewaele & Veronique, 2001; Janik, 2016). In our study, we disentangle singular agreement marking from plural agreement marking and credit the learner with number agreement marking if there is a difference between the marking of the adjective and noun in the singular and in the plural, even if there is no marking of gender differences in the singular context (i.e., all adjectives are unmarked in singular). Studies that have disentangled gender from number agreement generally find a difference in development. Gender agreement takes longer time to emerge (Glahn et al., 2001; Bonilla, 2014) and to be mastered (White et al., 2004; Granfeldt, 2005; Spinner & Juffs, 2008). Another grammatical feature that seems to be in place before gender is case. Studies of L2 German (Baten, 2013) and L2 Russian (Artoni, 2012) have demonstrated that case marking emerges before gender marking. This has been explained by the complexity of gender agreement, with two processes involved: The assignment of gender and the marking of agreement.

4.3. L1 INFLUENCE

There is no consensus in the studies of L1 influence on agreement. Sometimes L1 influence is found, and sometimes it is not. White et al. (2004) found no L1 influence in their study of adjectival agreement in L2 Spanish by L1 English and L1 French learners. Their hypothesis was that the L1 French learners (with agreement) would outperform the L1 English learners (with no agreement), but this was not observed. Similarly, Gudmestad et al. (2020) found no L1 influence on number agreement in the same language constellations that White et al. investigated (L1 English, L1 French and L2 Spanish), and Jin et al. (2009) reported no L1 influence on L2 Norwegian by L1 Romance and L1 English learners (see also Spinner & Juffs,

2008). However, others have found that having gender in the L1 increases the accuracy of gender agreement in the L2 (Ringbom, 1987; Janik, 2016; Ragnhildstveit, 2017). Janik (2016) examined three groups of learners of L2 Norwegian, L1 English, L1 German and L1 Polish. The results showed that the Polish and German learners performed better than the English learners, but the accuracy scores were not very different (Polish, 91% correct; German, 93.3% correct; and English, 88.5% correct). It is a complex matter; on one hand, gender is problematic for learners with gender in their L1 because they will have to reconstruct a new gender system, and on the other hand, learners with no gender in their L1 will have to learn a new category (Jarvis & Pavlenko, 2008, p. 136).

5. THE PRESENT STUDY

The study tests two hypotheses. The first hypothesis is that the production of agreement markers will follow the predictions of PT (Pienemann, 1998). The second hypothesis is that the learners will demonstrate cross-linguistic influence on gender agreement in L2 Norwegian, regardless of their L1. Four research questions have been formulated in order to address the two hypotheses.

- (1) Is there an implicational order between attributive and predicative agreement in L2 Norwegian, so that the use of attributive agreement is a prerequisite for learners to use predicative agreement?
- (2) Is there a difference between the marking of number (singular and plural) and the marking of gender agreement (common and neuter)?
- (3) Does the occurrence of adjective agreement in the L1 affect the marking of adjective agreement marking in the L2?
- (4) What do the learners do if they do not supply the target-language adjective agreement markers?

5.2. METHOD

5.2.1. Participants

Sixteen 12-year-old L2 learners of Norwegian participated in the study. All but one (learner 14S) were born in Norway and speak a minority language as a L1. They came into regular contact with Norwegian in kindergarten between the ages of 3 and 5. Meisel (2011, p. 10) suggests a distinction at the age of three between L1 and L2 but admits that “the age range for what counts as child second language acquisition, still needs to be justified”. Our main argument for using the term L2 on the participants’ Norwegian language is that all of them were considered to need language support in L2 Norwegian when starting at school, and most of them (all except 14S, 15S and 16S) had this type of language support until grade 5 (Arntzen & Karlsen, 2019).

The learners have four different L1s: Albanian ($n = 4$), Arabic ($n = 3$), Kurdish ($n = 4$) and Somali ($n = 5$). There are two reasons for the choice of these languages. One is that they represent different patterns of adjectival agreement. The second reason is that they belong to the 10 most common minority languages in the Norwegian school system. The following properties concerning adjective morphology are represented. In Norwegian, adjectives agree with the noun in number and gender and in attributive and predicative positions. The same is true for Albanian (Buchholz & Fiedler, 1987; Rießler, 2016) and Arabic (Fassi Fehri, 1999; Källström, 2012). In Kurdish, there is no agreement between adjectives and nouns in either position (Rießler, 2016; Thackston, 2006). Finally, in Somali there is optional number but not gender agreement between adjectives and nouns in both positions (Källström, 2012; Saeed, 1999). **Table 3** summarizes the details of the languages involved.

LANGUAGE	ATTRIBUTIVE AGREEMENT	PREDICATIVE AGREEMENT
Norwegian	+	+
Albanian	+	+
Arabic	+	+
Kurdish	-	-
Somali	optional number	optional number

Table 3 Adjective agreement in the examined languages.

5.2.2. Procedure

In PT, it is vital that the data come from the learner's own production. In order to avoid memorized chunks we used the task constructed by Glahn et al. (2001). This task consists of a sheet with objects in different colours. The participant is supposed to answer questions about the items, such as "What do you see behind the big house?" or "What colour is(are) the small car(s)?" Importantly, the objects had different colours, for example, both red and green cars, in order to motivate the participant to mention the colour. Some colours were distractors and not used in the analyses (e.g., *svart* 'black', which is not inflected in the neuter gender).

The number of possible minimal pairs for each agreement context is eight, four minimal pairs (e.g., singular-plural) for number and four minimal pairs for gender (e.g., common-neuter) in attributive contexts, and four minimal pairs for number and four minimal pairs for gender in predicative contexts. The following prompts were used to provide obligatory contexts for attributive and predicative agreement:

- Attributive agreement
 - Prompt: Hva fins det bak bilene? (*What do you see behind the X?*)
 - Expected answer: en rød bil (a_{sg,mask} red_{sg,mask} car_{sg,mask})
 - Expected answer: et rødt eple (a_{sg,neut} red_{sg,neut} apple_{sg,neut})
 - Expected answer: to røde kopper (two_{pl} red_{pl} cups_{pl})
- Predicative agreement
 - Prompt: Hvilken farve er det på de minste eplene? (*What colour is X?*)
 - Expected answer: den er rød (it_{sg,mask} COP red_{sg,mask})
 - Expected answer: det er rødt (it_{sg,neut} COP red_{sg,neut})
 - Expected answer: de er røde (they_{pl} COP red_{pl})

The copula (*er*) has the same form in singular and plural, so it does not indicate which adjectival form should be used. The first prompts provided obligatory contexts for adjectives in the attributive position, and the second prompt provided obligatory contexts for adjectives in the predicative position. The order of the questions was the same for all participants.

5.2.3. Analysis

The participants' answers were recorded and transcribed, and minimal pairs were identified where the same adjective occurred in different forms with different functions. An adjective in singular form in singular function (*gul* 'yellow') contrasted with the plural form in plural function (*gule* 'yellow') as evidence for number agreement, and a minimal pair with an adjective in neuter gender (*gult* 'yellow') contrasted with an adjective in common gender (*gul* 'yellow'). Two minimal pairs with contrasts for number and two minimal pairs with contrasts for gender were needed to score for agreement (Pallotti & Pelosi, 2008; Keßler & Pienemann, 2011). If the participant suggested colours other than the expected ones, these were counted if they occurred in a minimal pair (e.g., one learner suggested *et lysegrønt eple/to lysegrønne epler* 'one light green_{sg} apple/two light green_{pl} apples'). Colours that were suggested by the learners but do not take the inflections were disregarded (e.g., *svart* 'black', *orange* 'orange', *turkis* 'turquoise').

6. RESULTS

The results from individual learners were counted and the learners were placed in an implicational table, where a plus (+) implies occurrence of at least two minimal pairs and a minus (-) fewer than two minimal pairs. **Table 4** shows the combined results for number and gender agreement in attributive and predicative agreement (For frequency counts, see Appendix A and Appendix B).

6.1. IMPLICATIONAL ORDER – ATTRIBUTIVE AND PREDICATIVE AGREEMENT

Table 4 shows the implicational scale for attributive and predicative agreement. The learners are given codes with a combination of an identification number and the L1 (Alb = Albanian, Ar = Arabic, K = Kurdish, S = Somalian).

As shown in **Table 4**, there is an implicational relationship between predicative and attributive agreement. The scalability is optimal and there are no gaps (for more information on

PARTICIPANT	ATTRIBUTIVE	PREDICATIVE
1Alb	-	-
8K	-	-
12S	+	-
2Alb	+	-
4Alb	+	-
5Ar	+	-
7Ar	+	-
13S	+	-
14S	+	-
6Ar	+	+
3Alb	+	+
9K	+	+
10K	+	+
11K	+	+
15S	+	+
16S	+	+

Table 4 Implicational scale for adjectival agreement.
 Scalability = 1.0.

implicational scaling, see DeCamp, 1971; Hatch & Lazaraton, 1991). All learners who produced predicative agreement also produced attributive agreement. Fourteen learners produced two minimal pairs of attributive agreement, but only half of them also produced two minimal pairs of predicative agreement. Thus, the table suggests that attributive agreement is a necessary prerequisite for predicative agreement and that they are examples of developmental stages.

The different L1s are distributed across the table, and there is nothing to suggest that learners with adjectival agreement in their L1 would differ from learners whose L1 does not have agreement. Differences within the groups are more marked than differences between the groups. One of the Albanian learners did not produce any agreement, whereas three had attributive agreement but not predicative agreement. Two of the Arabic learners produced only attributive and one only predicative agreement. One of the Kurdish learners (8K) did not produce any agreement, while three of the Kurdish learners produced both attributive and predicative agreement. Regarding the Somali learners, three had only attributive and two both attributive and predicative agreement.

6.2. IMPLICATIONAL ORDER – NUMBER AND GENDER AGREEMENT

Table 5 gives the results for agreement markings in attributive and predicative positions divided into number (e.g., *en grønn – to grønne*; ‘one green_{SG} – two green_{PL}’) and gender agreement (e.g., *en grønn – et grønt*; ‘one green_{COMMON} – one green_{NEUTER}’). A plus in the column for number indicates contrasts with two minimal pairs – that is, that two adjectives in singular were contrasted with two adjectives in plural carrying the morpheme *-e* (e.g., *grønn* ‘green’, *gul* ‘yellow’). A plus in the column for gender indicates that two adjectives in common gender were contrasted with two adjectives in neuter.

The scalability is somewhat smaller than in **Table 4**, but still above 0.90, which is a critical value for implication. Generally, all learners who marked attributive gender also marked attributive number, and all learners who marked predicative gender also marked predicative number. For the implication between predicative and attributive, one learner, 6Ar, had too few examples (only one) of number and gender attributive contexts, but two pairs each of predicative contexts. The Kurdish-speaking learner 9K never marked gender at all, only number, but did offer examples of number in both attributive and predicative contexts. Except for these two learners, the pattern is that fewer learners produced attributive agreement for gender than for number (11 compared to 13), and fewer learners used predicative agreement for gender than for number (four compared to five).

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
1Alb	-	-	-	-
8K	-	-	-	-
6Ar	-	-	+	+
9K	+	-	+	-
12S	+	-	-	-
2Alb	+	+	-	-
4Alb	+	+	-	-
5Ar	+	+	-	-
7Ar	+	+	-	-
13S	+	+	-	-
14S	+	+	-	-
3Alb	+	+	-	-
10K	+	+	+	-
11K	+	+	+	+
15S	+	+	+	+
16S	+	+	+	+

Table 5 Implicational scale for adjectival agreement in number and gender. Scalability: 0.95.

6.3. COMPARING THE L1 GROUPS

We chose to examine agreement in L2 Norwegian of learners with four different L1s, as we wanted to examine possible L1 influence. In what follows we give a short summary of the adjectival agreement patterns in the four language groups.

6.3.1. Albanian

Albanian is an Indo-European language with adjective agreement both in the attributive and predicative positions and both in number and gender (Rießler, 2016, pp. 139–142). The agreement is expressed as suffixes “coreferencing number, gender, case and species values of the head noun” (Rießler, p. 159). If the Albanian-speaking learners were using transfer from their L1, there is no reason why they would not produce agreement morphology both in attributive and predicative positions. The results are given in *Table 6*, and they show that the participants perform better on attributive than on predicative agreement contexts.

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
1Alb	-	-	-	-
2Alb	+	+	-	-
3Alb	+	+	-	-
4Alb	+	+	-	-

Table 6 Results for the Albanian-speaking learners.

6.3.2. Arabic

Arabic is a Semitic language with agreement in number, gender, case and definiteness in the attributive position (Fassi Fehri, 1999; Källström, 2012). Predicate adjectives agree in number and gender only. There is usually no copula verb between the noun and the adjective. Our three learners behaved differently, and none fulfilled the criterion for agreement in all contexts. Learners 5Ar and 7Ar are interesting in their behaviour in attributive and predicative contexts. 5Ar produced agreement between the article and the adjective twice with the wrong gender but gave four examples of target use. In a predicative context, however, 5Ar overgeneralized the -t, the neuter form, in the predicative position and used it both for nouns in common

gender in the singular and for nouns in plural (**Gensern, den är grønt* ‘the sweater_{COM} it is green_{NEU}’ and **de store eplene, det er gult* ‘the large apples_{PL}, it is yellow_{SG NEU}’). In the attributive context, she had no problem with marking plural of the same adjectives (*En gul hund* ‘a yellow_{COM} dog_{COM}’ and *to gule epler* ‘two yellow_{PL} apples_{PL}’). Similarly, 7Ar had no problems with plural forms on adjectives in the attributive position *gul-e* (‘yellow_{PL}’) and *rød-e* (‘red_{PL}’), but she produced the base form of the adjective in the predicative position (**de to hundene er gulØ* ‘the two dogs_{PL} are yellow_{BASE}’; **de fire små eplene er rødØ* ‘the four small apples_{PL} are red_{BASE}’). This behaviour cannot be attributed to transfer from Arabic. The results are given in **Table 7**.

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
5Ar	+	+	-	-
6Ar	-	-	+	+
7Ar	+	+	-	-

Table 7 Results for the Arabic-speaking learners.

6.3.3. Kurdish

Kurdish is an Indo-European language without agreement markings on the adjectives. According to Reißler (2016, p. 41): “... agreement is not involved here because gender, number and species marking is not triggered within the noun phrase but is inherited to the head noun morpho-semantically”. The Kurdish-speaking learners all behaved differently. 8K did not fulfil the criterion for agreement morphology in any context. 9K focused on number agreement and produced two minimal pairs both in the attributive and predicative positions but no gender agreement. 10K produced adjectival agreement for both number and gender in attributive contexts and only number agreement in the predicative context. 11K was the most advanced learner and produced agreement in both number and gender in both positions. The results are given in **Table 8**.

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
8K	-	-	-	-
9K	+	-	+	-
10K	+	+	+	-
11K	+	+	+	+

Table 8 Results for the Kurdish-speaking learners.

6.3.3. Somali

Somali is an East Cushitic language of the Afro-Asiatic family. There is non-obligatory number agreement (but no gender agreement) between adjective and noun in both the attributive and predicative positions. This system is not adhered to in our five Somali-speaking learners. One learner, 12S, used number agreement but only in the attributive position. Two learners, 13S and 14S, used both number and gender agreement in the attributive position. Finally, two learners, 15S and 16S, produced agreement morphology in number and gender in all contexts. The results are given in **Table 9**.

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
12S	+	-	-	-
13S	+	+	-	-
14S	+	+	-	-
15S	+	+	+	+
16S	+	+	+	+

Table 9 Results for the Somali-speaking learner.

6.4. INDIVIDUAL DIFFERENCES

In general, the results revealed implicational orders between attributive (attributive first) and predicative (predicative later) and also, to a smaller extent, order between number (number first) and gender (gender later). However, there were also differences between the learners. A closer look at the individual learners revealed an implicational order with the participants positioned at different stages along the developmental continuum.

There were two learners, 1Alb and 8K, who never produced agreement, according to our criteria of two minimal pairs with the same adjective in different forms with different functions. They both tended to avoid adjectives in plural, either by not answering questions in the plural or by omitting the adjective and only using a numeral and a noun (*to Ø hunder* ‘two dogs’). In the singular, they used base forms of the adjective, that is, the same form for the common gender as for the neuter gender (*en rød bil* ‘a red car’ and **en rød eple* ‘a red apple’). Because the base form of the adjective was the one that is used for common gender, we cannot know if the learners were aware of the gender feature when they used the base form of the adjective with a noun in neuter or if they assigned the wrong gender to the noun (cf. Granfeldt, 2005).

Some of the learners seem to have observed that there are inflections, but they did not use them according to the target. There are examples in the data where the morpheme for the adjective in neuter (-t) was used with a noun with common gender (12S: **et rødt bil*), but also together with an article in common gender when the noun is neuter (9K: **en grønt tre* ‘a_{SG.COM} green_{SG.NEU} tree’) or in a plural context where gender is not expressed in Norwegian.

7. DISCUSSION AND CONCLUSION

This study tested two hypotheses. The first hypothesis concerned whether the L2 acquisition of Norwegian adjective agreement in different positions would follow the predictions of PT (Pienemann, 1998), and the second hypothesis focused on L1 transfer effects. We identified four research questions to investigate these hypotheses. In the discussion of the research questions that follow, we show that the study offered evidence to support the first hypothesis, concerning a stage-wise development according to PT. Because there were no systematic differences between the L1 groups, the results also gave evidence that refuted the second hypotheses about L1 transfer.

The first research question dealt with the issue of an implicational order of attributive and predicative agreement. The result of the analyses showed this to be the case. All participants who produced predicative agreement also produced attributive agreement (with the exception of 6Ar discussed above). This systematic behaviour gives support to the PT predictions about a stage-wise development, where attributive agreement (Stage 3) is a prerequisite for predicative agreement (Stage 4). The same order of development has been found in earlier studies (e.g., Glahn et al., 2001; Lichtman, 2009; Bonilla, 2014) and to a smaller extent in Janik (2016).

The second research question pertained to number and gender agreement. The analyses revealed that no learner used gender agreement without also using number agreement. Gender agreement is assumed to be more complex, since it implies both gender assignment and gender agreement. If the learner assigns the wrong gender, the agreement will be “inappropriate but consistent” (White et al., 2004, p. 121).

The third research question about L1 influence on L2 was answered in the negative. There is no evidence of L1 influence when it comes to the production of adjective agreement. The participants with agreement in their L1 (Albanian and Arabic) did not outperform the others (learners with Kurdish and Somali as their L1s) on agreement markers. All but a single learner (Ar 6) followed the implicational order predicted by PT for attributive and predicative agreement.

The fact that there were more differences between the structures than between the L1 groups demonstrated that the conditions for transfer (intragroup homogeneity and intergroup heterogeneity) suggested by Jarvis (2000), could not be met. Contrary to the results of earlier studies, such as Janik (2016), who found transfer of adjectival agreement from L1 Polish into L2 Norwegian, our learners did not benefit from their L1 grammatical structures when acquiring the L2 Norwegian agreement patterns. How can this be explained? One important difference between our study and the study by Janik is that she (like many others, such as Bartning, 2000,

and Dewaele & Veronique, 2001) counted percentages of accuracy, while we looked for learner language contrasts in agreement markings of singular/plural and attributive/predicative.

The fourth research question aimed at finding out what the learners did when they did not supply the target. Bley-Vroman (1983, p. 16) proposed that “attention must be concentrated on the construction of linguistic descriptions of learners’ languages which can illuminate their specific properties and their own logic”. By focussing on the use of morphological markings, we get some insight into learners’ approaches to agreement marking. The gender problems have been interpreted as strategies to use default gender (White et al., 2004; Granfeldt, 2005) or base forms (Glahn et al., 2001). Another suggestion is that learners start with fundamental oppositions (cf. Pallotti & Peloso, 2008). Some of our learners seem to follow that path, by first choosing one form for singular and another form for plural, with no consideration for gender. So, instead of making use of L1 knowledge about gender, the learner picks one contrast at a time, starting with number. Future research may determine whether this is a feasible way to characterize the logic of learner language.

APPENDIX

PARTICIPANT	ATTRIBUTIVE	PREDICATIVE
1Alb	1/8	1/8
8K	1/8	0/8
12S	5/8	0/8
2Alb	7/8	0/8
4Alb	6/8	1/8
5Ar	7/8	1/8
7Ar	6/8	1/8
13S	5/8	0/8
14S	7/8	0/8
6Ar	2/8	5/8
3Alb	6/8	2/8
9K	5/8	2/8
10K	7/8	3/8
11K	6/8	6/8
15S	7/8	8/8
16S	8/8	7/8

Appendix A Distribution of adjectival agreement in attributive and predicative contexts (number and gender agreement collapsed). 1/8 means one occurrence out of eight obligatory contexts.

PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
1Alb	1/4	0/4	1/4	0/4
8K	1/4	0/4	0/4	0/4
6Ar	1/4	1/4	3/4	2/4
9K	4/4	1/4	2/4	0/4
12S	4/4	1/4	0/4	0/4
2Alb	3/4	4/4	0/5	0/4
4Alb	3/4	3/4	1/4	0/4
5Ar	4/4	3/4	1/4	0/4
7Ar	4/4	2/4	0/4	1/4


Appendix B Distribution of agreement in attributive and predicative contexts, frequencies for number and gender separated. 1/4 means one occurrence out of four obligatory contexts.


PARTICIPANT	ATTRIBUTIVE		PREDICATIVE	
	NUMBER	GENDER	NUMBER	GENDER
13S	3/4	2/4	0/4	0/4
14S	3/4	4/4	0/4	0/4
3Alb	3/4	3/4	1/4	1/4
10K	3/4	4/4	3/4	0/4
11K	3/4	3/4	4/4	2/4
15S	4/4	3/4	4/4	4/4
16S	4/4	4/4	4/4	3/4

ETHICS AND CONSENT

Data in this study are from the FLEBBS-project (Flerspråklige barn i barnehage og skole [Multilingual children in kindergarten and school]), an L2 corpus registered and ethically approved by Norwegian social science data services (NSD) in Bergen, 2009-11-30 and 2013-06-06 (project number 23126).

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