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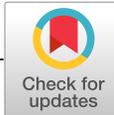
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Variation in syntactic complexity: Introduction

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This special issue, focusing on different types of variation in syntactic complexity, offers a critical discussion of the role of variation in syntactic complexity research in SLA. Special attention is paid to inter-learner variation (i.e., individual developmental trajectories of acquiring syntactic complexity) and to interactions with related constructs, for instance between syntax and morphology, and between syntactic and lexical complexity. The overarching focus of the different contributions is to investigate the possible variation of (syntactic) complexity according to various external factors, such as levels of linguistic proficiency (developmental variation), variation in task modality (i.e., oral, written), task types and genres, and variation in source and target languages (cross-linguistic variation

KEYWORDS

cross-linguistic variation, developmental variation, inter-learner variation, syntactic complexity

Questo numero tematico, incentrato sui diversi tipi di variazione nell'acquisizione della complessità sintattica, offre una discussione critica del ruolo della variazione della complessità sintattica nelle ricerche SLA. Particolare attenzione è rivolta alla variazione individuale (le traiettorie di sviluppo dei singoli apprendenti) e all'interazione tra complessità sintattica e certi costrutti ad essa correlati: ad esempio, l'interazione tra sintassi e morfologia, e tra

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complessità sintattica e complessità lessicale. L'obiettivo principale dei vari contributi è investigare la possibile variazione della complessità (sintattica) dovuta a certi fattori esterni, quali il livello di competenza linguistica (variazione di sviluppo), la tipologia e la modalità del task (orale, scritta), e la variazione tra lingue di partenza e lingue di arrivo differenti (variazione cross-linguistica).

PAROLE CHIAVE

variazione cross-linguistica, variazione di sviluppo, variazione individuale, complessità sintattica

1 | RESEARCH IN SYNTACTIC COMPLEXITY

Variation is at the very core of many aspects of language, including second language acquisition (SLA) and second language (L2) use. A single speaker will use different linguistic forms on different occasions (intra-individual variation), and different speakers of a language will express the same meaning using different forms (inter-individual variation). Language users thus make choices in syntax, morphology, vocabulary, and pronunciation depending on both linguistic factors (e.g., the nature of neighbouring structures as in the case of allophonic and allomorphic variation) as well as non-linguistic factors (e.g., the language user's communicative goal, the topic of communication, the mode of communication, the formality of the context, the relationship between the interlocutors, their socio-economic status or class, etc.).

Variation has traditionally been a fixture in linguistic subdisciplines such as sociolinguistics and language typology. Variation has also frequently figured on the SLA research agenda, either directly, as the prime focus of interest, as in sociolinguistic approaches to L2 use and development (see for instance the work that has been done by Elaine Tarone, and by Dennis Preston), or, and more often, indirectly, as an epiphenomenon of the dynamic nature of L2 learning, L2 knowledge and L2 use.

Recently, functional and usage-based approaches to sociolinguistics and language typology have been particularly keen to investigate variation in linguistic complexity. This interest in part stems from a questioning of one of the sacrosanct axioms of modern linguistics, the equi-complexity hypothesis, according to which all languages are equally complex (i.e., show no variation in their overall complexity), in the sense that higher complexity in one domain of a language is offset by greater simplicity in another domain. The new school of typological linguists (Dahl, 2004; McWhorter, 2001, 2011; Sampson, Gil, & Trudgill, 2009; Shosted, 2006) thus argue that languages actually vary considerably in their levels of linguistic complexity, as a result of their intrinsic linguistic histories or, and particularly, as a result of massive (second) language acquisition in situations of language contact (Lupyan & Dale, 2010).

Variation in linguistic complexity, particularly, syntactic complexity, has also figured dominantly on the SLA research agenda in recent years. Variation in L2 acquisition and use manifests itself in many different and often intricately related ways and along various dimensions, including developmentally determined variation, variation in style and register, and input-variant variation, to name just a few (Reppen, Fitzmaurice, & Biber, 2002: VII). Investigating linguistic complexity in SLA, often understood to be an important indicator of second language performance and second language development (along with such other dimensions as Accuracy and Fluency, together CAF), however, has often turned out to be a daunting task (see for a review, Bulté & Housen, 2012; Norris & Ortega, 2009; Ortega, 2012).

As has been pointed out by many studies, syntactic complexity, as one of the components of linguistic complexity, is arguably the most frequently and intensively measured component of linguistic complexity in SLA research,

whereas lexical, morphological and phonological forms of complexity (in that order) have been investigated much less. Recently, a number of studies have appeared with a focus on morphological complexity (Housen, Clercq, Kuiken, & Vedder, 2019; Pallotti, 2015). Phonological complexity, thus far, has received only scant attention in L2 research.

In contrast to lexical and morphological complexity, which in L2 research have typically been operationalized in terms of the variety or sophistication of lexical and morphological units, syntactic complexity has mainly been operationalized in terms of the structural elaboration of syntactic units via proxy measures such as the length of unit (T-unit, AS-unit) or the ratio of selected embedded syntactic structures deemed to be developmentally or cognitively complex (e.g., subclauses). Recent studies have emphasized the need to also study and measure complexity at the clausal and phrasal level of syntactic organization (see De Clercq & Housen, 2017; Bulté & Housen, 2018, for attempts to cast syntactic complexity as the diversity of the learner's syntactic repertoire).

Syntactic complexity has been approached from many theoretical angles, addressing a range of L2 learners with different proficiency levels, or with different target and source languages. Recent studies on L2 syntactic complexity include Ortega, (2003, 2012), Larsen-Freeman, (2006), Lu, (2010, 2011), Robinson, (2011), Housen, Kuiken, and Vedder, (2012), Vyatkina, (2012), Bulté and Housen, (2014), Lambert and Kormos, (2014). In many of these studies syntactic complexity has been studied as a dependent or secondary variable of various task and genre effects (e.g., planning time, number of elements required for task completion, monologic versus dialogic tasks) on oral and written performance (Ellis & Yuan, 2003; Michel, Kuiken, & Vedder, 2007; Robinson, 2011; Skehan, 2009; Yuan & Ellis, 2003). Other studies have investigated developmental patterns of syntactic complexity throughout the acquisition process (e.g., Polat & Kim, 2014). An important concern of this strand of research is how syntactic complexity develops over time, in relation to accuracy and fluency, and in relation to lexical and morphological complexity. As an independent or primary research variable, syntactic complexity has been the focus of research in a number of studies (Bulté & Housen, 2014; Kyle & Crossley, 2018; Spada & Tomita, 2010), or specifically, in studies that adopted a Dynamic Systems or Usage-based perspective (Spoelman & Verspoor, 2010; Vyatkina, 2012; Vyatkina, Hirschmann, & Golcher, 2015).

Notwithstanding the number of empirical studies, the results that have been found are often inconclusive and sometimes contradictory (Bulté & Housen, 2012; Norris & Ortega, 2009; Ortega, 2012). Taking stock of the work that has been done, one notices that syntactic complexity has been assessed by means of a variety of measures, for various groups of language learners, for different proficiency levels and task modalities, and on the basis of a variety of learning tasks. Whereas in some studies trade-off effects between syntactic complexity and accuracy have been observed (Skehan, 2009), other studies have demonstrated that syntactic complexity develops simultaneously with other CAF dimensions as learners' overall proficiency grows (e.g., Spoelman & Verspoor, 2010). This fact, together with the increasing attention to L2 complexity as an independent primary variable, has prompted SLA researchers to take a more critical look at L2 complexity as a construct and as a research variable (Housen et al., 2019; Pallotti, 2009, 2015).

The main aim of this special issue is to highlight variation in syntactic complexity and in its research, and to present an overview of the varied ways in which syntactic complexity has been considered in SLA. This special issue consists of seven empirical studies, each of them showcasing variation in syntactic complexity in SLA research, in relation to L2 proficiency level, task modality (oral or written), task type, and target and source language involved. The taxonomy of linguistic complexity developed by Bulté and Housen, (2012) has functioned as a framework underlying the various studies. The main focus in each paper is on syntactic complexity; in some of them, morphological and lexical complexity are also addressed. On the basis of the findings of these studies, perspectives and challenges for future research on syntactic complexity will be discussed.

2 | VARIATION IN SYNTACTIC COMPLEXITY

The overarching focus of the different contributions is to investigate the possible variation of (syntactic) complexity according to various external factors, such as levels of linguistic proficiency (developmental variation), variation in

task modality (i.e., oral, written), task types and genres, and variation in source and target languages (cross-linguistic variation). Variation in syntactic complexity may also be the result of differences between individual learners (inter-learner variation, e.g. motivation, personality, social background), or within one single learner (intra-learner variation, i.e. variation in the L2 production at different stages of L2 development, or at one and the same point of the learning process).

2.1 | Developmental variation

Syntactic complexity may vary depending on the proficiency level of L2 learners, as has been shown by various studies (Norris & Ortega, 2009). The choice of which components of syntactic complexity are related to proficiency and of which measures should be employed is critical, as stressed in two research syntheses on syntactic complexity (Bulté & Housen, 2012; Norris & Ortega, 2009). In the two studies, it was found that most research on syntactic complexity mainly relied on length-based measures of overall complexity (e.g., mean length of T-unit/AS-unit), and measures of subordination (e.g., number and type of subordinate clauses). These overall measures have, however, increasingly become the object of criticism. Moreover, it appears questionable that the entire L2 developmental process could be captured as a linear growth in complexity, in terms of global length measures and subordination ratios (Alexopoulou, Michel, Murakami, & Detmar, 2017; Bardovi-Harlig, 1992; Michel, 2017; Ortega, 2003; Pallotti, 2009; Ravid & Berman, 2010; Spoelman & Verspoor, 2010; Vyatkina, 2012; Vyatkina et al., 2015). Therefore, other measures of syntactic complexity, which may reveal syntactic development at different levels of proficiency, should be applied as well. As has been emphasized by Norris and Ortega, (2009), among others, one can think of measures focusing on complexity by coordination and phrase-internal complexification (e.g., number and length of post or pre-modifying noun-phrases). While beginning and intermediate L2 learners may prefer complexity by coordination and subordination, phrasal complexity may be favoured at more advanced levels of L2 proficiency (Ortega, 2003). In line with these recommendations, in a number of recent studies, it has been proposed to use more fine-grained measures that address different types of subordination, and to distinguish nominal subordination from subordination via subject/object relative clauses (Biber & Gray, 2011; Biber, Gray & Poonpon, 2011; Biber, Gray & Staples, 2016; Housen et al., 2019; Kyle & Crossley, 2018; Lu, 2010, 2011; Lambert & Kormos, 2014).

2.2 | Variation in task modality

As demonstrated by Kuiken and Vedder, (2011, 2012), syntactic complexity may vary depending on the modality (oral versus written) in which a language task is performed. Although an unequivocal effect of task modality with respect to syntactic complexity has not been established, in studies that did find such an influence, higher syntactic complexity, in writing, was observed (Kuiken & Vedder, 2011, 2012). Biber and Gray, (2011) and Biber et al. (2011) found that oral and written speech may differ in syntactic complexity in various ways. By contrasting findings of a large-scale corpus-based analysis of academic research articles with patterns of use in an oral corpus, it was observed that clausal subordination appears to be rather common in daily conversation, in contrast to the frequent use of complex noun phrase constituents and complex phrases in academic writing.

2.3 | Variation in task type and genre

Different task types, like instructional, descriptive, argumentative and problem-solving tasks, may also lead to variation in syntactic complexity, resulting in an increase (or decrease) in syntactic complexity (Lambert, 2014; Ortega, 2003). Similar differences can be observed when syntactic complexity is assessed in different genres, like fiction, drama, newspapers, narratives, argumentative essays, monologues or interactive speech. Yoon and Polio, (2017), for instance, found higher scores for syntactic complexity in argumentative essays compared to narratives.

Until now, however, there have been only a few studies which have investigated the effect of genre on L2 syntactic complexity (but see Biber & Gray, 2011; Biber et al., 2011, 2016; Polio & Park, 2016).

2.4 | Variation in source and target language

Syntactic complexity may vary across languages as well (De Clercq & Housen, 2017; Kuiken, Vedder, & Gilabert, 2010), especially at higher proficiency levels, as has been shown by Gyllstadt, Granfeldt, Bernardini, and Källkvist, (2014), in a study of Swedish learners of L2 English, L3 French and L4 Italian. Germanic and Romance languages, for instance, may differ with respect to the number and type of subordinate clauses, non-finite clauses, or the use of the gerund. There may also be variation in the occurrence of pre-modification versus post-modification, or the type and number of determiners in the noun phrase. Apart from differences in morphological complexity (Pallotti, 2015), languages like English and Italian, are thus expected to vary in syntactic complexity, as assessed by overall complexity measures (length of T-units), or indices measuring complexity by coordination (number and type of coordinate clauses per T-unit), complexity by subordination (number and type of subordinate clauses per T-unit), clausal complexity (mean length of clause), and phrasal complexity (number and type of pre- and post-modifying devices).

3 | THIS SPECIAL ISSUE

This special issue, focusing on different types of variation in syntactic complexity, offers a critical discussion of the role of variation in syntactic complexity research in SLA. Special attention is paid to inter-learner variation (i.e., individual developmental trajectories of acquiring syntactic complexity) and to interactions with related constructs, for instance between syntax and morphology, and between syntactic and lexical complexity. Table 1

TABLE 1 Variation in syntactic complexity

Authors	Proficiency level in L2	Task modality	Task type and genre	Target and source language
Lahmann, Steinkrauss & Schmid	- highly advanced	- oral	- oral history interviews	- English L2 - German L1
Bulté & Housen	- beginners - low-intermediate	- written	- descriptive - argumentative - narrative	- English L2 - Dutch L1
Polio & Yoon	- high-intermediate	- written	- argumentative - narrative	- English L2/L1
Kuiken & Vedder	- low-intermediate - high-intermediate	- written	- argumentative	- Dutch L2 (multiple L1's) - Dutch L1 - Italian L2/L1 - Spanish L2/L1
Bernardini & Granfeldt	- beginners - low-intermediate - high-intermediate	- written	- e-mail - personal narrative	- English L2 - French L3 - Italian L4 - Swedish L1
Vercellotti	- low-intermediate - high-intermediate - low-advanced	- oral	- short topic-based monologue	- English L2 (multiple L1s)
Lambert & Nakamura	- intermediate - advanced	- oral	- descriptive	- English L2/L1

presents an overview of the seven studies, together with the proficiency level of the participants, task modality, task type and genre, and source and target language.

Developmental variation in syntactic complexity across L2 proficiency levels, as shown in Table 1, is discussed in four of the studies (Kuiken & Vedder; Bernardini & Granfeldt; Vercellotti; Lambert & Nakamura). Participants in the study by Kuiken and Vedder range from level A2 to B1 of the Common European Framework of Reference (Council of Europe, 2001). The proficiency level of the L2 learners of Bernardini and Granfeldt varies between A1 and B2. The learners in Vercellotti's longitudinal study—covering three academic semesters—perform at an intermediate to a low-advanced level of English. Lambert and Nakamura investigate participants at intermediate and advanced levels of L2 proficiency.

Variation in syntactic complexity in relation to task modality is discussed in the various studies for both oral and written modality. Three of the seven papers, as can be inferred from Table 1, assess syntactic complexity in oral performance (Lahmann, Steinkrauss, & Schmid; Vercellotti; Lambert & Nakamura), while the other four papers focus on written performance (Bulté & Housen; Polio & Yoon; Kuiken & Vedder; Bernardini & Granfeldt).

Variation in task type and genre is investigated specifically in the paper by Polio and Yoon, where differences in genre are addressed by comparing argumentative essays and narratives in English L2 and L1. While in most of the contributions the focus is on one specific task type and/or genre, e.g. oral history interviews (Lahmann, Steinkrauss, & Schmid), argumentative tasks (Kuiken & Vedder), short monologues (Vercellotti) and descriptive tasks (Lambert & Nakamura), others have looked at differences in task type and genre, such as the papers by Bulté and Housen (descriptive, argumentative and narrative tasks) and Bernardini and Granfeldt (e-mails and personal narratives).

Cross-linguistic variation in source and target languages is examined in various articles. Lahmann, Steinkrauss and Schmid make a comparison between learners with German L1 and English L2, whereas Bulté and Housen focus on L2 learners of English, with Dutch as their native language. Polio and Yoon, similarly to Lambert and Nakamura, compare L2 and L1 learners of English. In the study by Kuiken and Vedder both the results of Dutch L2 writers of different linguistic backgrounds and Dutch L1 are compared, together with texts written by L2 and L1 writers of Italian and Spanish. Bernardini and Granfeldt present findings for English L2, French L3 and Italian L4 by learners with Swedish L1. Vercellotti, finally, focuses on L2 learners of English with different linguistic backgrounds.

4 | MAIN OUTCOMES

Lahmann, Steinkrauss, and Schmid study German Jews (German L1) who emigrated between the ages of seven and seventeen to English speaking countries and are highly advanced speakers of English L2. They advocate the necessity of a definition and operationalization of syntactic complexity that can also be applied to very advanced levels of spoken language production. The authors acknowledge the utility of holistic measures of syntactic and lexical complexity, but at the same time stress the importance of more fine-grained approaches to capture the syntactic and lexical characteristics of this special group of highly proficient English L2 speakers and German L1 attriters.

Bulté and Housen follow the longitudinal development in terms of syntactic complexity of ten Dutch L2 learners of English (A2–B1) between 11 and 13 years old, by analysing 11 English L2 writing tasks from each learner produced over a period of 19 months. One of the main outcomes of their study is that the increase in syntactic complexity at the group level is fairly linear, but at the level of the individual learners there is a high degree of variation the individual learners follow different developmental paths that often do not coincide with the observed mean group trends. They therefore emphasize the importance of combining group studies with longitudinal case studies in order to identify generalizable patterns. Their study also suggests a complex interplay between the different syntactic complexity measures that were employed.

The primary focus of the study by Polio and Yoon is on variation in syntactic complexity in relation to task type and genre. The study has a twofold goal: (i) testing two automated systems (Syntactic Complexity Analyser, SCA, and Coh-Metrix), for the analysis of syntactic complexity in English L2/L1; and (ii) testing syntactic variation, across two

genres (narrative versus argumentative). The reliability of SCA and Coh-Metrix was tested by comparing their findings with the hand-coded results of 30 essays. Except for two measures, the majority of the 12 SCA measures and the nine Coh-Metrix measures turned out to be reliable. Next, genre effects on syntactic complexity were assessed by using 162 essays (narrative and argumentative) written by 81 high-intermediate ESL students. Both SCA and Coh-Metrix showed higher syntactic complexity in the argumentative essays than in the narratives. This might be due to the fact that the two genres require different language: the argumentative essays, being cognitively a more complex task, pose additional reasoning demands. Polio and Yoon argue, therefore, for a functional explanation of genre differences.

Kuiken and Vedder studied variation in syntactic complexity in L2 and L1 in written, argumentative texts across proficiency levels (A2–B1) and languages (Dutch L2 learners, with multiple L1s/Dutch L1; Italian L2/L1; Spanish L2/L1). In their analysis both overall complexity measures and more fine-grained measures were included. They found variation in the gradual syntactic complexification across proficiency levels and languages (Italian L2 learners with a higher proficiency level used more coordinate structures within T-units, more relative clauses and longer post-modifying noun groups, whereas this was not the case for Dutch L2 and Spanish L2 learners), and between L2 and L1 (native speakers of Italian used longer post-modifying phrases, while native speakers of Spanish used more relative clauses than Spanish L2 learners). Similar to Lahmann, Steinkrauss, and Schmid, the authors stress the importance of using both general and more specific measures of syntactic complexity, as more fine-tuned measures lead to findings that could not be demonstrated by the use of general, overall measures.

Like Kuiken and Vedder, Bernardini and Granfeldt look at cross-linguistic variation in syntactic complexity by focusing on learners of English L2, French L3 and Italian L4 at different levels of proficiency (A1–B2). Earlier research on cross-linguistic variation had shown that learners of English and French produced longer T-units and clauses at level B compared to level A, but that this was not the case for learners of Italian. Bernardini and Granfeldt hypothesize that this might be due to a typological difference between the target languages, Italian being the only null subject language of the three. This hypothesis, however, could not be confirmed, as null subjects in Italian were not more frequent at level B than at level A. Instead, a possible task effect on syntactic complexity was found, as the production of null subjects—as well as first person reference—seemed to be more associated with writing an e-mail to the teacher than with a personal narrative task. Further research is needed in order to disentangle how different factors contribute to variation in syntactic complexity in a written text.

Vercellotti discusses the findings of a longitudinal study over three academic semesters, in order to examine the development of syntactic complexity in the speech of 66 English L2 learners. Similar to Bulté and Housen, who longitudinally followed the syntactic development of English L2 learners in writing (over 19 months), Vercellotti found an overall growth over time, assessed by means of both commonly used measures of syntactic complexity (e.g., length of AS-unit, clause length, subordination index) and by more specific measures of structural complexity (e.g., syntactic variety and weight of complexity scores). However, in contrast to Bulté and Housen, she did not find evidence of trade-off effects within the construct of complexity, supporting a connected and supportive rather than a competitive theory of development (cf. Spoelman & Verspoor, 2010).

In a cross-sectional study, Lambert and Nakamura investigate developmental variation in syntactic complexity by comparing the English oral performance of 36 Japanese learners of English at different proficiency levels (intermediate and advanced) with 18 L1 peers in completing six picture-based information gap tasks. The authors found that the four types of clause combination strategies investigated (coordination, and nominal, adverbial and relative subordination) varied with proficiency level, similarly to different age groups of L1 speakers. The study also shows an interplay between noun phrase complexity and lexical complexity: more proficient speakers were able to access specific words more frequently than less proficient speakers who used generic words (part, thing, place) and compensated for lack of specificity by means of more complex noun phrases. The most frequent syntactic device used for modifying these three nouns in lexical compensation was the relative clause. Possibly, the limited use of relative clauses by the less proficient L2 learners compared to the more advanced learners may have been related to their limited access to task-relevant vocabulary.

5 | PERSPECTIVES AND CHALLENGES FOR THE FUTURE

In the seven studies, variation in syntactic complexity is investigated from different angles, covering a wide range of learning contexts and languages. However, a number of issues needs to be further addressed in future research. The majority of studies in this special issue use a cross-sectional design, which makes it difficult to assess how group-level differences in complexity at different proficiency levels compare/relate to individual learner trajectories. Therefore, cross-sectional studies must be complemented by, or better still, combined with longitudinal studies that focus on developmental patterns of syntactic complexity. There is also a need for studies on variation in syntactic complexity which focus on the interaction between components of the taxonomy proposed by Bulté and Housen, (2012), particularly the interface between syntactic complexity and lexical complexity (e.g., Paquot, 2019), and between syntactic complexity and morphology. More attention should also be paid to inter-individual variation in the development of syntactic complexity, both in L2 and L1, focusing more on different developmental patterns of individual learners, as recommended by Spoelman and Verspoor, (2010).

With respect to the role of task modality, mainly group comparisons of different modalities have been made (e.g., Ellis & Yuan, 2004). As suggested by Sauro, (2012), when comparing oral and written performance of individual learners, large variation in syntactic complexity between the two modalities may, however, emerge. In line with recommendations by Lambert and Nakamura (this issue), research which focuses on the relationship between syntactic complexity and discourse devices and lexical strategies may also yield interesting results. Research, in which a more in-depth investigation of the differential effects of task type and genre on syntactic complexity is conducted, is recommended as well. Furthermore, the relation between CAF and variation in functional adequacy (Kuiken & Vedder, 2017, 2018), in terms of successful fulfilment of a particular task, should be addressed.

Finally, few studies have investigated the variation in syntactic complexity that is created by different instructional treatments. Whatever the reason for this paucity of studies is, there seems to be a need for research which investigates more thoroughly the role of syntactic complexity in instructional practice (but see the special issue of *Instructed Second Language Instruction*, forthcoming, devoted to syntactic complexity in relation to classroom practice).

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