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The Role of L1 transfer in the Processing of L2 English Possessive Constructions: Evidence from German

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Abstract:

The use of online techniques and experimental methods opted from psychology and Neuro science provided opportunity to researchers to study features of L2 acquisition that cannot be studied through direct observation. Recently, SLA researchers have started using the experimental psycholinguistic methods like self-paced reading, event related brain potentials and eye tracking to investigate the way L2 learners process the second language in real time (Rossie et al. 2006, Chen et al. 2007). The present research used the online psycholinguistic experimental method to study the role of L1 transfer in the processing of L2 English possessive constructions. L2 acquisition theories differ with respect to their claims about the extent to which L2 learners exhibit native like acquisition. Previous SLA studies investigating L2 acquisition present contradictory results. Some of them show found native like processing (e.g. Sabourin , 2003 Tokowicz and MacWhinney, 2005; Ojima et al. 2005, Rossi et al, 2006) while others found variation between L1 and L2 groups regarding the attainment of native like responses (Tanner et al. 2009; McLaughlin et al. 2010). The present research examined this issue further via an online rating task for experiment. Twenty L2 German speakers performed as an experimental group, while twenty L1 monolingual native speakers of English participated as the control group in an online rating task. The results of rating task shows that German speakers performed differently than the control group. The results are

in line with the predictions based on typological differences of German and English Language. The German speakers' ratings were based on their L1 and hence indicate that German speakers transfer their L1 while processing L2 English possessive constructions.

Key words: L2 acquisition theories, English possessive constructions, typological differences, L1 transfer.

The term Transfer has been defined as the "the transfer of first language elements or patterns into the speech of second language. This transfer can be positive or Negative. If the transfer facilitates in L2 learning that its positive transfer but if transfer causes interference or results in mistakes and errors than its negative transfer. Ellis (1994) tried to distinguish the positive and negative transfer. The term *Transfer* used in Literature didn't distinguish between positive and negative transfer. A lot of research work on SLA focused on errors that have generally been viewed as interference or negative transfer that results in transfer of L1 patterns to L2. The underlying question was whether errors are the result of transfer or whether they are interalingual in nature i.e. the result of general process of development, similar to those observed in L1 acquisition. The positive affect of transfer have been neglected in SLA research. The positive transfer results in facilitation of L2 learning. In other words facilitation is positive transfer. Learning involves building up the new knowledge by adding the new knowledge and skills to the previous knowledge. The term Language Transfer has been widely used and discussed in Linguistics. It is generally believed that second language learners transfer the elements of their Native language to the target language. If a learner is multilingual or knows more than one language than all these languages influence to the new language the learner acquires. The learner applies the L1 information and rules to the L2. The L2 learners can transfer the L1 in both production and comprehension. The effect of

transfer can be observed at all levels of linguistics, syntactically, semantically, phonetically; morphologically etc. transfer may result in errors, facilitation, overgeneralization, avoidance strategies, overproduction, over correction etc.

Language transfer has been discussed from many different perspectives. According to coder (1967) mother tongue is the starting point of L2 acquisition which gradually develops by restructuring of the mother tongue to generate utterances more similar to the TL. Hence, it was suggested that the earlier stages of the interlanguage would resemble more to the mother tongue than the later stages. Interlanguage has been defined a system intermediate between the mother tongue and the target language. Coder suggests that the mother tongue facilitates in discovering and creating the features the TL and acts as a heuristic tool. Coder views Mother tongue as a cognitive element that can affect the developmental process order of the TL. He suggested that the order of acquisition is highly influenced by the nature of the mother tongue and it's relation to the target language. The development of L2 depends on the similarities and differences of the target language to the mother tongue. The similarity will result in faster acquisition of TL and dissimilarity will result in slower Progress towards target Language. Gass (1979) proposed the native language transfer. She studied the Language transfer by looking at the learning of English relative clauses in adult L2 Learners of English with a number of different L1 backgrounds. She suggested that their difficulties were partially due to intralingual transfer. Kellerman presented the idea of Cross Linguistics influence (Kellerman 1995; Sharwood Smith 1986; Odlin 1989) Kellerman's approach to transfer is more a psycholinguistics one because it takes into account the psychological cognitive and perceptual complexity of Learner than the structural complexity. Kellerman (1995) attributed the relative difficulty of learning particular languages to the learners *Psychotypology* (the learners' perception of Language distance) and the *degree*

of markedness of a given L1 structure. Kellerman suggested that the general typological closeness of L1 to L2 would facilitate the Learner to identify the cognate forms and structures across the two languages. The association that learners make between the two languages may result in both facilitation and interference. If L1 and L2 are very different, the learner will not be able to make cross lingual associations and it may act as a barrier to the transfer in the initial stages.
Transferability determines whether an L1 structure can be treated as *Language specific* i.e. not transferable to a given language or *language neutral* i.e. transferable to a given language. In other words a structure which is specific to the L1 in terms of one L2 may be neutral in terms of another L2. It is important to note that the transferability of structures is determined by the L1 and is therefore independent of the nature of L2, although they interact with the learner's perception of L1 and L2 distance. The support for these hypotheses is available from both naturalistic and experimental data (Kellerman, 1983).

Later on, Odlin (1989) supported the Kellerman's idea of language distance and suggested that Chinese learners of L2 Japanese have an advantage over English learner because Chinese and Japanese share some properties and have similar writing system. Therefore, it's easy for Chinese L1 learner to learn the Japanese as L2 as compared to the L1 English learner to learn Japanese as L2. Because English and Japanese are more different from as compared to Chinese and Japanese.

Kellerman (1983,117) Proposed that "if a structure is Psycholinguistically marked i.e. if a structure is perceived as infrequent, irregular, structurally or semantically opaque then its transferability will be inversely proportional to its degree of markedness". Kellerman hypothesized that the transfer is subject to following constraints

1) When the L1 and L2 are perceived as sufficiently unrelated

2) When a particular L2 structure is perceived a sufficiently marked

The effect of the two factors may vary in their role as constrainers that is

1) Highly marked structures may be transferred to a close language
2) A relatively unmarked structure may not be transferred to a distant language

Odlin (1989, 2001, 2002, 2003) also defined the term *language transfer* in terms of cross linguistic influence. According to Odlin "The influence resulting from similarities and differences between the Target language and any other language that has been previously or perhaps imperfectly acquired". Sharwood and Smith (1986) tried to differentiate the transfer from influence. According to them transfer is not the same thing as cross linguistics influence. Transfer refers to the linguistic behaviors transported from L1 into IL without capturing the inter-lingual effects. While the cross linguistic influence refers to those L1 effects such as avoidance, L1 constraints on L2 learning and performance. Zobl (1980, 1984) defined the term transfer as Cross linguistic generalization. According to Zobl "Learner must attain a certain level of development with respect to an L2 structure before transfer is activated" (1980: 49)

Studies against L1 Transfer

There are studies that couldn't come up with any evidence for L1 transfer. For instance Dulay and Burt (1974, 1972) Corder (1979) Felix (1980) disfavored transfer as a significant force in L2 production. Dulay and Burt (1972) claims that L1 has no effect on L2 acquisition and L2 acquisition is facilitated by UG principles. The learner formulates hypothesis about the TL and matches them with the input available to them. Dulay and Burt

(1974) claimed that the errors they found in a study on children learning English as a second language were similar to those made by native speakers while learning their own language. They viewed these errors as developmental errors rather than interference or transfer effect of NL on TL. Morpheme order studies (in 1970s, Dulay and Burt) found no evidence for morphological transfer. But there is more empirical evidence in support of Transfer than against it and the failure of morpheme order studies to show the transfer effect had been attributed to some methodological flaws.) Kasper (1992) believe that there is no influence of L1 transfer on L2 Learning. L2 learners apply the innate mental mechanisms similar to L1; hence both L1 and L2 follow a common path of language learning. Ellis (1994) suggested that learners from different Native languages go through the same process of development. Ellis claims that there is no L1 transfer, and emphasized the Universal process of language learning. Ellis further asserted that L2 acquisition is similar to L1 acquisition. Sabourin (2003) used the ERP technique to study the effect of L1 back ground on second language learner brain responses for subject verb agreement violations in Dutch language. All participants showed same ERP pattern and didn‟t transfer the properties of their L1 while processing the L2. Sabourin et al. (2006) investigated the role of L1 transfer by comparing and contrasting the similarity and differences of gender marking in L1 and L2. They observed the performance of German, English and Romance language L1 speakers on Dutch grammatical gender system. They investigated the performance of L1 groups through a simple gender assignment task and a noun-pronoun agreement task. All L1 groups were able to assign a correct gender to the noun. In the second task (noun pronoun agreement task) German group performed best, the Romance group performed above chance while the English group performed at chance level. The results correlates to the predictions made on the basis of morphological similarity of gender marking in L1 and L2. As

German is very similar to Dutch in gender marking, Romance languages have grammatical distinction but the system is not much similar to Dutch, while English has no grammatical gender system. The participants performed on the same hierarchy. Tokowicz and MacWhinney (2005) used event related brain potentials (ERPs) to exmine sensitivity to violations in second language grammar during L2 sentence comprehension. They used L2 grammaticality Judgment task (GJT) to test L1 native speakers of English learning L2 Spanish. They used three different types of syntactic constructions for the experiment i.e. tense marking, determiner number agreement and determiner gender agreement. They found that learners were sensitive to violations that were similar in L1 and L2 (Tense omissions) and unique in L2 (determiner gender violations) but they showed no sensitivity to violations that differ in L1 and L2 (determiner number violations). They suggested that learners are able to process some features of L2 implicitly but it depends on the similarity and difference between the L1 and L2. They reported that L2 Spanish Learners with L1 English background elicited P600 response to gender agreement violations (Unique and tense omissions (similar). Rossie, Gugler, Frederici and Hahne (2006) studied the high and low proficiency of L2 Learners of German, high and low proficiency of L2 learners of Italian. The proficient L2 learners of German and Italian showed the same native like ERPs to agreement violations. They argued that highly proficient L2 learners show native like neural responses. Figure 1.1 shows the LAN and P600 effect for syntactic violations. The highly proficient L2 learners of German and native speakers of German showed the same LAN and P600 waves with same amplitude. LAN reflects the morphosyntactic agreement violations while P600 shows the reanalysis process.

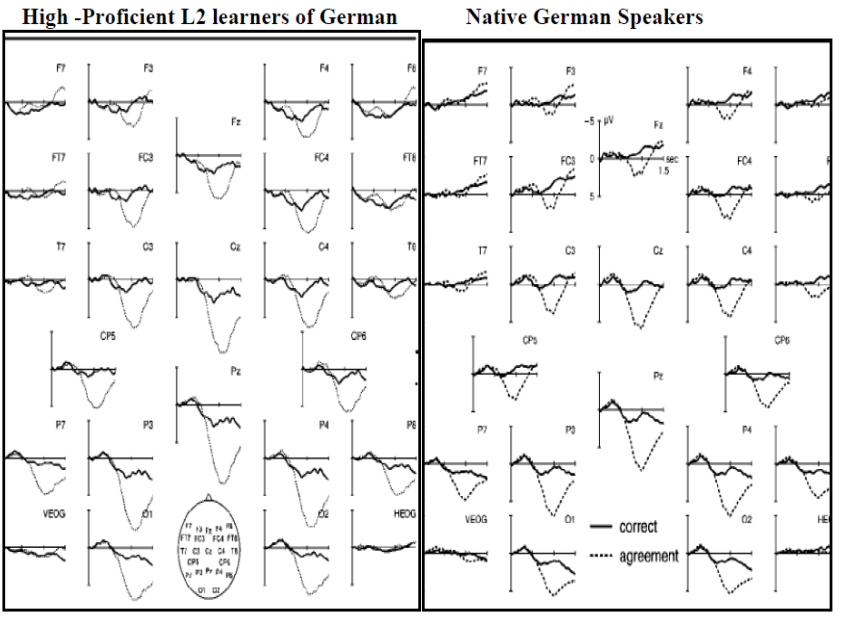


Figure1.1. Shows the same ERP waves of highly proficient learners of German and native speakers of German for syntactic violations. Negative voltage is plotted upward. (Rossie et al. 2006: 2037, 2043) No reliable LAN effect was found for low proficiency L2 learners.

Hopp, H. (2010) reported results of four experiments designed to test the performance similarities between native and non-natives in processing L2 inflections such a case and subject verb agreement. Hopp reported that cross linguistic and cross experiment comparison reveals that native like attainment of L2 inflections is possible for adult L2 learners in L2 processing. Hopp further argued against the critical period hypothesis in L2 acquisition and suggested that L1 and L2 processing systems are identical. Hopp suggested that limitations in L2 processing efficiency and L1 transfer result in non-native like responses. Tolentino, L. C., & Tokowicz, N. (2011) presented a review of the role of cross linguistic similarity in L2 morphosyntactic processing. They examined whether L1 and L2 similarities can affect L2 morphosyntactic processing. They reported that results from both event-related potential (ERP) and functional magnetic resonance imaging (FMRI) studies

reveal that non-native speakers can exhibit native like processing behavior.

Studies in Favor of L1 transfer

On the other hand, there is a lot of empirical evidence available in favor of L1 transfer as well. Therefore, it can't be neglected by just simply attributing the errors to developmental process. There is a lot of empirical evidence of L1 transfer from phonology, and morphology, lexical, semantic and syntactic and pragmatic etc. Some lexical studies have emphasized the importance of transfer e.g. Jiang, 2002, singleton, 2004, Zimmerman 2004) and some have looked at transfer in morphology (e.g. DE Angelis & Selinker, 2001; Herwig 2001). There have also been some studies of transfer in reading (E.G. Upton & Lee-Thompson, 2001) and Pragmatics (e.g. Kwon 2003, Tamanaha, 2003, Yu, 2004). (See. Odlin 2005: 4) A majority of Research studies on various Linguistic structures have provided empirical evidence in support of Transfer. Study of causatives (Helms-Park 2001) and copular verbs (Helms-Park 2003), grammatical gender (Sabourin 2001), Studies on lexis (Ringbom 2001, 2004, Cenoz 2001) morphological awareness (Koda 2005) L1 orthographic influence on L2 (Wang, coda, and Perfetti 2004). (see. Odlin 2005). Pavlenko & Jarvis (2001) found L1 to L2 and L2 to L1 transfer in a Narrative production by L2 learners of English with Russian L1 background. They compared them with English and Russian monolinguals.

Chen et al. (2007) used the ERP technique to record the Chinese-speaking ESL learners‟ brain responses to subject-verb agreement violations in sentence processing. They observed the processing of four type sentences *i.e.* Grammatical, congruent (G-C), Grammatical, incongruent (G-I), Ungrammatical, congruent (U-C), Ungrammatical, incongruent (U-I). They observed that L2 learners showed N400 followed by

the P600 while processing the incongruent grammatical sentences as compared to the grammatical congruent sentences. They argued that N400 show the semantic effect while P600 is the result of the syntactic analysis of L2 Learners. The native speakers showed a very different pattern form L2 learners. They showed an early automatic, late negative syntactic analysis, by producing clear P600 and LAN effect to the two ungrammatical sentence types. It is believed that LAN reflects the automatic morphosyntactic analysis. In short, Chen et al. supported the view that learners have difficulty in processing the grammatical constructions or morphosyntactic features that are absent in their L1. Figure 1.2 shows the Native and L2 learners‟ brain responses yielded different wave forms.

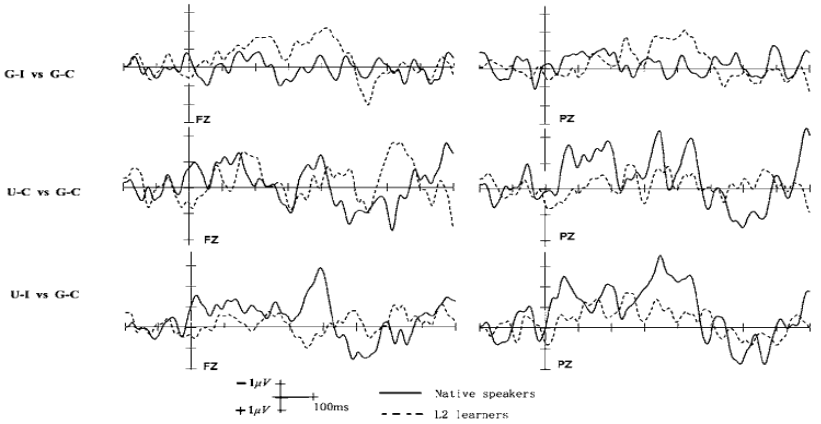


Figure: shows the difference of wave forms: Native speakers Vs. L2 learners Chen et al. (2007,170)

Tania Lonin & Silvina Montrul (2010) found the L1 transfer in their experiment. They used a truth value judgment task and found that the Spanish speaking learners of English transfer the interpretation of definite plural from their native language. They compared the Spanish, Korean and English participants. In a follow up study they found that the advanced proficient learner of English was as target like as Korean Learners of English on the interpretation of definite plurals. They suggested that with advanced proficiency and increased

immersion in the target language the recovery from the L1 transfer is possible.

Typological differences between English and German possessive constructions

Expression of possession in English

English uses a possessive clitic**'s**, a preposition **of** and pronominal form **my, your** to encode the possession. Semantically, a possessive relationship is used to refer to kinship relations (my brother) body parts (the girl's eyes) and legal ownership (jean's shirt). S-genitive is used with animate nouns while "of" is used with inanimate nouns. The present study will focus only on two types of possessive forms s-genitive vs. of genitive constructions. The nature of genitive-s is controversial and much debated issue. Some researchers view it as inflectional suffix (phrasal affix see Zwicky 1987, Lapointe 1990, Miller 1992, Longobardi 1996), others view it as a clitic (Carstairs 1987, Alexadiou 2005). While still there are some other researchers who treat it both as inflectional affix and as a clitic (see Rosenbach 2004, Plank 1992, 1995).

Expression of possession in German

In German language possession can be expressed in via two types of possessive constructions i.e. the genitive case and a prepositional possessive construction. German has two orders, PR>PM and PM>PR but the PR<PM only for pronouns and s-genitive is used with proper names and a few kinship terms. In order to understand the German possessive constructions, it is important to understand the German cases particularly the genitive case and the definite and indefinite articles, and gender differences. Because in German possessive constructions the articles agree in number, gender and case with the nouns they accompany. The genitive case in germen expresses the possession. Table1. Shows the German definite articles and

cases and gender differences and Table 2. Shows German indefinite articles, cases and gender differences (For more detail on case in German Language see Bill dodd et al. (pg-38,36 2003)

Table1. German definite article

German Definite Articles					
	masculine	feminine	neuter	plural	
Nominative (1st case)	der	die	das	die	the
Genitive (2nd case)	**des**	**der**	**des**	**der**	**of the**
Dative (3rd case)	dem	der	dem	den	to the
Accusative (4th case)	den	die	das	die	the

Table 2- German indefinite articles

German Indefinite Articles				
	Masculine	Feminine	neuter	
Nominative	Ein	eine	ein	a, an
Genitive	**Eines**	**einer**	**eines**	**of a, of an**
Dative case	Einem	einer	einem	to a, to an
Accusative	Einen	eine	ein	a , an

PR>PM Order in German

German has both PM>PR and PR>PM orders. But PR>PM order / s-genitive is only used for proper names and few kinship terms.

1. a. Janes Schal
PR-GEN PM
Tina's scarf
Jane's scarf

1. b. Klaus' handy
PR-GEN PM
Klaus's mobile
Klaus's mobile

1. c. Mamas handy
PR-GEN PM
Mama's mobile

1. d. * das Mamas handy
NOM PR-GEN PM
The mama's mobile

English possessive-s is attached to animate, prototypical and inalienable Possessor. While in German possessive-s is only affixed to proper names or few kinship terms (Eisenbeiß 2003, Harbert 2007). An apostrophe is added simply if the name already ends in s. e.g. in example (1.a.) the possessive-s is attached to the Possessor Jane but no apostrophe is added. In example (1.b.) the name Klaus is ending in s, that's why only apostrophe is added with the Possessor. In example (1.c.) possessive-s is attached to Possessor Mama. The use of possessive-s is incorrect if the noun is modified by a determiner or other modifier.(1.d.)

2.a.* Kochs Haare (incorrect)
Cook's hair

die Haare ***von dem*** Koch (correct)
NOM PM PP PR
he hair ***of the*** cook
The hair of the cook

2.b.* Schreibkrafts Fehler
(incorrect)
PR-GEN PM
Typist's mistake

der Fehler ***einer*** Schreibkraft (correct)
NOM PM GEN PR
The mistake ***of a*** typist
The mistake of a typist

2.c.* Burs Fenster (incorrect)
PR-GEN PM

Castle's window

Das	Fenster	***von der***	Burg	(correct)
NOM	PM	PP	PR	
The	window	***of the***	castle	

The window of the castle

Possessive-s cannot be affixed to unmodified common nouns (Mills 1985; Eisenbeiß 2003) For instance in examples 2.a, 2.b, and 2.c, the cook, the typist and the window are common names. Therefore, the use of possessive s with these unmodified common nouns are ungrammatical.

3.a.	unser**es**	bruder**s**	Mantels	
	our	brother's	coat	
	PRN-GEN	PR	PM	

our brother's coat

3.b.	Der	Gitarre	min**er**	schwester
	The	guitar	of my	sister
	NOM	PM	PRN-GEN	PR

The guitar of my sister / my sister's guitar

3.c.	Die	Klingel	sein**er**	schwester
	The	bike	of his	sister

The bike of his sister/ his sister's bike

3.d.	des	Mantels	sein**es**	bruder**s**
	the	coat	of his	brother
	PM	PRN-GEN		PR

the coat of his brother/his brother's coat

3.f.	dem	Tante	sein	kinder
	The	aunt	his	children
	DAT	PR	PRN	PM

The aunt's children

German has two constructions that don't have an equivalent in English. 3. a. is a genitive construction in which a PR noun phrase precedes the PM. In 3.b. the PR noun phrase follows the PM.

The genitive constructions are different from possessive –s constructions. This difference can be seen clearly in examples 3b. and 3.c. where the masculine noun (bruders) has a different ending from a feminine noun (schwester). The feminine noun doesn't have any genitive-s marker. In example 3.f. PM is preceded by a dative marked PR and a possessive pronoun. There is no English equivalent for this kind of possessive construction (see more detailed discussion Eisenbeiß 2003. Pg. 156).

PM>PR Order in German

German has both PR>PM and PM>PR orders, but PR>PM order is used only for pronouns.

4.a.	der	Ruhm	***des***	dichter**s**
	NOM	PM	GEN-MAS	PR-GEN
	The	fame	***of the***	poet
	The fame of the poet			

4b.	der	Ruhm	***von dem***	Dichter
	NOM	PM	P+DAT	PR
	The	fame	***of the***	poet
	The fame of the poet			

Example 4.a. and 4.b. both are definite animate non prototypical possessive constructions, following the Possessum> Possessor order. Both constructions are similar semantically but they are very different syntactically. In example 4.a. the masculine genitive case ***des*** and the affix -s at the end of the dichter-**s** (poet) is assigning the GEN case to the PR. While in Examples 4.b. the possessive construction is not marked by a GEN case rather a DAT marked Prepositional Phrase is preceding the possessor. German speakers have a choice between the Genitive case and a Prepositional Phrase.

4. c.	die	Tastatur	***eines***	Laptop**s**
	NOM	PM	GEN	PR-GEN
	The	keyboard	***of a***	laptop
	The keyboard of a laptop			

4. e.	Der	Laerm	***des***	Flugzeug**s**
	NOM	PM	GEN	PR-GEN
	The	noise	***of the***	plane
	The noise of the plane			

The example 4.c. is an inanimate prototypical possessive construction. While 4.e. is an inanimate non prototypical possessive construction. Both are following the PM>PR order. The both constructions PR is Marked by GEN case. The only difference is that in 4.c. the PR is marked by an indefinite GEN case, while in 4.e. the PR is marked by a definite GEN case. The German native speakers have a choice between the definite and an indefinite possessive construction.

In German language both the PR and PM agree in Number, Gender and case with the articles preceding them. But there are no differences syntactically on the basis of animacy and prototypicality. Therefore, it was predicted that the German L2 learners of English will not strictly distinguish between animate and inanimate, prototypical and non prototypical factors and their choice of genitive constructions will not be much dependent on these factors. As the German L2 Learners prefer the Prepositional possessive constructions in German spoken language, it is predicted if the L2 learners transfer the L1 then the German L2 learners will prefer the of-genitive in English (rating task).Table.3 summarizes the main typological differences between German and English possessive constructions.

	English	German
Order	PR>PM PM>PR	PR>PM PM>PR
Articles	DEF/INDEF NO Agreement with the PR or PM	DEF/INDEF Agree in NUM, GENDER & Case with the PR or PM
Gender	N/A	M/F distinction marked morphologically
Animacy	Animate Inanimate	N/A

	distinction	
Prototype	Prototype , Non-prototype distinction	N/A
Possessive markers	S / of	s/ von

Table.3: Shows characteristics of possessive constructions and the difference between English and German possessive constructions.

Experimental material

The materials for the rating task: short genitive phrases consisted of a PR 1-2 syllables in length and a PM not more than three syllables. All the PR and PM were singular count nouns. The experimental material was constructed by using 40 animate and 40 inanimate PR phrases. Both animate and inanimate PR phrases were further followed by 20 prototypical and 20 non-prototypical PM phrases. That resulted in four types of phrases i.e. animate prototypical, animate non prototypical, inanimate prototypical, and inanimate non prototypical. These four types of phrases were incorporated with definite and indefinite articles that produced eight conditions i.e. animate definite prototypical(+a+t+p), animate indefinite prototypical(+a-t+p), animate definite non-prototypical(+a+t-p), animate indefinite non-prototypical(+a-t-p), inanimate definite prototypical(-a+t+p), inanimate indefinite prototypical(-a-t+p), inanimate definite non prototypical(-a+t-p), inanimate indefinite non- prototypical(-a-t-p) . All of the eight conditions were once merged with s-genitive and once with of-genitive. The 8 conditions resulted in 10 items per condition that means 80 experimental items that constituted 10 items for each 8 condition. 30 filler items were used to distract the participants. Word order, mass count, and prepositional phrases were used as fillers. The material was then equally distributed into two lists using the Latin square design. The two lists were randomized, so that one condition mix together properly and may not occur simultaneously. The lists were checked for semantic priming effects as well. The lists were

presented to the participants using the DMDX software for rating task.

Participants

A group of 20 L1 German speakers learning English as L2 performed in the experiment. The experiment was conducted in a quiet room. A group of 20 monolingual native English speakers served as a control group. All participants had a corrected or corrected to normal vision. The participants‟ proficiency level was assessed by using the grammatical portion of a short placement test (oxford placement test by Allen, 1992). Majority of the participants got 6.5 OPT band. In order to check whether the participants were familiar with the vocabulary used in constructing the experimental material, the participants had taken a short vocabulary test to indicate the unfamiliar words on the vocabulary list. Almost all of the participants were familiar with the vocabulary used in the experiment.

Method

The experiment was carried out in a psycholinguistics lab. All participants were tested individually in a quiet atmosphere. An experiment information sheet was given to the participants. Experiment method was explained to the participants both in written form and orally. DMDX was used to present the material and to recording the participants choice and reaction times. The experimental phrases were presented in black letters on a white back ground. Phrases appear in a pair wise fashion (containing one s-genitive and one of-genitive) in the middle of the screen for 2500 ms followed by hash marks in the middle of the screen and a 3500 time out. The experiment started with a practice trail to familiarize the participants with the experimental procedure. The participants had to indicate

their preference by rating the phrases as quickly as possible by pressing the buttons for the first or second phrase on a dual Analoge pad.

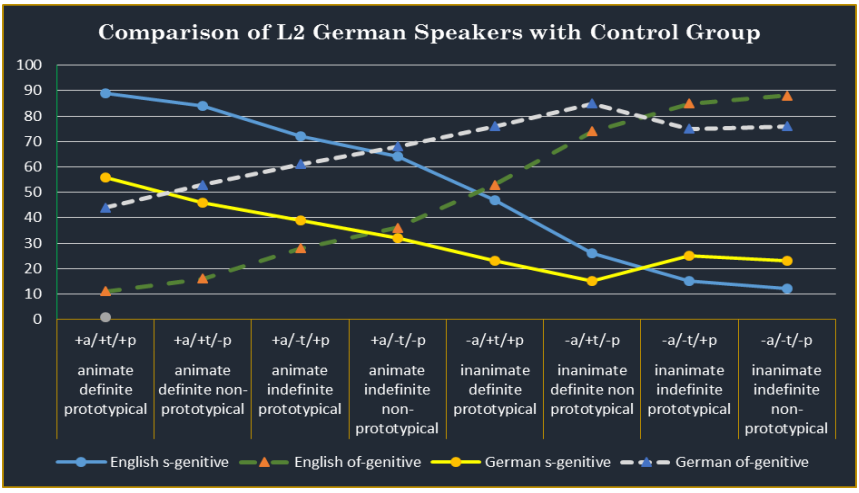
Results

Descriptive statistics								
	English				German			
	s-genitive		of-genitive		s-genitive		of-genitive	
Conditions	Mean	SD	Mean	SD	Mean	SD	Mean	SD
animate definite prototypical +a/+t/+p	89	0.58	11	0.31	56	6.56	44	8.82
animate definite non-prototypical +a/+t/-p	84	0.72	16	0.22	46	4.22	53	6.54
animate indefinite prototypical +a/-t/+p	72	1.53	28	1.31	39	7.37	61	10.63
animate indefinite non-prototypical +a/-t/-p	64	2.04	36	2.15	32	10.96	68	12.87
inanimate definite prototypical -a/+t/+p	47	1.89	53	1.24	23	13.62	76	14.29
inanimate definite non prototypical -a/+t/-p	26	1.63	74	1.54	15	9.36	85	11.72
inanimate indefinite prototypical -a/-t/+p	15	0.45	85	0.56	25	13.57	75	10.53
inanimate indefinite non-prototypical -a/-t/-p	12	0.21	88	0.34	23	10.58	76	9.54

Table.4. shows the mean rating of s-genitive and of-genitive by the L2 German speakers and control group in the experimental conditions.

The descriptive statistics show that the control group rated high number of s-genitives in the first four experimental conditions (M = 89, 84, 72) that shows their preference of s-genitive for the animate conditions. It dropped down dramatically in the fifth condition and the rating gradually decreases in the last four inanimate conditions (M = 37, 26, 15, 12) which shows their less preference of s-genitive for the inanimate conditions. On the other hand the rating of s-genitive by L2 German speakers shows that they didn't distinguish among the experimental conditions and they rated less number of s-genitives as compared to the native control group (M = 56, 46, 39, 32, 23, 15). The rating of of-genitive construction shows that the native English control group rated less number of of-genitives for the first four experimental conditions (M = 11, 16, 28, 36) than the last four experimental conditions (M = 53, 74,

85, 88). This shows their preference of of-genitive for inanimate and non prototypical condition. While the German L2 speakers rated high number of of-genitives (M = 44, 53, 61, 68) than the control group. It shows that their rating is not influenced by animacy and prototypicallity factors.



Graph.1. shows the mean rating of s- and of- genitive by L2 German speakers and the control group.

The graph shows that in the first three experimental conditions the control group preferred the s-genitive and it suddenly changed on the fourth condition and dropped down. After the fourth condition there is gradual decease in the rating of s-genitive. In comparison, L2 German speakers showed less preference for s-genitive as compared to the control group. However, there is sudden increase in the rating of s-genitive in the last two conditions than the control group. Overall, the L2 German speakers showed less preference for s-genitive as compared to the control group. On the contrary, German speaker's rating for of-genitive is higher than the control group. That shows there preference for of-genitive. It also shows that the control group distinguished between the animate/inanimate and prototypical/ non prototypical conditions unconsciously and there rating is somewhat based on their unconscious judgments of animacy and prototypicality. While, the L2 German speakers

couldn't distinguish between the experimental conditions and their ratings are not based on the animacy and prototypicality distinctions among the conditions. The results show that German speakers transfer their L1 while processing L2 English possessive constructions. The typological differences between Germen and English possessive constructions show that there are no differences syntactically in German possessive constructions based on animacy and prototypicallity. Moreover, English possessive-s is attached to animate, prototypical and inalienable Possessor. While in German possessive-s is only affixed to proper names or few kinship terms (Eisenbeiß 2003, Harbert 2007). Hence, L2 German speakers didn't base their ratings on these differences as compared to the control group and the high number of ratings for of-genitives is an evidence of L1 transfer.

Conclusion

These findings are contrary to the predictions of the unified competition model of L2 acquisition (Mac whinney, 2005) and are in line with the shallow structure hypothesis of syntactic processing (Clahsen and Felser, 2006). Differences in L2 processing as compared to the L1 processing have been generally attributed to dissimilarities between L1 and L2 structures. Previous research shows that cross linguistically similar structures produce no differences in L1 and L2 processing. The shallow structure hypothesis accounts for the differences between L1 and L2 performance. According to shallow structure hypothesis (Clahsen and Falser, 2006) L2 learners recruit less detailed syntactic representations that lack complex hierarchical structure during sentence comprehension as compared to native speakers.

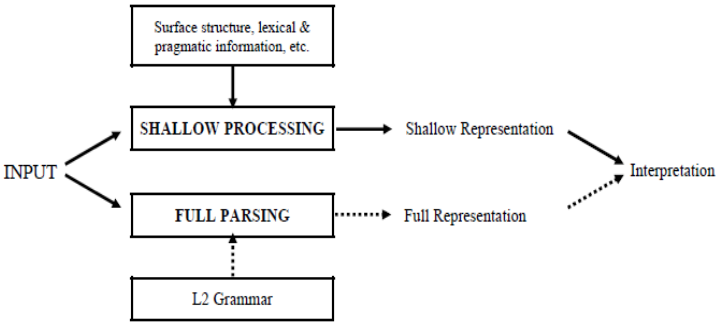


Figure: diagrammatic representation of shallow structure hypothesis (adopted from Clahsen and Falser, 2006).

The figure shows that two routes are available to L2 learners for interpretation, one is shallow representation and other is full representation. They argued that full parsing is restricted in L2 sentence processing due to inadequacies of the L2 grammar. The results of rating task shows that German speakers performed differently than the control group. The results are in line with the predictions based on typological differences of German and English Language. The German speakers' ratings were based on their L1 and hence indicate that German speakers transfer their L1 while processing L2 English possessive constructions.

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