

Effects of L2 Proficiency on the Acquisition of New Morpho-syntactic Features in an L3¹

Carol Jaensch²

Abstract

This paper takes a new perspective on an old topic, namely that of transfer. For many years now the influence which first languages have on the adult acquisition of second languages has been intensely researched and discussed. Most linguists accept that there are some aspects of language development which cannot be explained by transfer; for example, so called ‘poverty of the stimulus’ cases, which are treated in the same way by all learners of a second language (L2), regardless of their first language (L1). However, there is much evidence that transfer – both positive and negative – from the L1 can, and does, affect the syntactic, morphological and phonological properties of the interlanguage grammars of L2 learners. Interpreting the role of transfer is complicated in cases where third languages are involved. Clearly the scope for possible transfer in this scenario is extended to include not only influence from the L1 but also from the L2 (or any number of previously acquired languages).

This study looks not at whether specific features have been transferred from an L1 or L2 to a third language (L3), but instead at whether learners who have not encountered certain features in their L1 or L2 are somehow more sensitive to them in the L3. Results seem to indicate that those L3 learners who have achieved a higher proficiency in their L2 are more target-like in their performance on these features than those learners of an equivalent L3 proficiency but a lower L2 proficiency.

1 Introduction

This paper investigates the effect that level of proficiency in second language (L2) has on the acquisition of a third or subsequent language (L3), in particular with regard to morpho-syntactic features which are present in neither the first language (L1) nor the L2 but are present in the L3. The three languages under observation are Japanese (L1), English (L2) and German (L3) and the features are to be found in the German Determiner Phrase (DP).

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² cjaens@essex.ac.uk

2 Previous research

A number of recent studies have provided evidence that knowledge of an L2 can be beneficial in the acquisition of an L3. Studies from Cenoz & Valencia (1994) and Lasagabaster (2000), who both compared the English acquisition of Basque-Spanish bilinguals with that of Spanish monolinguals; and Sanz (2000), who compared the English acquisition of Catalan-Spanish bilinguals with that of Spanish monolinguals; all three studies found that bilingualism, or a good proficiency in two languages, was a reliable predictor of general attainment in English.

These studies offer support for a hypothesis proposed by Cummins in 1976, the 'threshold hypothesis'. This was suggested in order to explain results obtained in earlier studies which showed bilingual children performing at lower levels than monolingual children. For example, Japanese-English bilingual children (aged 10-11) scored lower on measures of verbal ability than monolinguals in a comparison group (Tsushima & Hogan, 1975); Spanish-English bilinguals showed some delay in acquiring vocabulary and grammatical structures (Ben-Zeev, 1977). What this hypothesis maintained was that bilinguals need to achieve a certain level of proficiency before any cognitive benefits become evident. In effect, there are two thresholds; at the lowest level up to the first threshold bilingual children have low levels of competence in both languages, and are, as such, 'limited bilinguals'; this can result in negative cognitive effects. Between the first and second thresholds are bilingual children who have 'age-appropriate competence' in one but not both languages, thus one language will be relatively weak. The cognitive effects are neither positive nor negative; in fact, cognitively, the bilingual child will show little difference to a monolingual child. However, bilingual children at the uppermost level, above the second threshold, have 'age-appropriate' competence in both languages; sometimes known as 'proficient bilinguals', these children are likely to demonstrate positive cognitive effects. Whilst this hypothesis was formulated with bilingual children in mind, it seems feasible to extend it to adults acquiring an L3, that they too could demonstrate similar positive effects – specifically positive linguistic effects – dependent upon the proficiency of their L2.

While the studies above (Cenoz & Valencia, 1994; Lasagabaster, 2000 and Sanz, 2000), used a range of grammatical measures (speaking, listening, reading, writing, vocabulary

and grammar) in order to test the general proficiency of the subjects involved, there are also studies which have looked at the acquisition of specific features in an L3. Klein's (1995) study of mono- and multilingual subjects looked at the acquisition of specific properties in both lexical learning (specific verbs and their prepositional complements) and syntactic learning (preposition stranding). She found that the multilinguals significantly outperformed the monolinguals in correct sub-categorization, which was a prerequisite to the preposition stranding test, (monolinguals 47% and multilinguals 75%) and in preposition stranding (monolinguals 54% and multilinguals 69%).

A more recent study by Leung (2005) compared the L2 and L3 acquisition of articles in French, by L1 Vietnamese (L2 French) and L1 Cantonese with L2 English (L3 French). Both Cantonese and Vietnamese have no articles and no marking on the DP for the [\pm definite] feature, however this feature is present in English and French. In the written production task, she found that the L3 group significantly outperformed the L2 group in all three areas tested; definite (suppliance of correct articles in context given, L3 33% versus L2 14%, $p < .05$), specific indefinite (L3 81% and L2 45%, $p < .0001$) and non-specific indefinite (L3 83% and L2 50%, $p < .0001$).

By showing that third language learners do perform better, both in terms of general proficiency and specific features, the above studies make valuable contributions to third language research. However the question of whether the proficiency level of an L2 can affect the performance on a specific feature in the L3, which is present in neither the L1 nor the L2, has, to the author's knowledge, not been addressed. (Note that in Leung's study the feature investigated in the L3 is present in the L2.) The current study addresses this issue.

3 Cross-linguistic variation

The features investigated in this study determine grammatical gender and Case marking on the determiner and the adjective in L3 German. The following describes how these properties are realised in German, and how English and Japanese differ from German.

3.1 German

In German, the gender of a noun is grammatical in nature, and this influences the form of a number of co-occurring elements; all singular articles, attributive adjectives, adjectival pronouns, ordinal numbers, relative and question pronouns. There are three genders; masculine, feminine and neuter. German also distinguishes four Cases, nominative, accusative, dative and genitive³. These are signalled by inflectional endings on the determiner, the adjective and the noun. The gender/Case paradigm for articles is shown below:

Table 1: Gender/Case paradigm for definite and indefinite articles

	<i>Definite/indefinite article</i> ⁴			
	<i>Masculine</i>	<i>Neuter</i>	<i>Feminine</i>	<i>Plural</i>
<i>Nominative</i>	der/ein	das/ein	die/eine	die/keine
<i>Accusative</i>	den/einen	das/ein	die/eine	die/keine
<i>Dative</i>	dem/einem	dem/einem	der/einer	den/keinen

Predicative adjectives are uninflected in German; however attributive adjectives are declined according to the gender, number and Case of the noun they are modifying. Furthermore, there are two declensions, which are known as ‘strong’ and ‘weak’; the choice of declension type is determined by context. This context is not restricted to a contrast between definite and indefinite. Hughes (2003) in his morphosyntactic analysis of German adjective endings, correctly points out that German adjective inflection is not sensitive to definiteness, as indefinite and definite modifiers produce identical adjective inflections, as in *ein/mein gutes Bier* ‘a/my good beer’. Strong declension (Table 2) is used if there is no determiner preceding the adjective which indicates the gender, number and (generally) Case of the noun; with a few exceptions the weak declension (Table 3) is used in all other cases.

³ None of the tasks in this study include any examples of genitive Case; therefore, a detailed linguistic account of this Case will not be provided here.

⁴ When used as articles, demonstratives decline in a similar manner to definite articles; possessives and negative forms decline in a similar fashion to the indefinite article. See Durrell 1996, chapter 5 for further details.

Table 2: Strong adjective declension affixes

	<i>Singular</i>			<i>Plural</i>
	<i>Masculine</i>	<i>Neuter</i>	<i>Feminine</i>	
<i>Nominative</i>	-er	-es	-e	-e
<i>Accusative</i>	-en	-es	-e	-e
<i>Dative</i>	-em	-em	-er	-en

Table 3: Weak adjective declension affixes

	<i>Singular</i>			<i>Plural</i>
	<i>Masculine</i>	<i>Neuter</i>	<i>Feminine</i>	
<i>Nominative</i>	-e	-e	-e	-en
<i>Accusative</i>	-en	-e	-e	-en
<i>Dative</i>	-en	-en	-en	-en

The examples below are shown in the nominative Case.

- | | | | | |
|-----|-------------------------|-------------------------|-------------------------|----------|
| (1) | Masculine singular | Feminine singular | Neuter singular | |
| | <i>der grosse Mann</i> | <i>die grosse Frau</i> | <i>das grosse Kind</i> | = weak |
| | <i>ein grosser Mann</i> | <i>eine grosse Frau</i> | <i>ein grosses Kind</i> | = strong |
| | ‘the/a big man’ | ‘the/a big woman’ | ‘the/a big child’ | |

3.1.1 German DP features and Universal Grammar (UG)

In recent Minimalist Program (Chomsky, 1995) hypotheses about grammatical representation, it is assumed that articles and/or adjectives, are valued for gender through a feature matching/valuation process (known as concord), with the inherent gender feature of the noun, and are further valued for Case by a similar matching/valuation process with a Case assigning category (such as Tense or V⁵). The process of concord, whereby the gender (and number) features of a noun are copied onto determiners and/or adjectives, which modify that noun *inside* a particular

⁵ Due to space restrictions, the theories relating to structural and inherent (or lexical) Case assignment will not be discussed here. However, brief details of the manner of Case assignment for the tokens in task 1 and 2 are given in section 4.3.1 and 4.3.2.

expression, is in contrast to Agreement, whereby the person-number features of a noun are copied onto a verb which is *outside* the nominal expression. The assumption is, then, that German nouns have the inherent features [masculine], [feminine] and [neuter], that determiners and adjectives have an ‘uninterpretable’ gender feature [*u*gender] which needs to be valued by an inherent gender feature on a noun, and that this valued feature has a phonological reflex in the form that a determiner or an adjective takes. Similarly, it is assumed Tense has an inherent Nominative Case feature, V an inherent Accusative Case feature and that determiners/adjectives have an uninterpretable Case feature [*u*Case] that, when valued, has a particular phonological realisation.

3.2 English

In English, gender contrasts are semantic in nature, determined by the sex of the referent. Grammatically, a contrast is realised between male and female on third person singular pronouns, such as *he/she him/her* and on certain nouns, such as *actor/actress*. English only exhibits Case morphologically on personal pronouns, such as *he/him/his* and *they/them/their*. There are no Case markings on determiners in English. English uses adjectives in a similar way to German; they can be both predicative and attributive. However, neither type of adjective has markings for declension, grammatical gender or for Case.

3.3 Japanese

It is commonly accepted that Japanese does not have articles, and there can, therefore be no grammatical gender or Case marking on the DP⁶. Grammatical gender does not exist in Japanese at all, Case, however does. Morphological markers which denote Case and topicality are usually attached to the noun, although they may be omitted in casual speech where nouns are lexically governed (Kanno, 1996). Other features such as tense, negation, location and direction are indicated by bound morphemes which are attached to the verb. Similarly adjectives can be combined with morphemes to denote tense and

⁶ There has been much discussion as to the (non-)existence of the functional category D in Japanese, (see Snape, 2006:128, for a summary), particularly with reference to Case markers. I assume, in line with Tsujimura (1996), that Case markers combine directly with the NP and further, that adjectives are part of an extended NP.

If so, does this occur at all levels of German proficiency or is there a level or threshold of proficiency in the L3 which subjects need to acquire before their L2 proficiency becomes relevant?

These questions give rise to two specific hypotheses.

4.1.1 Hypotheses

H¹ L1 Japanese learners of advanced L3 German proficiency with a higher L2 English proficiency will outperform learners with a comparable L3 German proficiency but a lower L2 English proficiency on the forms that realise uninterpretable gender and Case values on the determiner and adjective. (The ‘beneficial effect of bilingualism’ hypothesis.)

H² Proficiency in L2 English will have no effect on the L3 German performance (on the same forms) of L1 Japanese speakers if those learners are of low German proficiency. (The ‘threshold’ hypothesis.)

4.2 Participants

A total of 49 (adult) subjects took part in the study. There were 8 German native controls who served as a baseline for comparison of the learners’ results. The native controls were all students at the University of Essex (UK) and originated from different parts of Germany⁸. The experimental group consisted of 41 native Japanese speakers, who were studying or working in and around the Düsseldorf/Cologne area of Germany, where data were collected.

A personal data sheet was completed for each participant, where the following details were recorded; subject’s date of birth and gender, age at which study of English and German had begun, length of tuition time (LOT), length of immersion time (LOI), if any, for each language and in which country this had taken place. Finally they were asked if they had any knowledge of other languages; this resulted in the removal of 2

⁸ There are some regional and/or register variations with regard to the grammatical gender of a small number of nouns. To ensure that all of the nouns used in this task could be deemed of stable gender, NS were included from all areas of Germany.

subjects, who had knowledge of French and Spanish prior to learning German. This was to ensure that the subjects' first encounter with grammatical gender was with German.

The gender division and mean ages of the remaining 47 participants are shown in the table below, (means per group are shown in Appendix A).

Table 5: Gender division and mean ages of participants⁹.

<i>Group</i>	<i>Female</i>	<i>Mean age</i>	<i>Male</i>	<i>Mean age</i>
Japanese natives	22	30.8	17	25.3
German natives	4	23.4	4	30.7
Total	26	29.7	21	26.4

4.3 Method

All non-native speakers (NNS) completed 3 written tasks and 2 oral tasks in German, followed by a proficiency test in German (from the Goethe Institute) and the Quick Oxford English placement test (QOEPT). Native speakers (NS) of German completed the same tasks, with the exception of the two proficiency tests. This paper will discuss results from the written tasks only, which will be described in the next sections.

4.3.1 Task 1 - Gender

The aim of this task was to elicit gender on the determiner for 30 (real) nouns, evenly balanced for gender, definiteness and for nominative and accusative Case. The nouns were further balanced according to the type of gender assignment related to the nouns; as such there were two semantically motivated gender assigned nouns for each of the three genders, (e.g. mother, (male) driver); there were four rule-based gender assigned nouns for each gender – these nouns conform to certain morphological shapes¹⁰ which

⁹ A reviewer questioned the reason for dividing participants by sex in this table. This was done to show that this study contains a roughly even mix of both sexes, in order to prevent any criticism that one sex may show a stronger (or weaker) bias in their performance on any of the features under investigation.

¹⁰ See Durrell 1996:2

tend to correlate with a particular gender; e.g. 90% of nouns ending in *-e* are assigned feminine gender and all nouns ending in *-chen* are assigned neuter gender; and finally there were four nouns which were assigned gender according to neither semantic nor morphological assignment rules. A further aim was to elicit gender-marked articles for a small number (6) of novel nouns, once again balanced for definiteness and for target gender. Target gender was judged according to the same morphological tendencies mentioned above (prior to live testing, twenty novel nouns were pilot tested on seven natives in order to determine the most robust tokens).

The task was divided into two sections; both sections required the completion of a sentence by selecting a determiner. The same sentence was used throughout the first section, where the articles required were in the definite context (*der, die, das*), and were assigned nominative Case, by virtue of being the subject of the sentence. A different sentence eliciting the indefinite context (*einen, eine, ein*) was used throughout the second section, and these nouns were assigned accusative Case, by virtue of being the direct object of a verb; for each context subjects had only three choices. Subjects were also asked to provide the plural form of the noun in question, but those results will not be discussed here. Examples of both contexts are shown below:

- (2) Example of definite context:
Der Die Das Mädchen ist hier.
'The_{MAS} The_{FEM} The_{NEUT} girl is here'
- (3) Example of indefinite context:
Ich sehe einen eine ein Kleid.
'I see a_{MAS} a_{FEM} a_{NEUT} dress'

4.3.2 Task 2 – Gender and Case

This task was a written multiple choice task involving the selection of a determiner for 40 short dialogues from which a determiner was missing. Subjects were asked to select one answer from the ten possibilities which were listed beneath each dialogue, there was no zero option. The nouns for which the determiner was missing were all count singular nouns. The choice of articles allowed selection of the correct gender and Case,

according to the context of the noun. Nouns in nominative Case were in subject position of the sentence or were complements of *sein* (to be) or *wie* (how – for example, how ‘the object’ looks). Nouns in accusative Case were all direct objects of various verbs. Nouns in dative Case were all indirect objects of prepositions which invariantly assign dative Case to their complements. The majority were introduced by the preposition *mit* ‘with’, one of the most common prepositions.

This task was also used to elicit definiteness, but those results will not be presented here. A clear distinction should be drawn between the previous task (Task 1 – detailed above) and this one. Task 1 tested the subjects’ knowledge of gender and only gender, however, this task (Task 2) required the selection of the correct article on the basis of gender AND Case, creating a choice from ten possibilities (as shown in Table 1 and below in example (4)), due to the definite and indefinite options. Owing to the considerable overlap of the morphological forms in German (see Table 1), it is not possible to fully state whether non-target-like behaviour is due to gender or Case, the consequence of which resulted in the grouping of these features for this task¹¹.

An example of an inanimate noun, requiring a neuter gender determiner in dative Case is shown below, with a gloss in (4).

(4) *Ein Telefongespräch*

Johann: Hallo Hans! Fährst du in die Arbeit heute? Wenn ja, kannst du mich bitte mitnehmen?

Hans: Nein, tut mir leid. Ich fahre mit dem Auto in die Werkstatt – gestern abend habe ich einen kleinen Unfall damit gehabt.

Antwort: *der die das den dem einen eine ein einem einer*

(5) *A telephone conversation*

John: Hi, Paul. Are you driving to work today? If so, can you give me a lift, please?

Paul: No, sorry. I am taking the car to the garage – I had a little accident with it yesterday evening.

¹¹ Task 2 also elicited subjects’ judgements on definiteness and specificity, the results of which are not detailed here.

4.3.3 Task 3 – Adjective declension

This task was a written multiple choice task set in the form of a short story, involving the selection of attributive adjective affixes for 72 different nouns, which were balanced for declension type (36 weak and 36 strong), gender, number and Case. This resulted in the following divisions; there were 54 singular nouns (18 of each gender; masculine, feminine and neuter) and 18 plural nouns; there were 24 nouns (6 of each gender and 6 plural) of each of the following Cases, nominative, accusative and dative (the genitive was not included in this study).

Subjects were asked to select one answer from the five possible endings shown along the top of each page. An extract from the text is shown below, with a gloss in (6);

(6) Bitte wählen Sie von den folgenden Endungen:

-e -en -em -er -es

Das BELIEBT..... Lokal ist in einer BREIT..... Allee. In dieser BEKANNT..... Gegend findet man EXCLUSIV..... Läden wie Gucci und Dior.

(7) Please select from the following endings:

-e -en -em -er -es

The POPULAR eating place is in a WIDE avenue. In this WELL-KNOWN area, you can find EXCLUSIVE shops such as Gucci and Dior.

4.4 Proficiency groups

Subjects were first divided according to their German proficiency, this resulted in four groups; advanced (n=16), upper intermediate (n=12), lower intermediate (n=9) and elementary (n=2). Due to the small number of participants in the lowest proficiency group, results from these subjects will not be discussed.

Secondly, a further division of participants, within their German proficiency, was made on the basis of their English proficiency. This resulted in the following groups;

Table 6: Participants grouped by German and English proficiencies

<i>German Group</i>	<i>German proficiency</i>	<i>English proficiency</i>	<i>Code</i>	<i>Num.of subjects</i>
1	Advanced	Elementary	1E	5
		Lower Intermediate	1LI	7
		Upper Intermediate	1UI	4
2	Upper Intermediate	Elementary	2E	5
		Lower Intermediate	2LI	3
		Upper Intermediate	2UI	4
3	Lower Intermediate	Elementary	3E	3
		Lower Intermediate	3LI	3
		Upper Intermediate	3UI	3

Statistics showing the mean age tuition began, length of tuition and length of immersion in both English and German, along with the participants mean ages, are shown in Appendix A.

5 Results

Before detailed statistical analyses were begun, reliability analyses were obtained; Cronbach's alpha scores for item analyses and subject analyses from all three tasks were a respectable $>.8$. Tests of normal distribution were performed individually for each task.

Performance on all three tasks (which are shown in the following table) displayed predictable improvements as German proficiency increased. Further division by English proficiency are detailed in the next sub-sections.

Table 7: Non-target-like performance by task and German proficiency.

<i>By German proficiency</i>	<i>N</i>	<i>Task 1</i>		<i>Task 2</i>		<i>Task 3</i>	
		<i>Gender (determiner)</i>		<i>Gender/Case (determiner)</i>		<i>Adjective declension</i>	
		<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>	<i>Mean</i>	<i>S.D.</i>
Advanced	16	.16	.060	.09	.057	.16	.107
Upper Intermediate	12	.28	.136	.23	.181	.34	.160
Lower Intermediate	9	.41	.160	.39	.237	.57	.183
NS	8	.01	.013	.00	.000	.01	.015

5.1 Task 1 - Gender

When the results were further divided by English proficiency (see Table 6) differences (both for real and novel nouns) were observed within the advanced and upper intermediate German proficiency groups.

Tables 8 and 9: non-target-like gender assignment (determiner) by German and English proficiency – real and novel nouns.

Table 8: Real Nouns

<i>Group</i>	<i>N</i>	<i>Determiner Gender</i>	
		<i>Mean</i>	<i>S.D.</i>
		1E	5
1LI	7	.119	.054
1UI	4	.108	.017
2E	5	.307	.191
2LI	3	.267	.145
2UI	4	.183	.064
3E	3	.367	.100
3LI	3	.333	.133
3UI	3	.500	.233

Table 9: Novel nouns

<i>Group</i>	<i>N</i>	<i>Determiner Gender</i>	
		<i>Mean</i>	<i>S.D.</i>
		1E	5
1LI	7	.310	.150
1UI	4	.250	.167
2E	5	.467	.183
2LI	3	.389	.192
2UI	4	.333	.192
3E	3	.389	.096
3LI	3	.389	.096
3UI	3	.611	.255

However, these differences proved to be insignificant in T-test comparisons. An ANOVA was run on both real and novel nouns with German proficiency as the grouping factor, to control for the effects of length of immersion in German (LOIG) and length of German tuition (LOGT). LOIG indicates the amount of time (years or parts thereof) which the subjects had spent in a German speaking country. LOGT indicates the number of years (or parts thereof) of German tuition received by the subjects. The assumption could be made that subjects with a longer immersion in German (LOIG) or a lengthier tuition time would perform more target-like on both real and novel nouns than those subjects with shorter times. LOIG and LOGT were entered as covariates along with English proficiency. Only German proficiency was found to have a significant effect on the target-like performance of gender selection for real nouns, ([F(3,32)=10.874,p<.001] with a partial Eta squared of .51).

5.2 Task 2 – Gender and Case

Once again the same trend is evident showing subjects with higher English proficiency outperforming those of lower English proficiency (with equal German proficiencies).

Table 10: non-target-like gender/Case assignment by German and English proficiency

Group	N	Gender/Case on determiner	
		Mean	S.D.
1E	5	.130	.041
1LI	7	.089	.063
1UI	4	.044	.024
2E	5	.320	.262
2LI	3	.175	.043
2UI	4	.144	.024
3E	3	.383	.253
3LI	3	.358	.263
3UI	3	.433	.296

An ANOVA was run on these data to control for the effects of LOIG and LOGT and English proficiency. German proficiency was the grouping factor. However, only German proficiency had a significant effect on the target-like selection of gender/Case, (German proficiency [F(3,32)=11.25, p<.001] with a partial Eta squared of .51. It should be noted that these sub-groups were extremely small and did not consistently show normally distributed data; however, bearing this in mind, there was one case of significance when group comparisons were made; group 1UI performed significantly more target-like than group 1E, (t=-3.934, df=6.54, p=.006).

5.3 Task 3 – Adjective declension

Non-target-like behaviour was particularly high on this task; however, the pattern of increased performance linked to English proficiency was evident in all three German proficiency groups.

Table 11: non-target-like adjective declension by German and English proficiency

Group	N	Adjective declension	
		Mean	S.D.
1E	5	.200	.124
1LI	7	.155	.127
1UI	4	.135	.040
2E	5	.414	.180
2LI	3	.380	.129
2UI	4	.219	.095
3E	3	.667	.050
3LI	3	.556	.157
3UI	3	.486	.287

An ANOVA was also run on these results with German proficiency as the grouping factor; LOIG and LOGT were entered as covariates along with English proficiency. Both German proficiency and English proficiency had a significant effect on the subjects' performance in adjective declension, (German proficiency [F(3,32)=20.50,p<.001] with a partial Eta squared of .66 and English proficiency [F(1,32)=4.59,p=.040] with a partial Eta squared of .13).

Once again small numbers were probably responsible for the fact that within group comparisons (e.g. 1UI and 1E) proved to be non-significant. In order to test this supposition and to ascertain the true effect which English proficiency has on the performance of these subjects in German adjective declension, a partial correlation was conducted. This analysis enables the values for all L3 subjects to be incorporated into the calculation and shows the correlation between non-target-like performance and proficiency in English – with German proficiency partialled out or controlled for. Firstly, the correlation is calculated including German proficiency, the second calculation shows the correlation with the variable of German proficiency partialled out:

Table 12: partial correlation analysis on adjective declension

<i>Non-target-like performance on adjective declension</i>	<i>Including German proficiency</i>	<i>German proficiency partialled out</i>
Correlation	-.1862	-.2738
Df	(37)	(36)
P	p=.256	p=.096

Whilst these figures do not show a significant correlation, there is still a considerable change in both the correlation value and the p value, which perhaps with a larger sample of subjects could become significant.

6 Discussion and conclusion

The research hypothesis H¹ (the ‘beneficial effect of bilingualism’ hypothesis) is supported, in that L3 learners from the advanced and upper intermediate German proficiency groups, with higher proficiency in English, do outperform those of lower proficiency in English, (although not always significantly) on the features under observation.

Hypothesis H² is not fully supported, as learners in the lower intermediate German proficiency group, with higher English proficiency did outperform those of lower English proficiency in the adjective task; however, possibly groups with an even lower level of German proficiency and differing English proficiencies would show no differences in performance. Clearly, more data is needed to fully confirm both of these hypotheses.

Thus although grammatical gender is not marked on determiners in English, participants of equivalent German proficiency, but higher English proficiency displayed a more target-like behaviour in their gender assignment of determiners in Task 1. However, it should be noted that this trend is only evident in the upper two proficiency levels; advanced and upper intermediate German (Groups 1 and 2). In Task 2 the results again showed a distinct trend of improved performance based on English proficiency.

Although there was only one case of significance in T-test comparisons, it could be assumed that with a greater number of subjects in each group, comparisons would show significance in all groups. Results from Task 3 (adjective declension) show comparatively high rates of non-target-like performance, perhaps indicative of the complexity of concord in relation to adjective declension in German. However, the results here indicate that the trend is, in fact, present in all three groups of German proficiency observed in this study.

In summary, the combined results of these three tasks seem to imply that these sub-groups of upper English proficiency (within German proficiency groups 1 and 2) have generally established the gender of the relevant nouns in their grammars and furthermore they manage to value the relevant features (uninterpretable gender and Case on articles and adjectives) via the process of concord far more accurately than their colleagues in lower English proficiency groups. In particular the results from Task 3 (adjective declension), which involves an extra ‘valuation’ of features – gender, Case and context of preceding determiner, indicate a close correlation of performance on these L3 features with L2 English proficiency.

The presence of a trend in all three tasks is unarguable; furthermore, as these features are not present in the L1 or the L2, this effect cannot be due to transfer. Perhaps the ‘threshold hypothesis’ can be extended to adult language acquisition, or possibly learners of an L3 who have acquired an L2 to a relatively high level are aware that different features exist in other languages and they have become somehow more sensitive to new features in the third language. This could be termed ‘enhanced feature sensitivity’.

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Appendix A – Mean ages/proficiency scores/LOI/LOT for English and German

L.o.I. = Length of immersion / L.o.T. = Length of tuition

Grp by prof.	Male / Female		Age	English				German			
	M	F		OEPT score /60	Age tuition begun	L.o.T. (years)	L.o.I. (years)	Goethe score /30	Age tuition begun	L.o.T. (years)	L.o.I. (years)
1E	4	1	27.60	24.40	13.00	6.00	.22	22.60	19.60	4.10	4.47
1LI	3	4	28.71	34.00	12.43	7.86	.05	24.43	19.00	3.71	4.58
1UI	1	3	33.70	41.50	12.75	8.50	.05	23.75	21.50	5.25	7.52
2E	3	2	34.26	25.60	12.80	6.40	.10	18.00	23.40	3.90	8.10
2LI	2	1	22.23	37.67	13.00	7.67	.33	18.33	19.33	2.17	.47
2UI	1	3	32.35	45.00	11.00	7.00	5.56	18.25	28.00	2.58	1.16
3E	2	1	26.50	24.67	13.00	6.00	.17	12.00	24.33	1.58	2.28
3LI	0	3	18.67	35.33	13.00	5.50	.00	12.00	15.33	3.17	3.17
3UI	1	2	24.67	43.67	11.67	10.67	3.03	13.67	22.67	1.17	1.19
4E	0	1	29.00	28.00	12.00	6.00	.17	10.00	28.00	2.00	4.00
4LI	0	1	29.00	33.00	12.00	6.00	1.00	6.00	29.00	.00	1.00
TOT	17	22	28.43	33.82	12.49	7.19	.93	18.62	21.74	3.17	4.00
SD			9.12	7.963	1.45	1.86	2.26	5.393	5.95	2.32	6.18
Min.			18.00	20.00	5.00	3.00	.00	6.00	13.00	.00	.04
Max.			63.00	53.00	13.00	12.00	11.00	29.00	38.00	10.00	29.00

Appendix B – Mean scores by participant and task

Group by prof.	Subject i.d.	Non-target-like performance		
		Gender Real & Novel Ns	Gender/ Case	Adjective
1E	J04	.22	.15	.28
	J08	.19	.23	.13
	J11	.08	.15	.07
	J14	.28	.20	.38
	J28	.14	.10	.15
1LI	J03	.17	.05	.03
	J06	.19	.20	.29
	J12	.08	.15	.08
	J22	.17	.08	.07
	J24	.19	.18	.25
	J37	.19	.15	.32
	J41	.06	.03	.04
1UI	J05	.11	.03	.13
	J19	.11	.10	.08
	J25	.11	.05	.17
	J39	.19	.08	.17
2E	J16	.58	.65	.65
	J23	.17	.28	.32
	J29	.17	.18	.31
	J30	.33	.13	.24
	J32	.42	.58	.56
	J33	.36	.28	.29
2LI	J26	.17	.15	.32
	J27	.33	.20	.53
	J28	.25	.15	.31
2UI	J31	.14	.15	.17
	J38	.14	.15	.11
	J40	.31	.28	.29
	J41	.36	.28	.65
3E	J21	.28	.35	.63
	J34	.47	.70	.72
	J33	.44	.65	.65
3LI	J35	.36	.38	.64
	J36	.22	.10	.38
	J07	.33	.28	.18
3UI	J13	.44	.30	.53
	J17	.78	.83	.75
	J15	.47	.73	.82
4E	J15	.47	.73	.82
4LI	J18	.58	.80	.81