Structural similarity in third language acquisition

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Introduction

Language learners typically experience cross-linguistic influence (CLI) from one or several previously acquired languages when acquiring an additional language. Learners of a second language (L2) are influenced by their native languages in all language domains ranging from phonology, lexicon, and morphosyntax, to semantics, discourse, and pragmatics. In third (and subsequent) language (L3/Ln) acquisition, however, there is more than one potential source of influence, as the learner already knows at least two languages, which both have the potential to influence subsequent language acquisition. This is the reason why existing models of L3/Ln language acquisition have mainly focused on issues related to CLI: (i) the source of CLI (L1, L2, both languages, typologically closest language, language of communication), (ii) the type of CLI (only facilitative or both facilitative and non-facilitative), and (iii) the extent of CLI (wholesale or property-by-property or hybrid). Different models attribute CLI to different factors, and there is still no consensus in multilingual acquisition research. According to existing models of L3 acquisition, the following factors may be the source of CLI: Order and/or manner of acquisition (*The L2 Status Factor*, e.g., Bardel & Falk 2007; *L1 Transfer*, e.g., Jin 2009), language use (*The Language of Communication Model*, e.g., Fallah et al., 2016; Fallah & Jabbari 2018) or some kind of structural similarity (*The Typological Primacy Model*, Rothman, 2015; *The Linguistic Proximity Model*, Westergaard et al., 2017; Westergaard 2021a, b; *The Scalpel Model*, Slabakova, 2017). The five articles in this issue zoom in on this last factor, structural similarity, specifically in phonology and morphosyntax, which are examined at early stages of L3 acquisition as well as in L3 development.

Structural similarity between two languages has recently become one of the most important and widely discussed explanatory factors for CLI in L3 acquisition. The concepts *structural similarity* and *linguistic proximity* are difficult to define. Clearly, they are both relative concepts, in that two languages or two linguistic constructions may be more or less similar or more or less close than another language pair or another pair of constructions. In L2 acquisition, any CLI will have to come from the L1, whether the two languages are close or distant. In L3/Ln acquisition, however, where the source of CLI may be either or both previously acquired languages, the issue of linguistic similarity becomes more intricate.

Several approaches have been proposed to assess structural similarity, including (i) holistic/typological similarity, quantified as the proportion of overlapping lexical, phonological, and morphosyntactic representations (Rothman, 2015; Rothman et al., 2019), (ii) abstract underlying similarity between structural properties, e.g., phonological or morphosyntactic features (Archibald, 2021, 2023; Westergaard et al., 2017; Westergaard, 2021b), and (iii) overt structural similarity, e.g., overt phonetic or morphological realization (Mitrofanova et al., 2023). Most measures of linguistic distance in the literature refer to a complete language (at a whole-language basis), see e.g., the discussion in Mitrofanova et al. (2023). In this vein, the Typological Primacy Model (e.g., Rothman, 2015) assesses linguistic similarity at a whole-language basis and argues that L3 learners make a copy of the complete grammar of one of the previously acquired languages at what is referred to as the *initial stage(s)*, selecting the language that is more similar to the L3. Similarity in this model is computed as a hierarchy of linguistic levels that the parser will consult one after another. That is, the parser first considers the lexicon of the three (or more) languages; if no decisive cue for similarity is found (either because neither or both of the previously acquired languages is/are similar to the L3), the parser moves on to the phonological level; if no cue is found there either, it moves on to morphology, and if no decision can be made based on information at this level, the parser finally consults the syntactic level (Rothman, 2015; Rothman et al., 2019). This means that the most important type of similarity in this model (the level that the parser will consult first) is superficial lexical similarity – which is referred to as typological similarity in earlier versions of the model (e.g., Rothman, 2011). This account captures both facilitative and non-facilitative transfer of structural properties among languages that are genetically related and thus lexically similar, as seen in many studies investigating learners with English and Spanish as the previously acquired languages and another Romance language as the L3 (e.g., Rothman, 2013; Rothman & Cabrelli Amaro, 2010).

Other models argue that more abstract similarity plays the decisive role in predicting the source of CLI in multilingual language acquisition. Investigating different phonological systems in multilingual speakers, Archibald (2021, 2022,

2023) introduced the concept of 'I-proximity', arguing that linguistic proximity must be calculated with reference to what he refers to as 'deep cues', i.e., cues which operate on linguistic representations and are therefore part of speakers' I-language grammar ('internalized language'). Importantly, this type of similarity does not operate on complete grammars but refers to individual properties of the languages involved. Accordingly, an L3 may be influenced by abstract linguistic properties from both previously acquired languages (e.g., Archibald, 2021).

Similar ideas have been developed for morphosyntax in the Linguistic Proximity Model (Westergaard et al., 2017; Westergaard, 2021a, b). This model considers CLI to be the result of co-activation of the relevant grammatical structures of all previously acquired languages. As a result, competition ensues between multiple activated representations, and the parser computes linguistic proximity as the amount of abstract structure that is shared between the relevant construction in the L3 interlanguage and the respective corresponding constructions in the previously acquired languages. The more similar structure will then be more strongly activated and thus typically be selected by the parser. This means that the larger repertoire of an L3 learner (as compared to an L2 learner) will more often lead to facilitative CLI. However, according to the model, the relevant lexical items from the previously acquired languages will be activated as well. In cases where there is strong lexical similarity between the L3 and one of the previously acquired languages, such lexical activation will spread from the lexical to the grammatical representations of this language. Accordingly, lexical similarity may sometimes override structural similarity, especially in the early stages of L3 acquisition. Furthermore, the strength of activation may be affected by a number of additional factors, e.g., frequency or proficiency, as also argued by the Scalpel Model (Slabakova, 2017), sometimes to the extent that they override linguistic proximity. In this vein, the model can also account for non-facilitative influence. Crucially, however, the Linguistic Proximity Model argues that both lexical and syntactic similarity may affect the L3 at the same time, not one after the other, as in the hierarchy of the Typological Primacy Model (see Jensen & Westergaard, 2022, for some recent evidence). Thus, when ultimately selecting the winning structure, the parser chooses the one which is more strongly activated.

Against the backdrop of these three models, the five articles in this issue present new empirical data and insights on the role of structural similarity in L3 acquisition. Several of the papers also discuss additional variables that may affect the amount of CLI, e.g., dominance, proficiency, economy (of syntactic movement), and sociolinguistic status. Overall, more than ten language combinations are discussed and analyzed, involving languages such as Arabic, Cantonese, English, French, German, Greek, Italian, Italo-Romance varieties, Mandarin, Norwegian, Russian, Spanish, and a miniature artificial language. In some cases, the

languages are closely related, e.g., Southern and Northern Italo-Romance varieties and Spanish as the L3; in other cases, the languages are more distant, e.g., Arabic and French as previously acquired languages and English as the L3.

The contributions shed light on the role of structural similarity in L3 acquisition in a complementary way, in that they focus on phonology (Archibald, 2023), morphosyntax (Perpiñán & Montrul, 2023; Busterud, Dahl, Kush, & Listhaug, 2023; Mitrofanova, Leivada, & Westergaard, 2023), or both (Cabrelli, Pichan, Ward, Rothman, & Serratrice, 2023). The methodologies chosen include production tasks (i.e., a delayed repetition task and an oral production task) as well as comprehension tasks (i.e., a sentence-picture matching task and acceptability judgment tasks). Archibald applies the Contrastive Hierarchy model of phonology (Dresher, 2009, 2018) to formalize cross-linguistic similarity and to explain (structural) property-by-property transfer. Cabrelli et al. examine early Spanish-English heritage bilinguals acquiring L3 Italian by comparing transfer patterns in syntax versus phonology and the lexicon. They find Spanish-like differential object marking (DOM) patterns in L3 Italian but English-like stop production patterns, regardless of English dominance and Spanish proficiency. DOM is also investigated by Perpiñán and Montrul, who examine the acquisition of this property in L3 Spanish by speakers of closely related Italo-Romance varieties, Southern varieties with DOM and Northern varieties without DOM. The effect of structural similarity between the L3 and Southern varieties is not visible in an Acceptability Judgement Task, possibly due to the low sociolinguistic status of this variety – but it is found in a less formal oral production task. Busterud et al. investigate word order patterns (verb second) in L1 Norwegian L2 English learners of L3 German or L3 French, arguing that CLI interacts with further factors such as economy, which they conceptualize in terms of minimizing the number of movement operations. Finally, Mitrofanova et al. compare structural and lexical similarity in the acquisition of a miniature artificial language as an L3, which is lexically similar to one of the previously acquired languages of the learners (Norwegian) and structurally similar to the other (Russian). Investigating different bilingual groups (Norwegian-English, Norwegian-Greek, Norwegian-Russian, and Russian-English) on the acquisition of the structural property (case marking), they argue that both lexical and morphosyntactic similarity can affect the learning of an L3.

As the contributions in this special issue attest, the number of studies on the role of *structural similarity* in L3 acquisition is increasing, and the present special issue aims at contributing to better understanding this very concept. Nevertheless, more theoretical work and more empirical data are necessary. In theoretical terms, scientifically relevant methodologies to quantify language distance need to be developed in order to measure distance between languages and (dis)similarity

across domains (phonetics, phonology, lexicon, morphology, syntax, semantics, pragmatics). In empirical terms, the use of controlled experimental designs to isolate the role of individual factors in L3 acquisition will increase our understanding of the role of structural similarity (see Westergaard et al., 2023, for an overview of L3 methodologies). It will also be beneficial for the field to increasingly triangulate production and comprehension methods with the same participants. In addition, including a wider range of grammatical properties/structures requiring different amounts of input will shed further light on the role of structural similarity. Examples of properties typically requiring extensive input are grammatical aspect, genericity, and other properties with complex semantics, while properties such as basic word order and grammatical number typically require less input to be acquired. Furthermore, expanding L3 research by including a larger variation of typologically and structurally different language combinations may allow us to manipulate structural similarity in a more principled way. The papers in this special issue provide points of departure for these future avenues.

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