



L3 Workshop: Multilingual Language Acquisition, Processing and Use

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BOOK OF ABSTRACTS



Department of Linguistics
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PLENARY SPEAKERS

Magdalena Wrembel

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Researching L3 phonological acquisition: challenges and new insights

This presentation aims to address the acquisition of speech from a complex multilingual perspective by contributing to the discussion on current challenges and new insights into research on L3 phonological acquisition. As the discipline grows dynamically, the methodologies employed advance, yet certain aspects continue to pose a challenge, e.g. cross-sectional vs. longitudinal designs; different types of L3 learners (heritage, bilingual vs. foreign language learners); phonological proficiency assessment; comprehensive measures of production and perception vs. selected phonological features; task complexity or diversity of language combinations. From a theoretical perspective, the applicability of the established L3 morphosyntactic models to L3 phonological data is being questioned and alternative explanatory approaches are proposed, including the Dynamic System Theory framework (e.g. Kopeckova et al. 2016), an extension of the Perceptual Assimilation Model (originally by Best 1995) or the Natural Growth Theory of Acquisition (Dziubalska-Kořaczyk and Wrembel 2017).

The focus of the contribution will be an overview of recent findings from a longitudinal international “Multi-Phon” project on the acquisition of phonology in multilingual adolescents. New insights will be offered into developmental trajectories of L3 and L2 phonologies; the production and perception interface; complex cross-linguistic interactions over time; high interindividual variation as well as the effects of language proficiency and L1 group on target-like productions and sources of CLI.

Eloi Puig-Mayenco
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Charting the lesser-known territory: beyond the initial stages of L3/Ln acquisition

The exact shape, timing and extent of linguistic transfer in additive multilingualism has been the subject of much debate during the past 15 years (González Alonso and Rothman, 2017). Not much research has, however, attempted to model the cognitive processes involved in subsequent development and ultimate attainment of the L3, even if a good portion of the available studies have used, in fact, developmental datasets (see Puig-Mayenco, González Alonso and Rothman, 2018, for a review). In this talk, we will discuss two different studies that aim at modelling what happens after the initial stages in L3/Ln acquisition. The first study examines L3 developmental trajectories in a longitudinal design, which allows us to both establish the baseline of initial transfer and also model what factors play a role in the development of an L3. The results show that language dominance in early bilinguals has an important effect on the L3 developmental trajectories. The second study examines the effects that a highly advanced L3 may have on the previously acquired languages. The results suggest that (a) an L2 is more vulnerable than the L1 to regressive transfer effects as argued by the Differential Stability Hypothesis (Cabrelli Amaro, 2017); and (b) that the influence on the L2 is enhanced when the property in the L1 and the L3 share the same morphosyntactic representation. The overall picture suggests that the field is ready to start to chart L3/Ln acquisition beyond the initial stages.

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Exploring the psychotypological dimension of transfer in L3 at the lexical level

In this talk I will discuss the design and results of a study that aims to clarify the role of psychotypology in constraining or facilitating crosslinguistic influence (CLI) from previously acquired languages in L3 production at the lexical level.

The role of psychotypology was tested in a lexical retrieval task in L3 English of sequential multilinguals with Croatian and Italian as their background languages. Apart from the flipped conditions regarding the status of each background language (as either L1 or L2), the participants (N=189) formed a homogeneous sample in terms of levels of proficiency, age of onset, and exposure to their L1, L2, and L3. The study design allowed for a differentiation between the effects of psychotypology and the L2 status factor, and the lexical retrieval task allowed for a clear identification of the instances of both facilitative and non-facilitative influence from previously acquired languages. Additional retrospective tasks were used to tap into the nature of the CLI in the study (the amount of conscious cognitive control and implicit /explicit crosslinguistic awareness).

The results showed that CLI came from both background languages, but the source language was determined by psychotypology (perceived or assumed similarity) between languages at the level of individual lexical items, rather than psychotypology at the language system level. The results will be discussed in terms of specific nature of CLI in the study and the differences in the psychotypological effect found in CLI from L1 and that from L2.

Holger Hopp

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Contextualising early L3 acquisition: Transfer, processing and instruction

In this talk, I report on two longitudinal projects (MEG-SKoRe I+II; BMBF) that compare early L2 and L3 acquisition of English as a foreign language at the primary school level. The first project assesses the scope of transfer at the lexical and the grammatical level as well as the role of cognitive factors in early FL acquisition in order to delineate whether L2 and L3 learners show partially different profiles in acquisition. In the second part of the talk, I present preliminary findings from the ongoing second project phase that explores the degree to which the inclusion of heritage languages in early foreign language instruction yields facilitative effects in metalinguistic awareness and FL achievement, esp. for heritage speakers/L3 learners of English. In conjunction, the findings situate notions of transfer within the larger cognitive, social and instructional contexts of L2/3 acquisition.

PRESENTATIONS

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Verb placement in L3 German

We present results from a study of L3 German word order acquisition in L1 Norwegian speakers with L2 English. Both transfer and developmental trajectories are of interest.

Norwegian and German have V2 word order in both non-subject initial main clauses (1 b,c) and main clauses with sentence adverbials such as *always* (2b,c), while English is V3 (1a and 2a).

- 1) a. *On Mondays* I **eat** fish.
b. *På mandager* **spiser** jeg fisk.
c. *Montags* **esse** ich Fisch.
- 2) a. I *always* **eat** at 7 o'clock.
b. Jeg **spiser** *alltid* klokka 7.
c. Ich **esse** *immer* um 7 Uhr.

L3 models assuming transfer from L1 would predict facilitative transfer for L3 German, while models assuming transfer from L2 would predict non-facilitative transfer. Models assuming that typological similarity determines transfer of entire systems would probably predict facilitative transfer from L1 Norwegian, since German can be argued to be structurally more similar to Norwegian than to English. Models that assume that transfer is always facilitative would predict L1 transfer in this case. Previous research has found non-facilitative SVO transfer from L2 English to L3 German in Scandinavian L1 speakers, seemingly supporting the L2 Status Factor. However, Stadt, Hulk & Sleeman (2016, 2018) found evidence of transfer of V2 from L1 Dutch into L3 French, in addition to V3 transfer from L2 English in participants with high exposure to English. These patterns cannot easily be explained by either of the above models. More recent models assume transfer on an item-to-item basis, and this transfer can be facilitative or non-facilitative.

We investigated high-school students (age 16-17) having learned L3 German for 0.5-4.5 years (n=175). Acceptability judgment tests (24 targets, 24 fillers) were administered in L2 and L3.

Preliminary results show uncertainty rather than a clear preference for either V2 or V3 at the earliest stages. Thus, while there is no clear transfer from the L1, results also do not clearly support the L2 Status Factor and are not entirely in line with previous research. Furthermore, it does not seem to be the case that those with higher proficiency in L2 English show more signs of L2 transfer or that performance on the German and English AJTs are correlated. At later stages, we see a development towards target-like judgments for both sentence types. This complex pattern of results is discussed in light of existing theories of transfer in L3 and possible developmental trajectories are explored.

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An ERP Study of Transfer Selectivity in Third Language Acquisition

Studies employing a violation paradigm with electroencephalography (EEG) have typically found that morphosyntactic gender and number agreement violations elicit P600 responses in native speakers (e.g., Osterhout & Mobley, 1995). In L2 learners, such violations have often been shown to elicit qualitatively similar effects, albeit conditioned as a function of proficiency (e.g., Alemán-Bañón et al. 2013). Research also shows that features not instantiated in the L1, such as grammatical gender in English-speaking learners of Romance languages, can eventually elicit P600 effects in higher proficiency (e.g., Foucart & Frenck- Mestre, 2012).

The above sets the backdrop for applying the event-related potential (ERP) method to studies examining transfer source selectivity in L3/*Ln* acquisition. We constructed two artificial languages (ALs) lexically based in English and Spanish, respectively. Both languages display number (present in both Spanish and English) and gender (unique to Spanish) agreement between determiners and nouns, and between nouns and adjectives. ALs were composed by crossing 12 nouns and 12 adjectives, yielding 144 sentences in three different conditions: grammatical (baseline), number violations, and gender violations. These were always realized on the predicative adjective, in sentences like (1). 51 L1 Spanish (highly advanced) L2 English speakers participated in the experiment. After receiving implicit training in one of the ALs (Mini-Spanish, N=26; Mini-English, N=25), participants were tested behaviorally to a criterion of 80% accuracy in number and gender agreement. Once this threshold was reached, EEG recording of brain responses to critical sentences started.

Results (Fig.1) show no effects for either group in the N400 time window (200-500 ms post-onset of the critical adjective; all $p > .05$), but significant effects in the P600 time window (500-850 ms) for both types of violations, in both AL groups (all $p < .01$). For the Mini-English group, there is a trending interaction with caudality ($p = .052$), with higher amplitudes elicited at posterior electrodes. These results could reflect Spanish transfer in both cases, consistent with default L1 transfer (Herms, 2010) and with proposals that facilitation is the main variable conditioning transfer source selection (Flynn et al., 2004), or they could reflect learning of the domain anew (but not from Spanish transfer) in the course of the experiment. These effects were not necessarily expected for the Mini-English group, given that transfer from the lexically more similar English would have been predicted under proposals prioritizing overall typological similarity (Rothman, 2015). Ongoing work to tease out these possibilities involves two groups of monolingual English speakers, who have no recourse (from previous experience) to transfer knowledge of gender agreement, trained in both ALs. If they perform like the L3 groups, this will suggest that learning of gender was possible in the experiment itself. If not, results will support facilitative transfer effects in L3/*Ln* acquisition.

| | | | | |
|---------------|---------------|-----------|------------------|----------------------------|
| <i>Ze</i> | <i>camion</i> | <i>es</i> | <i>*car-eju</i> | <i>y ze reloj tambien.</i> |
| the-MASC-SG t | ruck-MASC-SG | is | expensive-FEM-SG | and the watch too. |

Example (1) of a gender violation in Mini-Spanish.

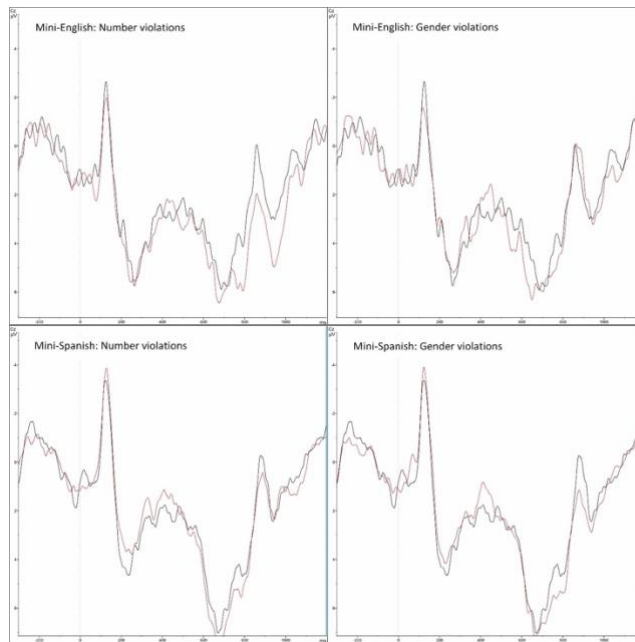


Figure 1. ERP responses at electrode Cz for number and gender violations in Mini-English (upper row) and Mini-Spanish (bottom row).

John Archibald

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Assessing Linguistic I-proximity in L3 Phonology

One recurring question in the field of L3A is how the learner determines either the linguistic proximity of two structures, or the typological proximity of two grammars. Rothman (2013) argues that the typologically closer grammar will form the L3 initial state. Westergaard et al. (2016) argue that transfer takes place structure by structure depending on which pairing of structures (L1/L3 or L2/L3) is more similar.

The machinery for assessing linguistic proximity has been under-examined. Rothman (2013) argues that the parser determines typology. He suggests that lexical and phonological comparisons are more ‘straightforward’ than morphological or syntactic comparisons, but is unclear *how*. Slabakova (2016) is also unclear on the evaluation metric which allows her ‘scalpel’ to work. Both these models lack a concrete comparison algorithm. I will sketch out such an algorithm at the word level within models of spoken word recognition (Author, in press; Gwilliams et al. 2018). This is necessary as we need is a theory of how the multilingual processes/parses new L3 input addressing the Credit Problem (Dresher, 1999).

Even in the lexical and phonological domains, we need a learning theory which will tell the learner when to set up a new grammar. Roeper (2018) hints at this by drawing the distinction between grammar *acquisition* and *choice*. In assessing I-proximity we must deal with choice on a micro-level.

Building on multiple grammar theory (Amaral & Roeper, 2014), and cue-based learning (Dresher, 1999; Westergaard, 2009) we can look at measures for assessing linguistic I-proximity phonologically. When new input is detected, it is analyzed to see if the cue is the same as either L1 or L2. By cue matching, the L3 initial state of the particular structure (*treelet* in the sense of Fodor, 1999) is determined. I will demonstrate an algorithm via case studies of segmental (assigning phones to phonemes) and metrical (assigning syllables to feet) parsing.

A confounding factor to be considered, however, is the fact that bilinguals (having more experience listening to diverse language input than monolinguals) relax their category-assignment mappings when it comes to parsing. We see this for segments (Kennedy & Trofimovich, 2008) and for stress (Reinisch & Weber, 2012). Yet, while a Bayesian metric (Poeppel et al, 2008) works for spoken word recognition, for the acquisition of an L3 phonological grammar, I propose the Tolerance Principle (Yang, 2017; 2018) be applied to phonological treelets which would guide the choice of an L3 phonological representation.

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Grammatical gender acquisition in sequential trilinguals: A test of L3 transfer models

This experiment investigates four L3 acquisition models: Cumulative Enhancement (CEM; Flynn et al., 2004), L1 Transfer (L1T; Hermas, 2010), L2 Status (L2S; Bardel & Falk, 2007) and Typological Primacy (TPM; Rothman, 2011) in their ability to predict the transfer of grammatical gender in the initial stages of L3 acquisition. These models make conflicting predictions regarding learners' ability to transfer previous grammatical knowledge to the initial L3 syntax.

Sequential bilinguals acquiring L3 German are examined. The L1/L2 pair of Spanish and English is used due to a dual disparity, in (a) typological similarity to the target L3 and (b) occurrence of the target feature: whereas English is typologically more similar to German, only Spanish has a gender system. Beginner L3 German learners with either L1 English/L2 Spanish (ESG-Beg: $n=8$) or L1 Spanish/L2 English (SEG-Beg: $n=3$), complete two written tasks. A grammaticality judgment task (GJT) has participants judge sentences with a mismatch in gender assignment (Table 2). An explicit gender assignment task (GAT) ensures participants' knowledge of the correct gender for each noun in the GJT. Beginner groups' responses were compared to advanced L3 learners (Adv) with similar L1/L2 backgrounds (ESG-Adv: $n=8$, SEG-Adv: $n=2$), native German speakers (NG: $n=6$) and L1 English/L2 German learners (EG: $n=14$). GJT accuracy was measured in terms of number of correct responses, adjusted for any incorrectly assigned genders evident in the GAT.

Data collection is ongoing and will use mixed logistic regression when sample size is sufficient. Preliminary results reveal that SEG and EG beginners are less accurate in the GJT than their advanced counterparts, while ESG beginners are not (Figure 1). A two-way ANOVA revealed a significant interaction between German proficiency and language background ($F(2,27)=4.195$, $p<0.05$), nearly significant effects of language background, ($F(2,27)=3.282$, $p=0.0530$), and significant effects of German proficiency, ($F(1,27)=27.049$, $p<0.001$), with respect to participants' scores. Post-hoc tests (Table 1) further demonstrate that ESG beginners do not show the significant difference from advanced learners found in SEG and EG beginners.

In short, despite the small sample size of the preliminary data, results suggest that learners with a gendered L2 seem to outperform learners with a gendered L1 in initial acquisition of L3 grammatical gender. A comparison of results with model predictions is outlined in Table 3. Sufficient data for the mixed logistic regression analysis is anticipated by spring 2019. If that analysis also demonstrates this trend, these findings will support L2S, suggesting that L2 holds a privileged role as the source language for L3 grammatical gender knowledge.

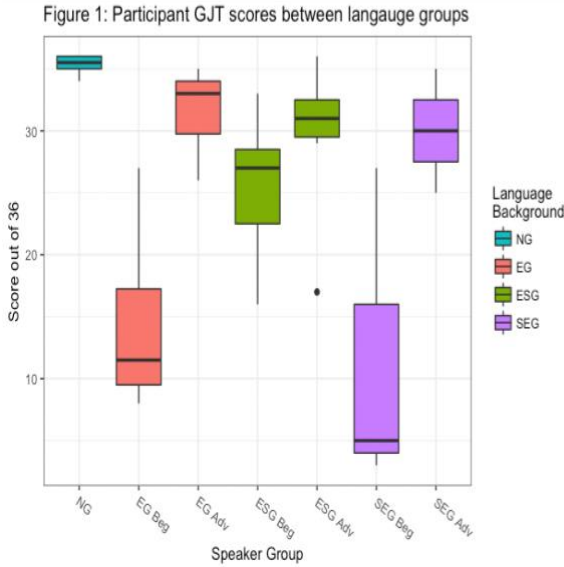


Table 1: Results of post-hoc pairwise comparisons (via two-sample t-test) of accuracies in the GJT.

| | EG Beginners | ESG Beginners | SEG Beginners |
|---------|--------------|---------------|---------------|
| NG | ✓ | ✗ | ✓ |
| EG Beg | ✗ | ✓ | ✗ |
| EG Adv | ✓ | ✗ | ✓ |
| ESG Beg | ✓ | ✗ | ✓ |
| ESG Adv | ✓ | ✗ | ✓ |
| SEG Beg | ✗ | ✓- | ✗ |
| SEG Adv | ✓- | ✗ | ✓ |

✓ = (p < .05), ✓- = (p < .1), ✗ = (p > .1)

Table 2: GJT Example Question and Additional Information

| | |
|--|-------------------------------------|
| GJT Grammatical Mismatch Example | Das Baum ist groß |
| Translation | The[Neuter] tree[Masculine] is tall |
| Additional Notes: All possible gender error combinations were given. Sentences were in nominative case and mixed among distractor questions with case and number errors. | |

Table 3: Comparison of results with model predictions of successful gender transfer in L3 German

| | L1 English L2 Spanish (ESG) | | L1 Spanish L2 English (SEG) | |
|-------------------------------|-----------------------------|------------|-----------------------------|------------|
| | Beginner | Advanced | Beginner | Advanced |
| Results | Yes | Yes | No | Yes |
| Cumulative Enhancement Model | Yes | Yes | Yes | Yes |
| L1 Transfer Model | No | Yes | Yes | Yes |
| L2 Status Factor Model | Yes | Yes | No | Yes |
| Typological Primacy Model | No | Yes | No | Yes |

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L3 acquisition of Mandarin sentence-final question particles *ba* and *ne* by Cantonese-English bilinguals

What are possible transfer sources at the initial stage of third language (L3) acquisition? Three possible sources are predicted: the L1 Factor Hypothesis (L1-FH; Na Ranong & Leung, 2009); the Linguistic Proximity Model (LPM; Westergaard et al., 2016) and the Typological Primacy Model (TPM; Rothman, 2010, 2011, 2015). To test the hypotheses above, we examine the acquisition of two Mandarin sentence-final particles (SFPs) by L1 English-L2 Mandarin (E-M), L1 Cantonese-L2 English-L3 Mandarin (C-E-M) and L1 English-L2 Cantonese-L3 Mandarin (E-C-M) learners.

Unlike the case in English, in both Mandarin and Cantonese, a statement can be converted into a question by merging an SFP at a sentence final position. Mandarin *ba* and *ne* are question SFPs and carry a [+Q] feature. However, the two SFPs differ in their discourse properties: *ba* has a confirmation-seeking feature and a *ba* sentence can stand alone as a question (see Example 1); on the other hand, *ne* is used in a follow-up question, which means that a question with *ne* cannot be used out of the blue in the discourse (compare Examples 2-3). Cantonese has equivalents of the two Mandarin SFPs whereas English employs tag questions and *wh*-phrases to undertake the functions of *ba* and *ne* respectively (see Table 1). Hence, Cantonese is structurally closer to Mandarin than English and is thus predicted to be the source of transfer on the basis of the TPM and the LPM. Ninety-three participants (25 Mandarin native speakers; 12 low-proficiency E-M learners, 12 low-proficiency E-C-M learners, 11 high-proficiency E-C-M learners and 33 high-proficiency C-E-M learners) took part in the present study, which employed an offline Acceptability Judgement Task (AJT) and an online Cross-Modal Priming Task (CMPT).

The AJT results (see Table 2) indicate that the discourse feature of Cantonese *nē/lē* was transferred into E-C-M (Low) learners' L3 Mandarin at the initial stage, which facilitated them in identifying the inappropriateness of Mandarin *ne* questions used out of the blue. This finding supports the predictions of the TPM and the LPM but disconfirms the L1-FH. Regarding the online priming data, for Mandarin natives and the two high proficiency L3 groups, *ne* took a significantly longer time to process than *ba*. On the other hand, there was no significant difference found between the RTs for *ba* and those for *ne* in the data of both the E-M (Low) and the E-C-M (Low) groups. This might indicate the E-C-M (Low) learners' implicit knowledge of *ne* developed later than their explicit knowledge.

- | | | | |
|--|-----|---|-----|
| (1) Ta mingtian qu xuexiao | ba? | (2) ?? Ta mingtian qu xuexiao | ne? |
| he tomorrow go school | SFP | he tomorrow go school | SFP |
| “He’ll go to school tomorrow, won’t he?” | | “What about he going to school tomorrow?” | |
- (3) A: Ta mingtian zai jia, mama hui bu gaoxing.
he tomorrow be home mother will not happy
“He’ll stay at home tomorrow. Mum won’t be happy about that.”
B: Ta mingtian qu xuexiao ne?
he tomorrow go school SFP
“What about he attending school tomorrow?”

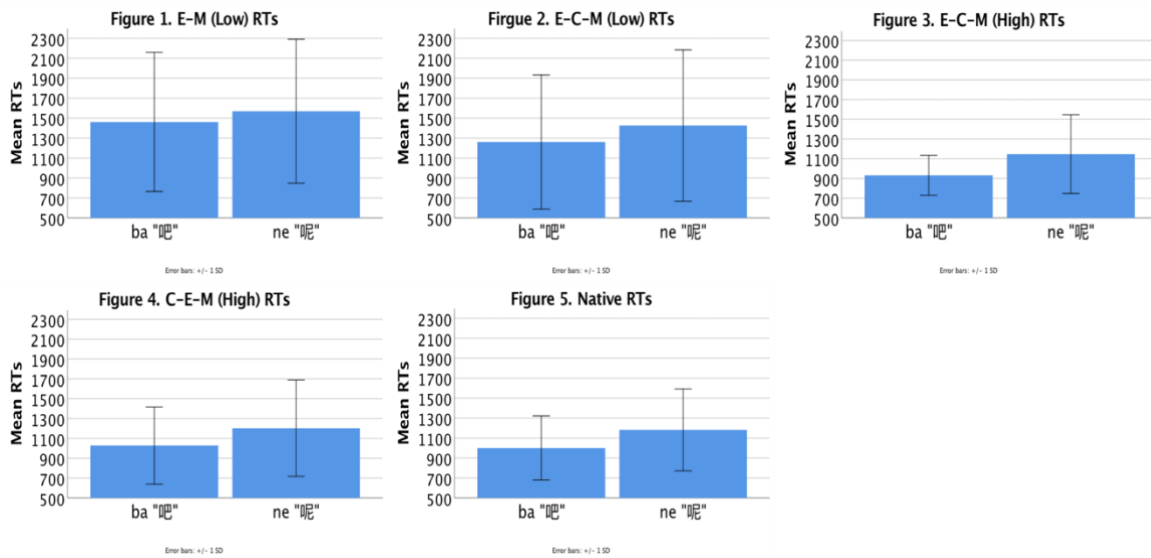
Table 1. Mandarin question SFPs and their counterparts in Cantonese and English

| Function | Mandarin | Cantonese | English |
|-----------------------|---------------|---------------|---------------|
| confirmation seeking | <i>ba</i> “吧” | <i>há, hó</i> | tag questions |
| follow-up questioning | <i>ne</i> “呢” | <i>nē, lē</i> | “what about” |

Table 2. AJT results

| Group | <i>ba</i> “吧” | | | <i>ne</i> “呢” | |
|---------------------|---------------|--------|---|---------------|--------|
| | Mean | (SD) | | Mean | (SD) |
| E-M (Low) | 3.31 | (0.77) | | 3.12 | (0.87) |
| E-C-M (Low) | 3.66 | (0.69) | ↔ | 2.85 | (1.14) |
| E-C-M (High) | 3.27 | (0.76) | ↔ | 2.83 | (1.11) |
| C-E-M (High) | 3.61 | (0.66) | ↔ | 2.81 | (0.89) |
| Native | 3.78 | (0.54) | ↔ | 2.73 | (1.14) |

Note: Mean scores are on a scale of 1-4 (from ‘completely unacceptable’ to ‘completely acceptable’);↔ stands for a significant difference at 0.05 level between the two values.



Object clitics in French L3 acquisition

This study investigates transfer in L3 acquisition, testing the *Cumulative Enhancement* (CEM, Flynn et al. 2004) and *Typological Primacy* (TPM, Rothman 2011) models through an investigation of French object clitics. We compare proficiency-matched L3 and L2 French speakers whose prior languages are L1-Sinhala–L2-English ($n=30$) or L1-English ($n=27$).

In French, object pronominalization is realised through preverbal clitics (1a). Sinhala also has preverbal object pronouns, but additionally allows null pronouns, which are ungrammatical in French (1b). English has only overt postverbal object pronouns.

1. Est-ce que Simon voit ses amis? is-it
that Simon sees his friends
“Does Simon see his friends?”
 - a. Oui, il **les** voit souvent.
Yes, he **CL.3PL** sees often
“Yes, he sees **them** often.”
 - b. *Oui, il voit souvent.

The CEM proposes that the grammar of previously-acquired languages enhances subsequent language acquisition. Under this model, the L3 speakers will be more target-like on preverbal clitics than the L2 speakers, due to facilitation from preverbal object pronominalization in Sinhala. The TPM proposes that the structurally more similar language transfers in L3 acquisition. Under this model, both groups will experience transfer from English, so their performance will be similar.

Data were collected via an audio acceptability judgement task (AJT) and production task (PT). The AJT presented 10 grammatical and 10 ungrammatical tokens in two-part dialogues as in (1a–b). Participants rated the 2nd utterance in each dialogue on a scale of 0 (unacceptable) to 6 (perfectly acceptable). In the PT, participants responded to 10 questions designed to elicit object pronouns. Native French participants ($n=12$) served as a control group.

Figure 1 shows that in the AJT, both groups had higher mean ratings for the grammatical S-CI-V structures than the ungrammatical *S-V structures. The non-overlapping CI bars within groups confirm that this difference is significant. However, a mixed effects analysis of the non-native data yields no main effect of group or group-by-grammaticality interaction ($ts < 1.75$). Table 1 summarizes the PT responses. Both non-native groups tended to avoid pronouns, producing full NP objects. The L3 group has higher pronoun omission (*S-V) than the L2 group. Chi-square analysis suggests that this between-group difference makes a significant contribution to the overall chi-square statistic ($\chi^2 = 24.71, P \leq .001$).

Neither result supports the CEM. The AJT result supports the TPM, but the PT result may suggest transfer from Sinhala. We discuss this in relation to L3 accounts that predict negative transfer from any previously acquired language (Slabakova 2016; Westergaard et al. 2016).

Figure 1: Means acceptability ratings (scale = 0–6) on grammatical S-CI-V versus ungrammatical *S-V structures, by group, with 95% CI bars

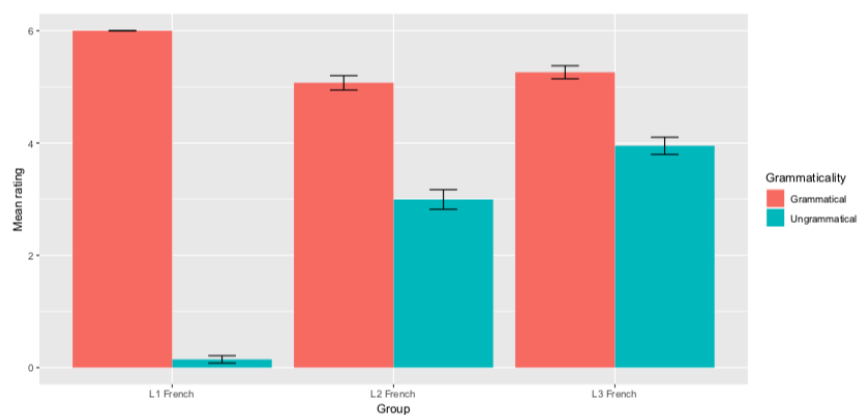


Table 1: Percentage (raw number) of each structure used in production task responses, by group

| Structure produced | Group | | |
|--------------------|------------|-------------|-------------|
| | L1 French | L2 French | L3 French |
| S-CI-V | 78.33 (94) | 31.48 (85) | 21.00 (63) |
| *S-V | 0.00 | 1.85 (5) | 11.33 (34) |
| S-V-NP | 21.67 (26) | 66.67 (180) | 67.67 (203) |

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Activation Across Three Lexicons

A fundamental challenge of communicating in more than one language is that the speech signal often calls for different interpretations, depending on which language is being spoken. When multilingual listeners hear words in one of their languages, multiple candidates are activated across all their languages. Sublexically, however, differences do exist and can serve to inhibit unwanted activation if they are perceived by the listener. A well-studied example of such sublexical differences is VOT across languages such as Portuguese and Spanish, compared to English. English has long-lag VOT while Spanish and Portuguese have short-lag VOT for the same phonological categories. Another sublexical difference is vowel nasalization. In Portuguese, vowel nasalization can be phonological while in Spanish and English, it is allophonic. Sublexical ambiguities of this type pose an interesting question for multilingual speech processing. Specifically, what happens when a trilingual (e.g., Spanish-Portuguese-English) listener hears input that is ambiguous between two of her languages? Does ambiguous input activate language-specific lexical representations? To answer these questions, we recruited L1 Spanish and L1 Brazilian Portuguese trilingual participants (English was either L2 or L3) living in Uruguay and Brazil.

We first determined how listeners identify the multilingual stimuli and subsequently, how listeners classify the same input as belonging to specific languages. Stimuli were bisyllabic nonwords of the form [Ce(N).Ca]. The initial consonant was drawn from a [b-p] voicing continuum (-40ms to 40ms, 10ms intervals) and spliced onto one of three vowels: full nasal vowel (contrastive in Portuguese), nasalized vowel (allophonic in English, Spanish and Portuguese) or oral vowel from each language (see Table 2). For example, the nonword [bẽ^mpa] with -30 VOT included the nasal vowel and negative VOT characteristic of Portuguese while the nonword [p^hepa], included VOT of at least 30ms, which phonetically corresponds to English.

Participants completed two tasks:

VOT/nasal categorization: Participants were told to listen in their native language and select the word they heard.

Language categorization: Participants heard the same nonwords and identified the language they believed the nonwords belonged to.

Participants then completed an auditory form priming task in which they heard the nonword syllables (prime), followed by a real-word (target) from English, Spanish or Portuguese and had to identify the language of the target.

Preliminary analysis shows that for phonetically ambiguous primes, RTs were longer and accuracy rates lower compared to non-ambiguous primes. We discuss the relevance of these results for self-organizing models of language selection in multilingual lexical activation.

Table 1. Participants

| L1 | L2 | L3 |
|---|-------------------|-------------------|
| Spanish (recruited in Montevideo, Uruguay) | English (n=20) | Portuguese (n=20) |
| | Portuguese (n=18) | English (n=18) |
| Brazilian Portuguese (recruited in Florianópolis, Brazil) | English (n=20) | Spanish (n=20) |
| | Spanish (n=20) | English (n=20) |

Table 2. Stimuli parameters

| | nasalized vowel | vowel nasalization | oral vowel | prevoicing | short lag | long lag |
|------------|--|-------------------------------|--------------------------|-------------------|------------------|-----------------|
| Portuguese | ✓ e.g. campo [kã ^m pu]/[kãpu] | ✓ e.g. cama [kãmɐ] | ✓ e.g. capa [kapɐ] | ✓ | ✓ | <i>x</i> |
| Spanish | <i>x</i> | ✓ | ✓ | ✓ | ✓ | <i>x</i> |
| English | <i>x</i> | ✓ e.g. comma | ✓ e.g. copper | <i>x</i> | ✓ | ✓ |

The relationship between speech production and inhibitory control in young multilinguals

Inhibitory control involves the suppression of the languages not currently used by the speaker and is hypothesised as a factor influencing performance in the language actually used. In relation to phonological development, higher inhibitory skills may lead to improved suppression of interference from other languages in one's repertoire. Previous investigations into the relationship between inhibition and phonological development have shown its role as a predictor in perception and production tasks (e.g. Lev-Ari and Peperkamp 2012, Darcy et al. 2016), however, these studies focused on bilinguals. The present contribution goes beyond this limitation by including multilingual speakers, as part of a larger, longitudinal project investigating phonological development in third language acquisition.

The study aimed to investigate a potential relationship between inhibition and phonological production from a multilingual perspective. The research questions were as follows: (1) What is the relationship between accuracy in speech production and inhibitory control? (2) Does language status modulate the role of inhibition in phonological production?

The participants were 20 adolescent, sequential multilinguals (13-year-olds with L1 Polish, L2 English, L3 German), acquiring their L2 and L3 by formal instruction in a primary school (English for 6 years and German for 1.5 months at the time of testing). Inhibition was measured by means of a modified flanker task (Eriksen and Eriksen 1974, based on Poarch and Bialystok 2015). Multilingual production was tested in a delayed repetition task (e.g. Kopeckova et al. 2016) in L2 and L3, which included three selected phonetic features, differing in realisation across the three languages involved, namely, rhotics, final devoicing and voice onset time (VOT). The potential effect of proficiency on phonological production was controlled for by introducing a language history questionnaire (based on Li et al. 2006 Marian et al. 2007) and an additional, interview-based language proficiency measure.

The obtained results suggest that higher inhibitory control is moderately related to global accuracy in L2 and L3 production treated jointly. Higher inhibitory control was related to higher accuracy in the overall L2 production, however, there was no significant relationship with L3 accuracy alone. These results indicate that inhibition may play a role in the multilingual phonological development, however, its role is moderated by the language status.

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Initial Stages Transfer into L3 is Complete and Based on Overall Typological Proximity

The exact shape, timing and extent of linguistic transfer in third/further language (L3/L_n) acquisition has been the subject of much debate (see González Alonso et al., 2017 for discussion). Two questions dominate: (a) what variables determine selection between the L1 and the L2? and (b) what are the amounts and timings of transfer: (i) (wholesale) at the beginning or (ii) property-by-property through development?

To address both questions simultaneously, we examined a group of Catalan-Spanish bilinguals (N=40) at the very first stages of L3 English. Two groups of bilinguals, L1-Catalan-L2-Spanish (n=22) and L1-Spanish-L2-Catalan (n=18) were tested after a purposefully designed 8-week English language program. Designing our own curriculum allowed us to control the type and amount of L3 English input each *ab initio* learner would receive. Participants completed a grammaticality judgement task (GJT) in the three languages; L3 always tested first to avoid priming and other languages tested to confirm what is available for transfer. We examined four properties (see Table 1): Word order (VOS and VSO, the latter acceptable only in Spanish); pre-infinitival NPs in causative structures (e.g., *The teacher made the boy open the door*, ungrammatical only in Catalan); differential object marking (DOM), operative only in Spanish; and register-independent use of determiners preceding proper nouns (e.g., **The Mary comes every morning*), acceptable only in Catalan.

For all four properties in L3 English, participants provided responses in line with their Catalan grammar, irrespective of whether they belonged to the Catalan-dominant or the Spanish-dominant group (min $z = 1.24$, max $z = 1.42$; all $p > .05$) and of whether Catalan and English were similar for individual properties. Because they did this for all properties, the data are highly consistent with complete (full) initial stages transfer (Rothman, 2015) as opposed to property-by-property over time (e.g. Flynn et al. 2004; Westergaard et al. 2017). That transfer came exclusively from Catalan supports the argument that underlying overall structural (typological) similarity—not property-by property similarity—is the most deterministic variable for initial transfer selection and, given our mirror-image groups design, problematizes models suggesting a default preference for either the L1 or L2 (Bardel & Falk, 2007; Hermas, 2010). The Typological Primacy Model (TPM) claims that selection between the L1 and L2 is based on overall structural similarity to the L3 from the parser's view, which is guided by cues from the L3 input stream related to decreasingly salient features (lexicon→phonology/phonotactics→functional morphology→syntax). While the amount of lexical crossover is virtually identical between English and both Catalan and Spanish, English and Catalan are much closer at a phonological level (vowel reduction, stress vs. syllable timing, wider range of word-final consonants, etc.). As a result, the TPM would predict full transfer from Catalan, which is consistent with our data.

Table 1. Experimental conditions (with examples) in the grammaticality judgement task. Grammaticality/acceptability in Spanish and Catalan for each sub-condition is also indicated.

| <i>Condition</i> | <i>Sentence type</i> | <i>Example</i> | <i>Spanish</i> | <i>Catalan</i> |
|-------------------|----------------------|--|----------------|----------------|
| <i>Word order</i> | VOS | *Has read a book the girl. | √ | X |
| | VOS | *Has read the girl a book. | √ | X |
| <i>Causatives</i> | Full DP | The teacher made the student read a book. | √ | X |
| | Clitic | The teacher made him read a book. | √ | X |
| | Periphrasis+clitic | The teacher is making him read a book. | √ | √ |
| <i>DOM</i> | +DOM | *The patient meets to the doctor every week. | √ | X |
| | -DOM | The patient meets the doctor every week. | X | √ |
| <i>Det + Noun</i> | The+Noun | *The Sarah drinks coffee every morning. | X | √ |
| | Ø+Noun | John drinks tea every morning. | √ | X |

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L1-L2 interaction in L3 acquisition - why we need multi-feature analyses

The study of multilingual L3 acquisition provides new insights into the interaction of languages in the multilingual mind. From the perspective of phonological systems, it promises to be a fertile ground for investigating multiple structural levels (e.g., prosody-segments, contrast-allophone) that can be expected to interact differently from each other in multilinguals. However, studies on L3 phonology traditionally investigate only individual phonetic/phonological phenomena focussing mostly on the L3 to test whether/how crosslinguistic influence (CLI) arises from speakers' background languages (but, see Gut & Kopeckova, ongoing). Wrembel (2011), for instance, found exclusive L1 transfer in global foreign accent, while others have observed influence from both languages in Voice Onset Time (Wunder 2010). Similarly, Author (2019) found evidence for a combined language system showing that speech rhythm in L1-Turkish-L2-German bilinguals differed from that of German monolinguals in English and German. To better understand these conflicting results, studies analysing various phonological phenomena on different levels in the same data, employing comparable approaches are needed.

In order to extend their study to the level of segments, I use Author's (2019) dataset and investigate the production of vowels by highly proficient Turkish-German adult users of English as an L3 (n=12) vs. German monolingual L2 users (n=12). I ask (a) whether bilinguals and monolinguals produce different vowel quality in English, (b) if so, whether this difference also surfaces in their German, and (c) how this relates to previous findings on rhythm.

F1, F2, and F3 of all vowels were measured in English and German reading passages and a Turkish passage (only bilinguals) and normalized (Bark). Mixed models revealed a significant interaction of vowel and group in Z3-Z2 (backness), but not in Z2-Z1 (height), in the English, but not the German text. Post-hoc comparisons show that both /ɒ/ and /u:/ are significantly backer in the bilinguals' than the monolinguals' English.

These results suggest that the bilinguals' Turkish has an influence on their L3 vowels, and that, unlike rhythm, vowel quality in German converges across groups. In order to test the concrete, speaker-specific influence of the L1 on the L3, I will furthermore present a comparison of individual speakers.

I will argue in favour of a combined multilingual language system (1) whose levels can be influenced differently by CLI and (2) in which CLI may surface in either, some, or all of the speakers' languages, with an outcome that is characterized by a complex interaction of (1) and (2).

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Investigating reverse lateral CLI in L3 development through switching cost procedure

Investigations into Third Language Acquisition (TLA) to date have focused mainly on the Cross-Linguistic Influence (CLI), particularly of a lateral type in the direction from L2 to L3, as well as factors contributing to the L3 development. However, little attention has been devoted to reverse lateral CLI, namely the effect of an additional new language on a previously acquired foreign language. As Cabrelli Amaro (2017) showed, it is the L2 rather than L1 that is more sensitive to the influence of the L3, which might be due to the shared foreign language status (Bardel and Falk 2007). It was also hypothesised that a more dominant language needs stronger inhibition capacities, which will be manifested in increased time necessary for the code switch to take place (cf. Mora 2017). Given the above, the author explores the L3 to L2 CLI by focusing on the changes in switching cost between the foreign languages as L3 develops.

The present study aims to investigate if the developing L3 may exert an influence on the previously-formed L2 by the means of a switching cost task. The task applied in the study was adapted from Costa et al. (2006), with the longitudinal design added as a new feature of investigation. 20 Polish university students (Mean age=23) with L2 English (intermediate level) and L3 German or French (initial stage of formal instruction) performed a picture naming task conducted in L2 and L3. The subjects were shown 41 tokens, presented in stretches from 1 to 3 subsequent items in the same language, so as to provide switch and non-switch conditions. The participants performed the task at two testing times: first, after 6 weeks of L3 learning, and for the second time, after 5 months of instruction. The study examined the differences in switching costs between L2 and L3 in two temporal points, expressed in scores for Reaction Time (RT).

The results are expected to show an over-time switch in the amount of attention necessary to inhibit L2 and L3. This would be manifested in shortening of the switching cost from L2 to L3, and extending it when switching in the reverse direction, which would be an evidence for the L3 increased influence on L2.

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Full transfer in L3A: Wholesale or property-by-property?

The discussion from the 90s of the initial state in L2A has returned to the field as a question of wholesale vs. property-by-property transfer in L3A. We will contribute to this debate, providing arguments against the former and for the latter position.

According to Full Transfer/Full Access (Schwartz & Sprouse 1996), L2A entails making a full copy of the L1 in the brain at the initial state and subsequent reconstruction of the copied grammar based on parsing failure. The original rationale for this was that reconstruction should not affect the L1 (White 2003). There is some indication in the L2 literature that this was interpreted as an abstraction, not an actual neuroanatomical process. The latter interpretation has re-appeared in one model of L3A, the TPM (Rothman 2015), with economy as the theoretical motivation. The TPM also assumes a fundamental distinction between (representational) transfer and CLI (temporary bleeding of one language into the other). However, we argue:

1. Numerous studies show that all languages of a bilingual are always active (Kroll & Bialystok 2013, Green & Abutalebi 2013). Thus, there is no need to make a copy of the L1, which can be accessed directly.
2. The language learning mechanism is able to make fine distinctions in L1A (Westergaard 2009). Current L2A theory has demonstrated that L2 learners do the same (White 2017).
3. Rothman et al. (2019) concede that initial surface influence as well as secondary transfer may take place property-by-property (before and after wholesale transfer), possibly also in L4A. Thus, the TPM argues for a principled distinction between the initial state, the initial stages and later stages (economy only applying at the initial stages), and also between L2/3A and L4A. In our view, there is no independent motivation for these distinctions.
4. Given such distinctions, wholesale transfer becomes empirically unfalsifiable in L3A.

Based on ideas formulated in two other models of L3A (Slabakova 2017, Westergaard et al. 2017), we argue that L2/LnA is **learning by parsing** (like L1A, only with more resources available). There is no need to assume a fundamental difference between transfer and CLI; instead, learners parse L3 input, using their previously acquired languages in cases of structural similarity, thus gradually building representations, which become stable with increased use. Furthermore, we introduce the concept of **Full Transfer Potential**, meaning that “anything may transfer”, not that “everything does transfer”. We also provide some empirical evidence for our claims.

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POSTERS

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Global speech rhythm and intonation in L3 French: Comparing bilingual Turkish-German and monolingually raised German learners

We investigate global speech rhythm (GSR) and intonation in French as a foreign language (FFL) produced by 6 bilingual Turkish-German learners (ages: 15-17) who speak Turkish as a heritage language (HL) along with German. Monolingually raised German learners ($n=8$, ages: 15-17) as well as L1 speakers of Standard French ($n=3$, ages: 21-23) and Turkish ($n=6$, ages: 21-32) serve as control groups. The three languages differ considerably at the prosodic level: German intonation is word-based and determined by pitch accents realized on stressed syllables (Féry 1993); French, by contrast, lacks lexical stress and presents a phrase-based system. Turkish, finally, occupies an intermediate position between German and French: In the unmarked case, stress is assigned to the last syllable of prosodic words, which are obligatorily marked by an initial L tone plus a final rise (Kamalı 2011; İpek/Jun 2013). This forms a striking parallel with the initial L and the final H of the French Accentual Phrase (Delais-Roussarie et al. 2015). As for GSR, German qualifies as a stressed-timed language, while French and Turkish are syllable-timed. Based on these characteristics, Turkish-German learners should outperform German monolinguals when acquiring FFL due to potential positive transfer from the HL. The analysis of a corpus of read speech yielded the following results.

Regarding **GSR** (Figure 1), the bilingual learners perform slightly more target-like than the monolinguals, probably due to a lower rate of *r*-vocalization (bilinguals: 60%; monolinguals: 87.5%). However, the difference between the groups was not significant for neither %V ($p=.364$) nor VarcoV ($p=.052$). The differences between HL Turkish and monolingual Turkish were not significant either (%V $p=.668$; VarcoV $p=.174$).

Concerning **intonation**, bilingual and monolingual learners differ from the L1ers according to the prominence values assigned to each syllable by the software ANALOR (Avanzi et al. 2008; calculation based on acoustic parameters that are considered relevant for French). The scores expressing the deviation of the learners' production from the French target values showed no significant difference between groups ($p=.803$; Table 1), although the distribution of prominences in the bilingual data is closer to the L1 model regarding the phrasing of non-complex sentences (Figure 2).

As opposed to recent work on VOT production in Turkish-German learners of FFL (Gabriel et al. 2018), our expectations of positive transfer were only partly met for prosody. This suggests that suprasegmentals are less accessible in FL learning and that positive transfer needs support by fostering prosodic awareness in multilingual learners.

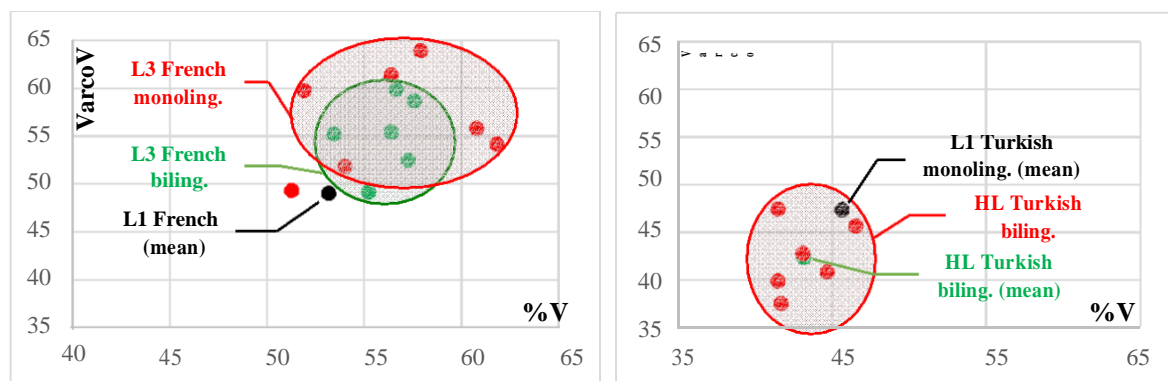


Figure 1. Left panel: %V and VarcoV for L1 **French** (mean value; black dots), L3 French produced by mono-lingual German learners (individual values; red dots) and L3 French produced by bilingual Turkish-German learners (individual values; green dots). Right panel: %V and VarcoV for monolingual (mean value; black circle) and bilingual **Turkish** (HL; green dot: mean value; red dots: individual values).

| | M1 | M2 | M3 | M4 | M5 | M6 | M7 | M8 | mean M |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Sentence 1 | 0,42 | 0,32 | 1,21 | 1,02 | 0,55 | 0,30 | 0,48 | 0,88 | 0,65 |
| Sentence 2 | 0,47 | 0,88 | 1,30 | 0,35 | 0,39 | 0,84 | 1,02 | 0,86 | 0,77 |
| Sentence 3 | 1,39 | 1,43 | 0,82 | 1,07 | 1,24 | 1,15 | 0,58 | 1,27 | 1,12 |
| Sentence 4 | 1,11 | 0,97 | 1,96 | 0,72 | 0,60 | 1,06 | 0,64 | 1,98 | 1,13 |
| Sentence 5 | 0,54 | 0,37 | 0,36 | 1,07 | 0,16 | 0,34 | 0,52 | 1,35 | 0,59 |
| | 0,89 | 0,96 | 1,16 | 0,84 | 0,73 | 0,86 | 0,67 | 1,27 | 0,92 |
| | B1 | B2 | B3 | B4 | B5 | B6 | | | mean B |
| Sentence 1 | 1,03 | 0,44 | 0,38 | 0,77 | 0,89 | 0,33 | | | 0,64 |
| Sentence 2 | 0,49 | 0,41 | 0,56 | 0,61 | 0,72 | 1,42 | | | 0,70 |
| Sentence 3 | 0,81 | 0,73 | 0,67 | 1,01 | 0,70 | 1,55 | | | 0,91 |
| Sentence 4 | 1,23 | 1,66 | 0,98 | 2,27 | 1,27 | 0,68 | | | 1,35 |
| Sentence 5 | 0,39 | 0,89 | 0,53 | 1,14 | 0,44 | 1,32 | | | 0,79 |
| | 0,82 | 0,81 | 0,65 | 1,14 | 0,82 | 1,15 | | | 0,90 |

Table 1. Deviation scores for five sentences from the reading task, based on the prominence values assigned by the software ANALOR (Avanzi et al. 2008) to each syllable, i.e. differences between the individual learners' production and the mean values attained by the monolingual French L1 control group. Upper panel: Deviation scores for individual monolingual learners of FFL (M1–M8) and mean values (for each sentence and the whole group, rightmost column). Lower panel: Deviation scores for individual bilingual learners of FFL (B1–B6) and mean values (for each sentence and the whole group, rightmost column).

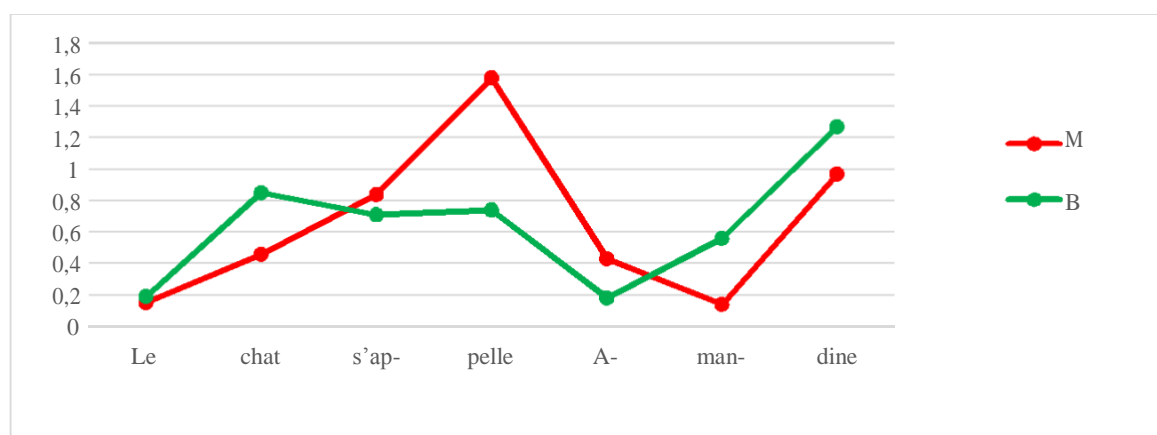


Figure 2. Deviation scores (prominence values detected by ANALOR; Avanzi et al. 2008) for the French non-complex declarative *Le chat s'appelle Amandine* 'The cat's name is Amandine' in the production of monolingual (M) German learners (mean values per syllable; red line) and the bilingual (B) Turkish-German learners (mean values per syllable; green line). The M learners display a particularly high deviation score on the syllable *-pelle* [pɛl]; this indicates a (non-target-like) prosodic boundary between *s'appelle* and *Amandine* (which is absent from the B learners' production).

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Final voiced obstruents in English and French as foreign languages: Comparing monolingual German and bilingual Turkish-German learners

We address the realization of the voiced obstruents /bdgvz3/ in coda position in English and French as foreign languages (FLs) produced by monolingual German learners and bilingual learners who speak Turkish as a heritage language (HL) in addition to German.

The languages of our sample differ regarding the realization of final voiced obstruents: While German shows final devoicing (FD), which neutralizes the [\pm voiced] contrast in coda position, English and French maintain the lenis-fortis opposition (i.e. /b/ vs. /p/) in all contexts. Turkish occupies an intermediate position between German and the two FLs: It allows for fully voiced final fricatives (e.g., *öde*[v] ‘task’), but presents morphophonological alternations such as *kita*[p] ‘book’ vs. *kita*[.b]ım ‘my book’ that resemble German FD (Kopkallı 1993; Yavuz/Balcı 2011). However, it also has some minimal pairs such as *a*[t] ‘horse’ vs. *a*[d]/[d̥] ‘name’ (Wilson 2003).

We recorded oral production data from each five adult monolingual and bilingual learners (ages: 23–32) in German (surrounding language), Turkish (the bilinguals’ HL), English and French, using a reproduction task (with the target segments in utterance-medial and -final position). Furthermore, we conducted semi-guided interviews with the bilinguals, focusing on metalinguistic/phonological awareness and language attitudes. To better capture the facts for monolingual Turkish, we included a group of monolingually raised speakers with no knowledge of FLs from Kırşehir/Anatolia ($n=5$, ages: 23–62); Table 1.

Voicedness was determined according to the (partial) presence of voice bar, F0 contour, intensity contour and visible pulses. A proportion of voicing of more than 50% was counted as fully voiced; a percentage of voiced material of 1–50% was classified as partially (de)voiced; Figure 1. The results showed that the monolingual learners produced a higher rate of non-target-like devoiced obstruents in both English (41/60 items~68.3%) and French (42/60 items~70%) as compared to the bilinguals, who presented lower devoicing rates (English: 29/60 items~48.3%; French: 26/60 items~43.3%); Figure 2. The effect size according to Cohen’s d (Cohen 1988) turned out to be strong for both English ($d=1.1$) and French ($d=1.32$). We interpret our results in terms of positive transfer from the HL Turkish, which presents less final voiced obstruents than monolingual Turkish, but has not completely converged with the surrounding language (German); Figure 3. The interviews show that positive transfer from Turkish is strongest in learners who show a high degree of phonological/metalinguistic awareness. We therefore argue that these individual capacities need to be fostered in multilingual learning settings.

| Bilingually raised German-Turkish learners (BGT) | | | | | |
|---|-----------------------------------|--------------------------|-------------------------------------|----------------------------------|--------------------------|
| | BGT01 | BGT02 | BGT03 | BGT04 | BGT05 |
| gender | female | female | female | male | female |
| age | 24 | 23 | 32 | 24 | 23 |
| FLs learnt | English, French, Spanish | English, French, Latin | English, French, Spanish Portuguese | English, French, Spanish, Arabic | English, French, Spanish |
| parents' place of birth | Denizli | Ankara, Urfa | Kırşehir | İstanbul, Erzurum | Ankara, Sapanca |
| Monolingually raised German learners (MG) | | | | | |
| | MG01 | MG02 | MG03 | MG04 | MG05 |
| gender | female | female | male | male | male |
| age | 24 | 23 | 23 | 25 | 24 |
| FLs learnt | English, French, Spanish, Italian | English, French, Italian | English, French | English, French | English, French, Spanish |
| Monolingually raised Turkish native speakers (MT) | | | | | |
| | MT01 | MT02 | MT03 | MT04 | MT05 |
| gender | Female | female | Female | female | male |
| age | 55 | 12 | 56 | 30 | 62 |
| FLs learnt | — | — | — | — | — |

Table 1. Speakers and background data.

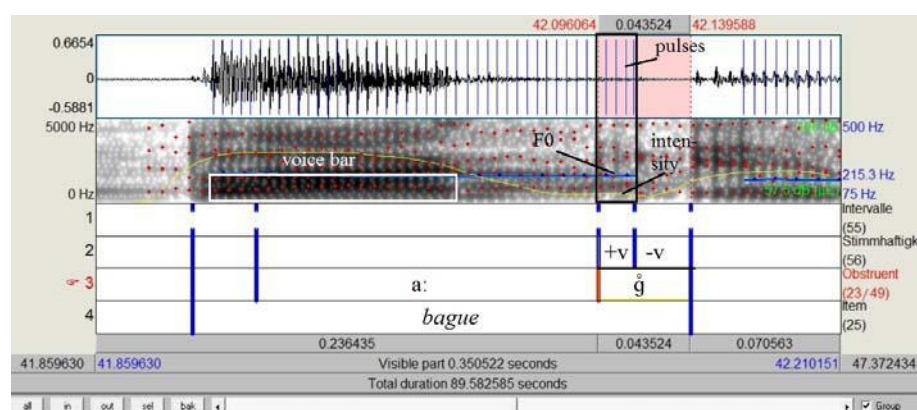


Figure 1. Target item Fr. *bague* ‘ring’ from stimulus *Cette bague et pour moi !* ‘This ring is for me’ (with the target item in utterance-medial position) produced by speaker BGT03 with a partially devoiced /g/ (39.3%). The voiced part of the target plosive is marked [+v], the unvoiced part [-v].

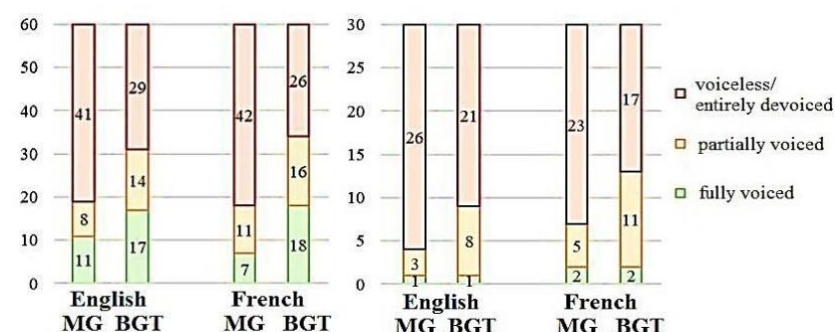


Figure 2. Realization of word-final voiced obstruents in English and French as FLs in the production of mono-lingually raised German (MG) and bilingual German-Turkish (BGT) learners. Left panel: all items (n=60, absolute numbers); right panel: utterance-final items (n=30, absolute numbers).

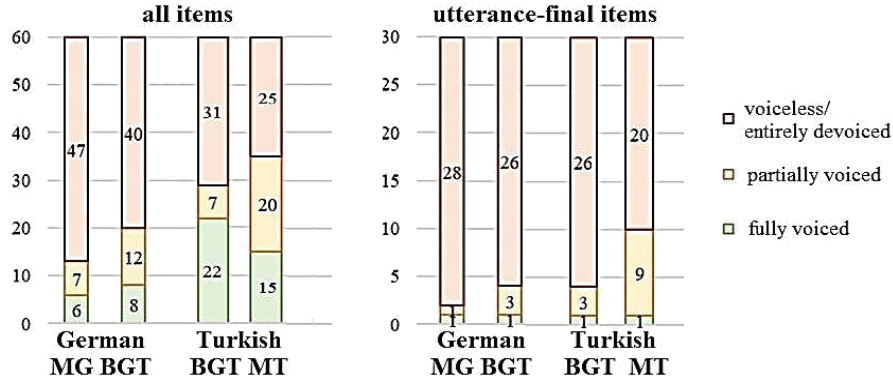


Figure 3. Realization of word-final voiced obstruents in monolingual German (group MG), bilingual German, bilingual Turkish (group BGT), and monolingual Turkish (group MT); absolute numbers. Left panel: all items ($n=60$); right panel: utterance-final items ($n=30$).

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Cross-linguistic influence in third language acquisition: adverb and adverbial placement in English

The current study adds to the field of cross-linguistic influence in third or additional language acquisition. We focus on unbalanced bilingual heritage speakers and address the highly debated question as to which of the previously acquired languages influences the acquisition of a third language. Several competing L3 acquisition models have not yet been able to give an entirely convincing answer to this question (Bardel & Falk 2007; Flynn et al. 2004; Hermas 2014; Leung 2007; Rothmann 2011; Westergaard et al. 2017). In this light, we here compare the performance of L2 and L3 learners of English (monolingual German, bilingual Russian-German, and Turkish-German children; age 12 to 15), in a written word order test. We investigate the placement of adverbs and adverbials in English such as *always* and *in London*, as in examples (1) and (2).

(1) *Anne always jogs with her sister.*

(2) *The student lost her smartphone in London.*

The languages studied here, i.e. English, German, Russian, and Turkish, allow the placement of adverbs and adverbials in different positions, depending on the type of adverb or adverbial and the context. To obtain preference patterns for the sentences used in the word order test, we repeated the same test (translated into the respective languages) with native speakers. Subsequently, we compared the placement patterns of adverbs and adverbials, and their respective frequencies, in the sentences of the learners of English with those of the native speakers. This allows us to calculate an English baseline, on the one hand, and to identify cross-linguistic influence, on the other hand.

Building on the results of a recent study on pronominal object placement in third language acquisition (Lorenz et al. 2018), our findings show that there is variation across the different test sentences and between the two learner types of English studied here (L2 and L3). However, the differences are less dramatic than expected. This suggests that (i) typological similarity influences third language acquisition, though not exclusively, (ii) cross-linguistic influence is possible from both the L1 and the L2, (iii) the majority language German as the dominant language of the bilingual heritage speakers exerts the largest influence, and that (iv) cross-linguistic influence is property dependent.

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Second Language Attrition as a Consequence of Third Language Acquisition – The Role of Language Status and Attitudes

In the past few decades, research on attrition and the interference between languages has been studied from various angles (see Schmid, 2004, Schmid & Koepke, 2007 for a review). Attrition refers to the change of the linguistic system where, through a lack of input and the acquisition of a new language, the pre-existing knowledge becomes less accessible, which can lead to linguistic interference and a non-linear deterioration of the proficiency (Seliger, 1991; Schmid, 2011; Schmid & Koepke, 2017). However, little research has been conducted on the effect of a third (L3) on the second language (L2), although the potential interference of foreign languages could shed light on how the multilingual brain works (e.g. Cenoz, 2001; Bardel & Falk, 2007, 2012). Not only are the linguistic aspects of L3 induced changes understudied: The role of individual differences, as well as the sociolinguistic status of the languages have not been investigated in that context (Schmid & Köpke, 2007; Bylund, Abrahamsson & Hyltenstamm, 2010, Sorace, 2016).

The present study investigates the effect of the L3 on the L2. Adult multilinguals who speak German as their L1, English as their L2 and Dutch as their L3, who are living in the Netherlands are tested for their proficiency in their second and third language (e.g. self-paced reading task, narration task and lexical decision task) and their respective attitudes to the languages (questionnaire). Prior to the session, the participants fill out the online questionnaire (adapted from Marian, Blumenfeld, & Kaushanskaya, 2007 and Schmid & Dusseldorp, 2010) to gather data on their attitudes and sociolinguistic background. Data collection is currently ongoing for this experiment. This data is then compared to a bilingual control group with German being their L1 and English as their L2, for the differences between the groups to be defined as attrition. I expect to find linguistic interference between the L2 and the L3 in terms of language production and language processing, with signs of attrition in the L2 due to high proficiency in the L3.

To compare sociolinguistic effects on acquisition and attrition, the study will be replicated in Southern Africa, where I will examine Germans speaking English (L2) and Afrikaans (L3). By comparing the two groups of multilinguals who share the same L1 and L2, but have different L3s that are typologically similar but differ in terms of social status, it provides insight into how sociolinguistic factors play a role in the degree of acquisition and attrition.

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Word associations at the early stage of L3-learning

Word associations can be understood as links that connect words in the human mind and therefore they can shed light on how language learners build their mental lexicon. Three general types of word associations can be distinguished: phonological, paradigmatic and syntagmatic. Previous studies have shown that the first type occurs in children acquiring their first language and in beginner second language learners while paradigmatic and syntagmatic associations can be found in adults L1-speakers and advanced L2-learners. The present paper investigates word associations in beginner learners of Swedish as L3. 52 Polish adult learners of L3 Swedish participated in the study in which they were asked to fulfil the Swedish version of Kent-Rosanoff word list. The analysis has shown that multilinguals at the beginning stage of their L3-learning translate words into one of their background languages – most often L1-Polish. Word associations in these learners are also complex in nature: in most cases students had clang associations combined with other types, such as translation, paradigmatic or syntagmatic.

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Initial L3 Italian morphosyntactic and phonological transfer in early English/Spanish bilinguals

Formal linguistic work on third language (L3) morphosyntax has focused on the dynamics of transfer source selection (L1, L2, or both). Reviewing available L3 morphosyntax studies, Puig-Mayenco et al. (2018) show that holistic underlying structural similarity between the L1/L2 and the target L3 is the most robust—but not exclusive—variable accounting for transfer, favoring the Typological Primacy Model (TPM) (Rothman, 2011, 2015). Although there is no question that structural similarity plays a deterministic role for L3 transfer selection, recent models question the TPM’s argument of whole-grammar transfer (not property-by-property) at the L3 initial stages (Slabakova, 2017; Westergaard et al., 2017). Moreover, the vast majority of available data examine adult L3 acquisition in late L2 learners. Thus, it is not clear if/how L3 models of morphosyntactic transfer pertain to other types of bilinguals or other domains, e.g. phonology. Herein, we examine heritage speaker bilinguals acquiring L3 Italian in adulthood and examine two domains of grammar, syntax and phonology, soon after initial L3 exposure.

There is some evidence that HSs follow a similar path of L3 transfer to adult L2ers (Giancaspro et al., 2015) in morphosyntax. However, there are no true initial stages phonological data for HSs. Understanding transfer patterns across modules of grammar can help determine if transfer is wholesale or not from the outset. Specifically, we examine differential object marking (DOM) and voiced stop lenition. Crucially, both phenomena pattern together in English and Italian—there is no DOM or lenition—and differently in Spanish and Italian, the more similar language pair.

| | English | Spanish | Italian |
|---------------|---------------|---------------|---------------|
| DOM | X | Ö | X |
| Stop lenition | [-continuant] | [+continuant] | [-continuant] |

Twenty-two English-dominant Spanish HSs in weeks 5 to 7 of a first-semester Italian class completed a delayed repetition task to examine stop production, and an acceptability judgment task (AJT) to examine DOM in all three languages on separate days. Production stimuli were CV.CV nonce words in a carrier phrase (30 critical items with intervocalic /bdg/, 15 fillers); critical segments were analyzed acoustically for continuancy. A 4-point scalar AJT (1=odd, 4=natural) consisted of 32 DOM items (8 items for each combination of [animate] and [specific], see Giancaspro et al., 2015) and 52 fillers. Results indicate that these HSs accept Spanish-like DOM patterns in L3 Italian but tend to produce English-like stops regardless of English dominance and Spanish proficiency. We discuss these cross-domain results as it relates to the role of global structural similarity in initial stages transfer and its completeness.

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Indefinite NPs as Subjects in L2 and L3 Mandarin Grammars
—Empirical Evidence for the Source of Transfer in L3A

The study of L3 acquisition (L3A) within formal linguistics perspectives is still in its infancy as compared with the decades of development in the study of L2 acquisition (L2A). In recent years, several models in L3 morphosyntax has been proposed, and they argue for different sources of transfer in consideration of L1/L2 status, structural proximity among the triad, processing complexity, construction frequency, etc. (Alonso and Rothman, 2016). However, preliminary agreement, even on the initial stages of L3 development, is yet to be reached, probably due to a lack of data, insufficient knowledge about the participants, and limited language combinations.

In our presentation, we will report on an empirical study that examines how L1, L2 and L3 Mandarin speakers process Mandarin indefinite subjects. As is well-known, in English, the article *a* marks the [-definite] feature of noun phrases (NPs), while the article *the* marks the [+definite] one, and both definite and indefinite NPs are perfectly acceptable in subject positions. In contrast, in Mandarin and Cantonese—two article-less languages, definiteness is represented through bare nouns, numerals, classifiers, etc. In both languages, numeral-classifier-noun phrases (Nume-CI-NPs) are used as indefinite NPs unless under certain licensing conditions (Li, 1998; Lee, 1986), and indefinite NPs are generally not allowed in subject or topic positions (Li and Thompson, 1989).

We investigate whether L2 and L3 speakers Mandarin process indefinite and definite subjects differently with a self-paced reading task (see APPENDIX I). Our participants are: 1) 30 L1 English L2 Cantonese L3 Mandarin speakers at both the initial and the intermediate stages of Mandarin, 2) 30 L1Cantonese L2 English L3 Mandarin speakers at both the intermediate and the advanced stages of Mandarin, 3) 60 L1 English L2 Mandarin speakers at initial, intermediate and advanced stages of Mandarin, and 4) 20 native Mandarin speakers with little knowledge to English and no knowledge to Cantonese. Comparisons between groups with the same Mandarin level lead to inspiring results. For example, a part of the data (see APPENDIX II) shows that L1 Cantonese L2 English L3 Mandarin speakers do not take longer time to process indefinite subjects, which is similar to L1 English L2 Mandarin speakers and different from L1 Mandarin speakers. Such results suggest that L1 Cantonese speakers' L3 Mandarin grammars are influenced by their L2 English. Therefore, we argue that transfer to the L3 may come from an L2 that is typologically different from the L3, and that L3 development is determined by a number of factors on a property-by-property basis.

APPENDIX I

Table 1. Sample Sentences

| Segments | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | | | | | |
|--------------------------------|---|------|----|-----|---------|---------|----|--------|---------|----|-----|---|---|---|---|---|
| Condition A | 他 | 告 | 诉 | 我 | 说 | 一 | 个 | 学 | 生 | 在 | 学 | 校 | 里 | 受 | 伤 | 了 |
| | he | tell | me | say | a-CL | student | at | school | injured | is | ASP | | | | | |
| Condition B | 他 | 告 | 诉 | 我 | 说 | 那 | 个 | 学 | 生 | 在 | 学 | 校 | 里 | 受 | 伤 | 了 |
| | he | tell | me | say | that-CL | student | at | school | injured | is | ASP | | | | | |
| Comprehension Questions | 事情发生在学校。 The event took place at a school. | | | | | | | | | | | | | | | |

APPENDIX II

Figure 1. Mean Reading Times in Each Condition by L1 Mandarin Speakers
($t=2.250, p=0.045<0.05$)

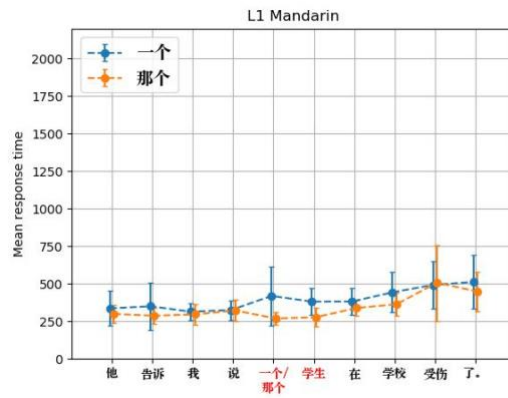


Figure 2. Mean Reading Times in Each Condition by L1 English Speakers
($t=0.239, p=0.814>0.05$)

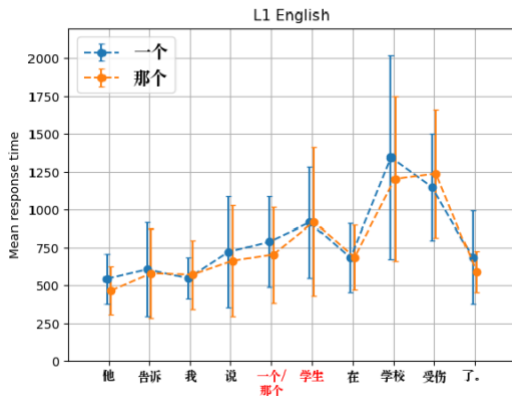
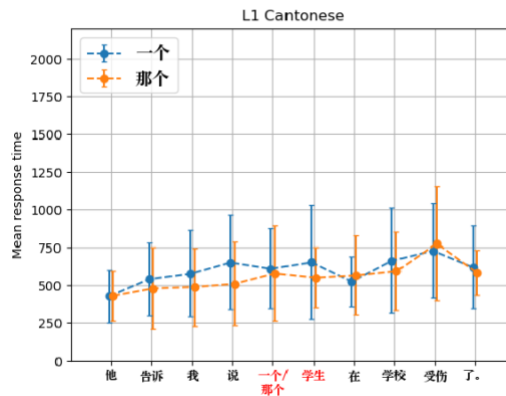


Figure 3. Mean Reading Times in Each Condition by L1 Cantonese Speakers
($t=0.527, p=0.604>0.05$)



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Syntactic Parsing in L3 Processing: Comparing Trilinguals to Bilinguals and Monolinguals

The study investigates non-native sentence processing through a comparison between adult L2 and L3 speakers of English and Russian at early stages of their non-native language acquisition. Structural processing in L3 speakers uses the same strategies as in the L2 and in monolinguals. The similarity of native and non-native processing mechanisms is shown through the preferred interpretation patterns for attachment resolution of an ambiguous relative clause (RC) and the participants' sensitivity to the effect of the matrix verb to reshape those patterns.

First, a self-paced reading experiment (Linger) manipulates an established variation in RC resolution between Russian and English, where Russian is a high-attachment language (HA) and English is a low-attachment one (LA) (Fodor, 2002). The results of native speakers (NS) confirm the known variation. Non-native speakers demonstrate development towards the target-language-like preferences, in their L3 and L2. In Russian, the participants prefer HA significantly more than they do in their native English; LA is favoured in L2/L3 English. Meanwhile, when multilinguals are tested in their native language, the RC resolution patterns are not different from monolinguals'.

Similarity in structural processing between NSs and L3/L2 learners gets additional support through the effect of a perception verb in the matrix clause of a restrictive RC. A perception verb creates an expectation for an eventive complement that modifies the matrix verb, not the head nouns. This eventive complement competes with the restrictive RC readings. The event-oriented modification takes the upper hand and the event of the embedded verb is interpreted to be performed by the higher noun of the complex head NP (Grillo & Costa 2014, Grillo et al 2015).

We established that a perception main verb does facilitate HA in all L2 and L3 experimental groups, as well as in monolingual control groups, and its effect is significant. The effect of the perception verb is more salient in a LA-language, English, where it overrides the default RC resolution preference. In Russian, it ensures the preferred HA pattern in native and non-native groups. In sum, non-native processing is sensitive to syntactic cues and complex attachment preferences can be acquired successfully in a second and third language.

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Facilitation in L3 Acquisition across linguistic modules

The sources of influence in the acquisition of a third language (L3) are still hotly debated. At issue is whether the influence of the previously acquired languages can be only facilitative, and whether there can be transfer/crosslinguistic influence (CLI) from both languages or just one of them. Another interesting research question is whether such transfer into the L3 works similarly within different parts of the grammar: morphology, syntax, semantics.

In this experimental study, we set out to look at CLI from the previously acquired languages with an array of linguistic properties that are facilitative in one or the other of the two. We cross source of CLI with linguistic module (morphology, syntax, the syn-sem interface). The trilingual group comprises Norwegian-Russian bilinguals learning L3 English. We also include two groups of Russian and Norwegian learners of L2 English of the same age (11-12-year-olds) and comparable beginner proficiency in the L2/L3.

Table 1 presents the experimental conditions. The prediction is that the two L2-learner groups will be better at the constructions where their native language offers facilitation, compared to those without facilitation. For the L3-learner group, we expect cumulative facilitation from both of their native languages.

Table 1: Experimental conditions and examples of test items

| | RUSSIAN IS FACILITATIVE | NORWEGIAN IS FACILITATIVE |
|-------------------|--|---|
| Syn-sem interface | Genericity <i>Life can be difficult.</i> | Definiteness <i>Susan thought that her dog was lazy. The dog slept a lot.</i> |
| Morphology | Subject-verb agreement <i>Ruth walks to church every Sunday.</i> | Obligatory copula <i>Lisa is a nice person.</i> |
| Syntax | V2 with initial adverbials <i>Last Monday the teachers walked to school.</i> | SOproV word order <i>Lisa felt very sick. Johnny took her to a hospital.</i> |

To test this prediction, we created an acceptability judgment task with an equal number of grammatical and ungrammatical sentences in six conditions. Context was added to the test sentences as needed. Presentation of test items is written (projected on a screen) as well as aural (recorded by a native speaker). We have currently tested the Russian and Norwegian learners of L2 English; testing is ongoing and will be completed by the conference.

This design can demonstrate convincingly that both languages can be facilitative. Results will be discussed in terms of the TPM, LPM and Scalpel models of L3A. One welcome implication of addressing such research questions is that findings showcase the advantages of multilingualism. For Norwegians, knowledge of (heritage) Russian can be great help in learning English as an L3.

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Multilingual acquisition of /v/ and /w/ by L1-German-speaking children and adults

This study investigated the acquisition of /v/ and /w/ in L2 English and L3 Polish by native German-speaking children and adults. The acquisition of this contrast has been shown to be challenging for adult L1 speakers of German (Pascoe 1987, Iverson et al. 2008). This might not only be due to the fact that /w/ does not occur in German, but also due to different phonetic realizations of /v/: while syllable-initial /v/ is realized in English with more energy and stronger contact between the articulators, the typical German realization is a weak labiodental approximant [v] (Scherer & Wollmann 1985, Hamann & Sennema 2005). It is thus possible that the shared manner of articulation between English [w] and German [v] for /v/ leads to an initial overlap between the two sounds. Moreover, orthography might contribute to the confusion: Polish [w] does share the articulatory features with English [w], but is spelled <ł>, while German <w> is realised as /v/.

A total of 9 children (age 12-13) and 7 adults (age 21-39) with L1 German, L2 English and L3 Polish took part in this longitudinal study. During the first ten months of L3 learning the participants were recorded three times, doing picture naming, delayed repetition and story telling tasks in their three languages. The dataset was analysed both auditorily and acoustically (F2, the median of the harmonics-to-noise ratio and the centre of gravity).

The auditory analyses showed that while both learner groups have similar accuracy rates for L2 English /v/ and /w/ at all data points, the learning trajectories for the two sounds in their L3 Polish differ: the children outperform the adults in the accuracy of L3 Polish /v/ and /w/ during the first ten weeks of learning, but show a sharp drop in accuracy and greater confusion rates afterwards. For both groups, the variability of producing /v/ is greater than for /w/ in both their L2 and L3 across the ten months of learning. Orthographically motivated substitutions of [l] for /w/ in Polish occur earlier for the adults than the children. The acoustic measurements showed that both learner groups use significantly more lip rounding for /w/ than for /v/ in both their L2 and L3 at all data points, but only the children use voicing/friction to distinguish /v/ and /w/ in L3 Polish. Interestingly, the children's realisations of L1 German /v/ changed significantly between testing times on this parameter too.

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