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Interlanguage as an Outcome of Bilingual Linguistic Systems in Contact

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Abstract

Most previous studies of interlanguage (IL) relate IL performance errors in second language (L2) learning to the developing IL system itself. Though in such studies, language transfer is regarded as one of the processes responsible for IL development, little attention has been paid to the relationship and interaction between learners' first language (L1) and target language (TL). This study assumes that IL, as a developing linguistic system, involves several linguistic systems, such as learners' L1, learners' TL, and learners' currently acquired L2, and such linguistic systems are in contact in learners' target-oriented speech production, each contributing different amounts to the developing IL system. This study further assumes that the nature and activity of the bilingual mental lexicon may play a significant role in IL development. As claimed in this study, the bilingual mental lexicon contains language-specific 'lemmas' (i.e., abstract entries in the mental lexicon about individual lexemes), and such lemmas are in contact in IL production. Thus, IL performance errors are viewed as consequences of 'lemma transfer' of learners' L1 abstract lexical structure. The lexical structure is 'abstract' because it contains three abstract levels of linguistic organization: lexical-conceptual structure, predicate-argument structure, and morphological realization patterns. This study treats IL as an outcome of bilingual linguistic systems in contact at an abstract level. IL performance data are analyzed to test the hypothesis that the developing IL system is driven by an incompletely acquired abstract lexical structure of the TL, and IL development is always a predictable and target-oriented process.

Keywords

interlanguage, language transfer, bilingual mental lexicon, lemma, abstract, contact, composite, lexical-conceptual structure, predicate-argument structure, morphological realization patterns

1. Introduction

Among numerous studies of second language acquisition (SLA), four outstanding theories have been commonly recognized. The first theory (e.g., Lado, 1957) proposes that second language (L2) learners tend to employ their first language (L1) knowledge and other languages they know to produce target language (TL) lexical items and/or grammatical constructions. Such a theory claims that learners' L1 influence is the major source of learner errors or language transfer. The second theory (e.g., Dulay, Burt, & Krashen, 1982) proposes that L2 learners always test their hypotheses formed based on the L2 data or input becoming available to them during the L2 learning process. Such a theory does not put much emphasis on L1 or cross-linguistic influence by claiming that learners always rely on whatever L2 knowledge as acquired during any stage of learning in their real-time L2 production. The third theory (e.g., Selinker, 1972; Eubank, Selinker, & Sharwood Smith, 1995; Wei, 2015) proposes that several linguistic systems are involved in L2 learning or interlanguage (IL) development, such as learners' native language (NL) (L1), their TL (L2), and their IL itself. This theory claims that each of such linguistic systems plays its role during the L2 learning process. It further claims that such linguistic systems interact each other during the L2 learning process, and such interaction may contribute to learner errors or language transfer. The fourth theory (e.g., Jake, 1998; Myers-Scotton & Jake, 2000a, 2000b; Wei, 2000a, 2000b, 2002, 2006a, 2006b, 2020; Liu & Wei, 2020, 2021) proposes that the nature and activity of the bilingual mental lexicon tend to influence and determine certain learning mechanisms and the L2 learning process. It claims that learner errors are predictable outcomes of bilingual systems (to be more specific, lemmas in the bilingual mental lexicon) in contact at several abstract levels (to be introduced and discussed in detail). It further claims that IL as a developing linguistic system is an outcome of language contact.

In the studies of SLA and IL, the role of learners' L1 in L2 learning and the relationship between L1 and L2 in IL development have witnessed an intense debate. Most traditional studies of SLA (e.g., Lado, 1957; Bailey, Madde, & Krashen, 1974; Dulay, Burt, & Krashen, 1982) have related sources of L2 learner errors or language transfer to learners' L1. Such studies are rather observational and superficially descriptive because the relationship between learners' L1 and L2 and the relationship between learners' IL and TL are largely ignored. Adopting universal approaches, some studies of IL (e.g., Selinker, 1972; Færch & Kasper, 1987; Ringbom, 1987; Odlin, 1989; Dechert & Raupach, 1989; White, 1989, 1995; Gass & Selinker, 1992; Bialystok, 1995; Yip, 1995) have found reconciliatory solutions between the behaviorist and cognitive approaches to language transfer or cross-linguistic influence. They view SLA as being affected by learners' utilization of their L1 knowledge, including knowledge of other languages known to them, and learners' build-up of a body of developing knowledge in which they test hypotheses being formed based on the L2 data available to them during the process of learning. Along the lines of such thinking in traditional IL studies, this study attempts to discuss and answer several general questions about the nature and process of IL development: If learners develop the interim TL system, what is the origin of IL? If learners have not sufficiently acquired the grammatical rules to construct TL sentences,

what is the sentential frame of IL? If learners have not completely acquired knowledge of the TL abstract lexical structure, may they fall back on their L1 abstract lexical structure to realize their intended meanings? Why is IL an outcome of bilingual linguistic systems in contact?

This study adopts the Matrix Language Frame (MLF) Model (Myers-Scotton, 1993 [1997]; Myers-Scotton & Jake, 1995) and the Bilingual Lemma Activation (BLA) Model (Wei, 2002, 2006a, 2006b, 2020) to discuss and answer the above questions so as to explore the developmental nature of IL.

2. Interlanguage Linguistic Systems in Contact

The BLA Model views an IL linguistic system at a particular stage of SLA along the IL continuum (Selinker, 1972) as an outcome of several linguistic systems in contact. It claims that the general principles governing language contact phenomena, such as pidginization and creolization, primary language attrition, bilingualism, and codeswitching (CS), also govern the developing linguistic system of IL. Directly relevant to the study of IL as a language contact phenomenon are individual bilingualism and CS.

One of the major findings of many studies of individual bilingualism is that, depending on their current proficiency levels in one of their languages, individual bilinguals can be located at various points along the bilingual proficiency continuum. The other major finding is that bilinguals' two or more languages are in contact to a certain degree during bilingual development, resulting in various degrees of bilingual proficiency. Thus, effects of language contact on "healthy" languages, such as simplifications resulting in the elimination of one or more competing structures or the reanalysis of structures (Dorian, 1981, p. 15). According to Andersen's observation (Andersen, 1982), bilingual speakers of one of the languages undergoing attrition may preserve and overuse certain syntactic structures which reflect more transparent underlying semantic and syntactic relationships. This is because in language contact situations, the interference is that one of the languages may introduce new forms and/or rules to the other language where they already exist and are in contact (Beniak, Mougen, & Valois, 1984). "Where languages are in contact, linguistic phenomena, such as borrowing, interference and transfer will generally be found" (Romaine, 1989, p. 77). Romaine's important position relevant to the present study is that the balance between the languages in contact is not stable but may change over time. This implies that individual bilinguals' two languages, depending on various degrees of language contact, tend to be unequally developed, which causes unequally developed bilingual proficiency (i.e., unequally developed linguistic codes).

Numerous studies of CS propose various structural constraints on bilingual mixed or switched codes and provide a site for testing various claims about the IL developmental sequence. There are several outstanding models of CS, but directly relevant to studies of IL is the MLF Model (Myers-Scotton, 1993 [1997]; Myers-Scotton & Jake, 1995). The MLF Model identifies crucial asymmetries: Matrix Language (ML) vs. Embedded Language (EL), and content vs. system morphemes, which are hierarchically projected in CS. This model posits that the ML and the EL play unequal roles in CS. One of the languages

involved in CS must be activated as the ML, and it is the ML which provides the grammatical frame (i.e., sentential structure), most content morphemes, and all syntactically relevant system morphemes. Bilinguals may activate whichever language known to them as the ML. The other language is the EL, which plays a rather limited role by supplying certain content morphemes for some semantic/pragmatic reasons. The MLF Model views CS as a language contact phenomenon because at least two languages (i.e., linguistic codes) are involved in the same sentence (i.e., within a sentence boundary). The relevance of these two asymmetries to the present study of IL are discussed and exemplified in the following sections.

Although different models of CS have proposed various criteria to identify the 'main' or 'host' language in CS, the existence of such a language (i.e., the ML) and its role in structuring CS are commonly recognized. Although there are several different approaches to the morphosyntactic analysis of CS configurations, most of them have recognized that CS is not a randomly 'mixed' system but is governed and constrained by a set of principles and rules. Studies of CS provide a site for testing claims about the sequence of IL development (i.e., the notion of IL continuum).

The BLA Model (Wei, 2002, 2006a, 2006b, 2020) views IL as an outcome of bilingual linguistic systems in contact and claims that morphosyntactic principles governing other language contact phenomena, such as CS, also govern IL at an abstract level. Such a claim is based on the proposal that though IL is not the same as CS in terms of a clear distinction between the ML and the EL, IL contains abstract elements from two (or more) linguistic systems, such as types of morphemes related to the acquisitional sequence, lemmas (i.e., abstract entries about lexemes) in the bilingual mental lexicon, and cross-linguistic abstract lexical structure (i.e., lexical-conceptual structure, predicate-argument structure, and morphological realization patterns). The premise of the BLA Model is that IL is a composite of several linguistic systems from which learner errors or language transfer can be explored and IL developmental sequence can be predicted.

3. Interlanguage and Its Grammatical Frame

As observed in all language contact situations, one of the languages in contact must be identified as the ML. The term the 'ML' is like but not the same as the term the 'main language' more commonly used in most studies of language contact. The notion of the ML has its own implications for predicting and explaining various outcomes of languages in contact. This study regards IL as a language contact phenomenon at a rather abstract level and views IL as a particular type of outcome resulting from bilingual linguistic systems in contact. Unlike other language contact situations where the ML of the languages in contact can be clearly identified, in IL development, the TL tends to be partially or incompletely acquired along the IL continuum. Thus, the incompletely acquired TL cannot be the ML which should fully project the grammatical frame for IL utterances (i.e., L2 speech production). As commonly observed in studies of SLA, IL utterances tend to be not fully composed of TL linguistic elements, such as lexical items, phonological structures, morphological requirements, and grammatical

constructions, because all learners, as developmentally predicted, learn and acquire an L2 incrementally and do not have full access to the TL during the process of learning. Thus, IL cannot be the ML. It should be obvious that learners' L1 cannot be the ML either. It is a common sense that all learners know their L1 is not their intended or targeted language. According to Selinker (1972) and Eubank, Selinker, and Sharwood Smith (1995), several linguistic systems are involved in IL, such as learners' L1, their IL (i.e., their developing learner variety), and their TL. However, as proposed by Gass and Selinker (1983), Flynn (1987), Gass and Schachter (1989), White (1989, 1995), Bialystok (1995), and Yip (1995), such a phenomenon needs more adequate explanations. According to them, because IL, like all natural languages, is a natural learner language, there must be some underlying universal principles governing all varieties of IL. That is, a explanatory account of the developmental nature of IL becomes necessary.

According to (Jake, 1998), Myers-Scotton (1998, 2000), Fuller (1999), and Wei (2002, 2009a, 2009b, 2009c), the IL system, especially the early IL system, is a composite developing system because at different times different linguistic systems, such as learners' L1, the developing IL, and learners' TL, are in contact, and each of such systems contributes different amounts to the developing system of IL. According to Levelt (1989) and Bock and Levelt (1994), the mental lexicon contains 'lemmas', which are abstract entries (i.e., pieces of information) about lexemes, but Wei (2002) proposes that the bilingual mental lexicon is different from the monolingual mental lexicon because the former contains language-specific lemmas, which are in contact in during the process of L2 learning or IL production. According to Talmy (1985), Jackendoff (1990), Myers-Scotton and Jake (1995), Jake (1998), and Wei (2001, 2003), abstract lexical structure contains several discrete but interacting subsystems, such as lexical-conceptual structure, predicate-argument structure, and morphological realization patterns. Wei (2015, 2020) provides strong evidence that such an abstract lexical structure in IL has different sources, such as those from learners' L1, their developing IL and their TL, and parts of the abstract lexical structure from learners' L1 lexical entries (i.e., lemmas) may influence the abstract lexical structure of incompletely acquired TL lexical entries in the developing IL. According to Wei (2002, 2003, 2006a), learners may fall back on their L1 strategies to map surface forms onto functions in the TL. It is learners' increasing familiarity with their 'targeted' morphosyntactic structures which will lead to a gradual fading of initially useful but inappropriate or nonnative-like lexical choices or ill-formed sentences.

The central argument of the MLF Model (Myers-Scotton, 1993 [1997], 2000) is that in all language contact situations, one of the languages in contact must be the ML which provides the grammatical frame for structuring the surface constituents. As a language contact phenomenon, IL is no exception because it involves several linguistic systems in contact, and it must also have an ML. This model claims that even though the ML may change over time (e.g., primary language attrition), it is the ML which determines the morphosyntax of the languages in contact. For example, Fuller's (1999) study finds that there are the connections between IL and CS regarding the identification of the ML and abstract lexical structure of the languages in contact. Fuller's analysis of an IL corpus having English as the TL and the speakers' two L1s (Spanish and German) concludes that IL contains features from the speakers' L1(s)

and TL, the combination of which is governed by the similar principles as proposed for CS in the MLF Model.

The present study views IL as a special case of language contact by claiming that IL is 'composite' in nature because of several linguistic systems in contact during its development. By adopting the MLF Model and the BLA Model, it claims that the ML of IL is a composite because abstract categories and grammatical rules from learners' L1 remain active in the process of L2 learning or IL development. It views language transfer or learner errors as consequences of complex lexical structure which may be split and recombined to construct IL. IL is regarded as a special case of language contact in that its performance data consist of morphemes only from the TL even though they may not be completely acquired. Thus, the focus of this study is on the interaction between cross-linguistic grammars at several levels of abstract lexical structure.

The central argument of the present study is that during the process of incremental L2 learning, the incompletely acquired TL along the different IL continuum stages cannot be the 'perfect' ML to project the grammatical frame for IL utterances. As commonly observed, IL utterances tend to be not fully composed of TL-based linguistic elements and/or morphosyntactic structures. The TL cannot be the ML either because it is not completely accessible or available to L2 learners. It should be obvious that the IL cannot be the ML either because L2 learners are fully aware their L1 is not their targeted or intended language in SLA. As assumed in Jake (1998) and Wei (2015), the ML of IL is a composite of the *de facto* ML (a mix of the L1 and the IL) and the intended ML (the TL). Learners' L1 can be identified as the EL like the EL in CS, but, different from CS, this EL may influence the *de facto* ML by partially contributing L1 abstract lexical structure to IL utterances. As assumed in Jake (1998), Fuller (1999), and Wei (2009c), IL has a composite ML because of different constraints on the roles of the linguistic systems in contact in IL development, in which the TL is always the preferred ML simply because it is always learners' targeted language, and learners' L1 is always an unfavorable but unavoidable EL because it may influence or interfere with the process of IL development. The ML of IL is assumed be a composite of the *de facto* ML and the intended ML. That is, IL can be defined as a developing linguistic system with its composite ML.

4. Interlanguage and Its Complex Abstract Lexical Structure

The conception of the composite ML and the conception of the contributing EL become crucial in exploring the nature of IL. Because of the assumption that such a composite ML exists, the conception of complex abstract lexical structure as part of the bilingual mental lexicon becomes important in explaining sources of language transfer or L1 influence in L2 learning. The conception of complex abstract lexical structure is based on the following assumptions:

First is the assumption that, as introduced earlier, the mental lexicon does not simply contain lexemes (i.e., fundamental units of the lexicon of a language) but also contains lemmas or lemma information (i.e., abstract entries about lexemes in the mental lexicon). This is because it is lemmas that support the surface

realization of actual lexemes. For example, for each lexical item, the mental lexicon contains its lemma information about its lexical content (i.e., semantics). For example, the lemma information about the verb *give* requires a subject assuming the thematic role of AGENT (i.e., the person who performs the act of giving), a direct object assuming the thematic role of THEME (i.e., something that is given), and an indirect object assuming the thematic role of RECIPIENT (i.e., the person who receives what is given). The lemma information about the verb *put* requires a subject assuming the thematic role of AGENT (i.e., the person who performs the act of putting), an object assuming the thematic role of THEME (i.e., what is put), and a prepositional object assuming the thematic role of LOCATION (i.e., the location of what is put) (e.g., *John always puts his dog in an animal hotel when he is on a business trip.*). That is, it is these lemmas which determine the number of arguments (i.e., nouns) and the thematic role assigned to each of the arguments for the sentences to be meaningful. Lemmas also contain information about the word's syntactic environment (i.e., morphosyntax). For example, the lemma information about the pronoun *she* requires the word to be used for a female subject and the main verb in the present tense must be inflected with *-s* for the subject-verb agreement. In addition, lemmas contain information about each word's phonological structure, syllabic composition, accent structure, register, pragmatic function, and so forth. What becomes important and relevant to the present study is the conception of the bilingual mental lexicon. What becomes crucial is the assumption that lemmas in the bilingual mental lexicon are language-specific, and language-specific lemmas are in contact during L2 learning and IL development. The second is the assumption that since IL is a natural linguistic system, like any other linguistic systems, it has its abstract lexical structure. Every abstract lexical structure contains three discrete but interacting subsystems including lexical-conceptual structure (i.e., semantic/predicate feature bundles), predicate-argument structure (i.e., subcategories of verbs and their required grammatical encoding), and morphological realization patterns (i.e., surface requirements for word orders in different grammatical patterns and surface devices for abstract grammatical concepts, such as case assignment, agreement, tense/aspect/voice/mood marking, etc.) (de Bot & Schreuder, 1993; Jake, 1994; Myers-Scotton & Jake, 1995; Liu & Wei, 2020, 2021; Wei, 2002).

The BLA Model assumes that, unlike monolingual abstract lexical structure, bilingual abstract lexical structure (i.e., the abstract lexical structure in IL) has different sources, such as learners' L1, their intended TL, and their developing IL (i.e., incompletely acquired TL items). This is because IL is always the learner language which shows the surface forms of learners' intended TL, but such a learner language tends to contain abstract lexical structure from a mixture of different sources of abstract lexical structure (Jake, 1998; Myers-Scotton, 2002; Wei, 1996a, 2006a, 2020). The BLA Model claims that because the abstract lexical structure in IL has different sources, parts of the abstract lexical structure of from learners' L1 lexical entries (i.e., L1 lemmas) may influence the abstract lexical structure of incompletely acquired TL lexical entries. Thus, each of the three subsystems of abstract lexical structure in IL may contain elements from learners' L1 and/or incompletely acquired TL (Wei, 2002, 2015). In other words, learners' L1 may contribute different amounts of its abstract lexical structure to the TL along the IL continuum.

The third is the assumptions that language transfer or learner errors in L2 learning is mainly caused by the composite nature of IL. Thus, the complete acquisition of the TL abstract lexical structure is the determinant factor in the direction of successful IL development. This is because IL is projected by the composite ML, which is simply a 'composite' but lacks certain aspects of the abstract lexical structure of the TL. Consequently, L2 learners, during the process of learning, may turn back on their L1 abstract lexical structure and/or their partially TL abstract lexical structure for them to fill gaps in their incompletely acquired TL lexical items to satisfy their intended meanings. Thus, language transfer or L1 influence is a consequence of transfer of abstract lexical structure form learners' L1.

To explore the nature of IL and explain its linguistic performance, the present study focuses on the three subsystems of bilingual abstract lexical structure in relation to language transfer: lexical-conceptual structure, predicate-argument structure, and morphological realization patterns.

5. Interlanguage and Its Lexical-Conceptual Structure

Lexical-conceptual structure is the first level (i.e., a subsystem) of abstract lexical structure. Languages share universal concepts (i.e., the conceptual structure may not be language-specific), but languages may differ in lexicalizing the components of a particular conceptual structure (i.e., languages may have different lexicalization patterns) (Talmy, 1985; Levelt, 1989; Jackendoff, 1991; Levin & Pinker, 1991; Bierwisch & Schreuder, 1992; Wei, 1995, 2003; Kroll & de Groot, 1997; Jake, 1998; Jiang, 2000). There is abundant evidence that IL lexical-conceptual structure of certain lexical items may be influenced by semantic/pragmatic feature bundles from L1 counterparts. This is because lemmas in the mental lexicon are argued to form a connection between the lexical features and conceptual features, which map to and from syntax (Kroll & de Groot, 1997; Wei, 2020).

> Conceptual equivalence facilitates L2 vocabulary learning through positive transfer …, partial (non)equivalence facilitates learning through partial overlap (positive transfer), yet also complicates it when learners assume complete equivalence and display negative transfer …; non-equivalence simultaneously complicates learning, as learners have to develop new categories … (Pavlenko, 2009, p. 152).

Similarly, the BLA Model relates incomplete projection of TL lexical-conceptual structure to the nature of the bilingual mental lexicon.

> It claims that because some of the L2 lexical items are not yet fully specified in terms of their semantic, pragmatic, syntactic and/or morphological information, learners' L2 lexicon may be partial or incomplete (Wei, 2002, 2020). That is why learners' L2 lexicon is recognized as their IL lexicon (Wei, 2024, p. 226).

As observed in Wei (1995, 2015), Dewaele (1998), and Jake (1998), when the incompletely acquired L2 lexical items are insufficient for learners to convey their intended meanings or realize their communicative intentions, they may turn to the abstract lexical-conceptual of the similar or seeming equivalent lexical items in their L1. Consequently, the lexical-conceptual structure of the TL lexical items

is incompletely projected in IL production. Abundant instances of learners' L1 lexicalization patterns playing an influencing role in IL production have been found in SLA studies (e.g., Choi & Bowerman, 1991; Zughoul, 1991; Lennon, 1991; Biskup, 1992; Jiang, 2000, Wei, 1995).

Adopting the BLA Model, the present study assumes that different from the monolingual mental lexicon, one of the outstanding features of the bilingual mental lexicon is that it contains language-specific lemmas which are in contact and affect IL production at three levels of abstract lexical structure. The first level is lexical-conceptual structure which may contain certain L1 lexical concepts or semantic/pragmatic feature bundles of particular lexemes or vocabulary items. It is obvious that in L2 learning, learners' L2 lexicon contains only L2 lexical entries, but some of these lexical entries are yet fully specified for their semantic/pragmatic information (i.e., lemma information). In other words, learners may have not fully acquired certain L2 lexical entries (i.e., being learned) or may not be familiar with some new L2 vocabulary items (i.e., to be learned). As evidenced in some SLA studies, when the 'targeted' L2 lexical items are not fully 'known' to L2 learners or are not sufficient for their intended meanings, they may turn to similar or seemingly equivalent lexical items in their L1 for their communicative intentions, resulting in language transfer or L1 influence in their 'target-oriented' IL production. This is because learners may exploit a different lexicalization pattern available in their L1 at a certain point in time during their IL production to convey their meanings as semantically/pragmatically intended. Consequently, language transfer in the bilingual complex abstract lexical structure results in L2 lexical errors or inappropriate L2 lexical choices in IL production. Below are some typical examples of such language transfer in abstract lexical-conceptual structure in IL production.

[1] She now **do** meal.

[2] **Open** air condition.

[3] You **close** light.

[4] You come my **house**?

(Chinese L1; Wei, 1995)

[5] There **have** English class, free. You go?

(Chinese L1; Wei, 1996a, p. 423)

In [1], *do* in Chinese means 'cook' and other meanings such as 'play', 'work' and 'write'. In [2], *open* in Chinese means 'turn on' or 'start'. In [3], *close* in Chinese means 'turn off' or 'stop/shut'. In [3], *house* in Chinese may also mean 'apartment', 'building' or 'home'. In [5], *have* in Chinese means 'exist' of 'possess'. It seems that these learners turn to the concepts as lexicalized in Chinese to express their intended meanings in English.

[6] I go to the **oven** in the morning to buy bread.

[7] My father is a **long** thin man.

(Chinese L1; Jiang, 2000, p. 61)

In [6], the learner produces *oven* rather than 'bakery' probably because he has not yet acquired 'bakery' or because the concepts of 'oven' and 'bakery' and the conceptual distinction between the two are

relatively new to Chinese. In [7], the learner uses *long* rather than 'tall' probably because he is not aware of the lexical-conceptual distinction between the two adjectives in English. It is also probable that the learner is not familiar with the adjective 'tall', and consequently, he simply transfers the seemingly equivalent lexical concept from his L1 to this modification of the noun.

[8] Yesterday in library I **look** Japanese magazine.

[9] My parent want **do** me teacher … teach English in Japan.

(Japanese L1; Wei, 1996a, p. 423)

[10] My husband doesn't **wash** … never **wash** the dishes.

[11] When I've cold I **eat** medicine, cold medicine.

[12] In Japan student **do** many tests and exams in class.

(Japanese L1; Wei, 2003, p. 65)

In [8], *look* in Japanese means 'read' and contains other meanings such as 'see', 'look at', 'visit' and 'observe'. In [9], *do* in Japanese means 'make' and contains other meanings such as 'try', 'act' and 'play'. In [10], *wash* in Japanese means 'do' as in the English collocation 'do the dishes'. In [11], *eat* in Japanese means 'take' as in the English collocation 'take medicine'. In [12], *do* in Japanese means 'take' as in the English collocation 'take a test/exam'. It seems that these learners may transfer their L1 lexical-conceptual structure where the meanings of certain English verbs are conflated in the meanings of the Japanese corresponding verbs. It is also true that it takes time for learners to acquire linguistic collocations as lexical-conceptually required in the TL (cf. Liu & Wei, 2020, 2021).

[13] watashi wa mai nichi juuni ji ni hirugohan ga **aru**.

'I have lunch at 12 o'clock every day.'

[14] kare wa shaken o **toru**.

'He'll take the test.'

[15] watashi wa tenisu o **asobu**.

'I play tennis.'

[16] toru anata ni denwa o **ageru**.

'(I) will give you a call in the evening.'

[17] haha wa shokuji no atode shokki o **suru**.

'(My) mother do the dishes after the meal.'

(English L1; Wei, 2003, p. 65)

In [13], the learner expresses the English concept *aru* (have) for 'have lunch' rather than *taberu* (eat) for the equivalent concept in Japanese. In [14], the learner expresses the English concept *toru* (take) rather than *ukeru* (receive) for the equivalent English expression 'take the test'. In [15], the learner uses *asobu* (play) based on the English expression rather than *suru* (do) as used in combination with other relevant nouns in Japanese. In [16], the leaner translates the English concept into Japanese by using *ageru* (give) rather than *suru* (do) as required in Japanese. In [17], the leaner translates the English collocation 'do the

dishes' into Japanese by using *suru* (do) rather than *arau* (wash). These learners' uses of the Japanese verbs seem to be influenced by the equivalent ones in their L1 (cf. Liu & Wei, 2020, 2021).

[18] a. In the late of Maracaibo was discovered the oil.

b. I have mentioned that in my country does not appear to exist any constraint on a woman's right to choose

a husband.

c. And then at last comes the great day.

(Spanish L1; Rutherford, 1989, p. 178)

In [18], a discourse-pragmatic feature projects the verb-subject order as a lexical-conceptual structure with a focus on new information in certain kinds of grammatical structure in Spanish. The learner does not seem to have acquired a particular lexeme 'there' in English, and the structure it introduces in which the noun phrase is introduced in a 'there' (a nonthematic pronoun) existential construction. Consequently, the learner turns back on the Spanish lexical-conceptual to convey their intended meanings. Thus, the gap between Spanish and English is not only pragmatic but also lexical and syntactic.

The above typical instances of L1 abstract lexical-conceptual structure in IL production reveal that the TL lexical-conceptual is not available to early-stage learners. However, learners always try to use the TL lexical items known to them, but their selection of those lexical items may be caused by their incomplete knowledge of the TL lexical-conceptual structure for particular lexemes or may be influenced by their L1 lexical-conceptual structure.

According to Talmy (1985), Jake (1994), and Wei (1994, 1996a, 1996b), learners acquire certain TL content morphemes first which match up possible L1 conflation categories of semantic notions (i.e., several semantic notions are conflated in a single lexical item (cf. Pinker, 1989a, 1989b)). According to Pavlenko, "At the center of L2 learning are the processes of *conceptual restructuring*, and … *conceptual development* …" (2009, p. 141). "Conceptual restructuring" requires learners to readjust the lexical category structure and boundaries in accordance with the constraints of the TL category, and "conceptual development" requires learners to develop lexical representations like those of native speakers of the TL (i.e., native-like lexical knowledge) (cf. Pavlenko, 1997, 2003, 2009; Pavlenko & Driagina, 2007; Wei, 2002, 2015).

Jiang's study of L2 vocabulary learning (2000) proposes two lexical processing constraints on the lexical representational features of L2 vocabulary. The first constraint is that the use of L2 words tends to be influenced or affected by the L1 lexical information (i.e., lemma information) in the bilingual mental lexicon. The second constraint is that appropriate L2 morphological specifications must become a conscious process. The BLA Model (Wei, 2003, 2006a, 2009c) claims that although learners' use of the TL lexical items is always target-oriented, their selection of those lexical items may be influenced or affected by language-specific lemmas in the bilingual mental lexicon. What is emphasized in the present study is that it is the activated language-specific lemmas for the universal concepts based on learners' L1 lexical-conceptual structure which may activate or retrieve the TL lexical items in a non-native like

manner. What is also emphasized in the present study is that learners' L1 lexical-conceptual structure activated in IL production should be understood at an abstract level, that is, at the lemma level. It is in this sense that transfer of L1 abstract lexical-conceptual structure should be regarded as L1 lemma transfer.

6. Interlanguage and Its Predicate-Argument Structure

Predicate-argument structure is the second level (i.e., a subsystem) of abstract lexical structure. Predicate-argument structure is defined as the number of argument(s) as required by a particular verb, the thematic role(s) as assigned by the verb to each argument(s), and the surface arrangement of the argument(s) as required by the grammar of a particular language. Lexical verbs (also certain prepositions) are thematic role assigners, and lexical nouns are thematic role receivers. For example, the verb *kill* minimally requires two arguments and assigns the thematic role of AGENT to one of the animate nouns which must be capable of performing the act of killing and the thematic role of THEME to the other animate noun whose death must be caused by the act of killing, and the arguments must be grammatically ordered in a sentence (e.g., *The cat killed another rat*. *Another rat was killed by the cat*.). Thus, to satisfy the predicate-argument structure as required by the TL, learners must be familiar with the lemmas of lexical verbs and prepositions.

In addition to language transfer (i.e., lemma transfer) in lexical-conceptual structure, language transfer may also occur in predicate-argument structure in L2 learning or IL production. As commonly observed in SLA, because of their incomplete knowledge of the predicate-argument structure which must be satisfied by the thematic role assigners in the TL, learners may choose the right TL verbs known to them, but they may use them inappropriately or incorrectly in their IL production. Some strong evidence in IL studies indicates that learners may use their incompletely acquired TL verbs to project the number of arguments and assign the thematic roles to these arguments as their counterparts in their L1 (Wei, 1995, 1996a, 2003). Consequently, lemma transfer of L1 predicate-argument structure occurs. Also, in term of lack of lemma information, certain incompletely acquired TL lexical-conceptual structure may map onto incompletely acquired TL predicate-argument structure. Below are some typical examples of such language transfer in abstract predicate-argument structure in IL production.

[19] Please help me **look** my child.

[20] You're **listening** music?

(Chinese L1; Wei, 1995)

In [19], *look* assigns the thematic role of THEME directly to *my child* without the preposition 'after', which should be the thematic role assigner in this sentence as required in English. This violation seems to be caused by the Chinese counterpart verb 'zhaoliao' (look/take care of), which is a transitive verb and can take the THEME as its internal argument. In [20], *listen* assigns the thematic role of THEME directly to *music* without the preposition 'to' as required in English. Such a violation may be caused by the Chinese counterpart verb 'ting' (listen/hear), which is a transitive verb and thus does not need a

preposition to assign this thematic role. In Chinese, 'ting' alone is the thematic role assigner and can take the THEME as its internal argument.

[21] Today he **help** dinner.

[22] She **cost** me hundred dollar, … bad tooth.

[23] Yes … teacher **report** parent grade.

(Chinese L1; Wei, 1996a, p. 422)

In [21], *help* assigns the thematic role of THEME directly to *dinner* without the preposition 'with' as required in English, but in Chinese no preposition is needed for such a thematic role assignment. In [22], *cost* takes the AGENT (i.e., the person who spends the money) as the subject, rather the THEME (i.e., the thing on which the money is spent), but such a predicate-argument structure is for the verb 'cost' is very normal in Chinese. In [23], *report* assigns the thematic role of GOAL, rather than the thematic role of THEME, to the object in the double object dative construction, but this is a normal predicate-argument structure for the verb 'report' in Chinese.

[24] I can **wait** you here.

[25] Why you ask many questions **for me**?

[26] He is funny. His words in class **laugh** me.

(Japanese L1; Wei, 1995)

In [24], *wait* assigns the thematic role of THEME directly to *you* without the preposition 'for' as required in the English predicate-argument structure for the intransitive verb 'wait'. This violation seems to be caused by the Japanese counterpart verb 'matsu' (wait), which is a transitive verb and can take an object as its internal argument. In [25], *me* is assigned the thematic role of GOAL by the preposition *for*, which is the thematic role assigner in this case, structurally subordinate to the internal argument of the verb, *many questions*, which is the THEME. Such a predicate-argument structure seems be affected by the Japanese counterpart verb 'suru' (ask), which projects the GOAL as a postpositional object with the postposition 'ni' as the thematic role assigner. In [26], the predicate-argument structure and its morphological realization patterns seem to be affected by the Japanese causative lexical-conceptual structure. In this case, *me* carries the thematic role of PATIENT, which should be 'I', the AGENT, in English and *his words* is the causer, which should be a prepositional stimulus 'at his words' in English (e.g., *I laugh at his words in class*.).

[27] Wait. I first **fill** water in glass. Wait.

[28] He busy. He not **help** my homework.

[29] Parent **provide** money to me.

(Japanese L1; Wei, 1996a, p. 422)

In [27], *fill* assigns the thematic role of THEME to *water*, rather than the thematic role of PATIENT to *glass*, *water* should be assigned the thematic role of THEME by the preposition 'with' as required in English, and *glass* should be assigned the thematic role of LOCATION by the preposition 'in', rather than the thematic role of PATIENT assigned by *fill* as required in English (e.g., *I first fill the glass with*

water.). In [29], *provide* assigns the thematic role of THEME, rather than the thematic role of RECIPIENT, to the object, violating the predicate-argument structure in English where the thematic role of THEME must be introduced by the preposition 'with' (e.g., *My parents provide me with money*.).

[30] densha o **totte** gakkoo e iku.

'(I) take the train to go to school.'

[31] haha wa shopping **iku**.

[32] gozen chuu kare o **yonda**.

'(I) called him in the morning.'

[33] kereno uchi made **noseru o ageta**.

'(I) gave him a ride home.'

(English L1; Wei, 2003, pp. 67-68)

In [30], the learner uses the English predicate-argument structure for *toru/totte* (take) where the means of transportation *densha* (train) is introduced as the THEME (the direct object). In Japanese *densha* must be introduced as the LOCATION by the verb 'notu/note' (take) in a prepositional phrase headed by the preposition 'ni' (e.g., *densha ni notte gakkoo e iku*.). In [31], the learner translates the English expression 'go shopping into Japanese, violating the Japanese predicate-argument structure for the verb *iku* (go). In English 'shopping' is introduced as the GOAL by the verb 'go', but in Japanese 'shopping' is introduced as the GOAL in the prepositional phrase headed by 'ni' (e.g., *haha wa shopping ni iku*.). In [32], the learner uses the English predicate-argument structure for the verb 'call' (your/yonda) where the semantic features of 'communicate with by telephone' are conflated in the verb 'call'. In English the object of 'call' is the RECIPIENT', but in Japanese the RECIPIENT must be introduced by a preposition and the phone-call itself must be introduced as the THEME (i.e., the object) by a specific verb like 'kakeru' or 'suru' (e.g., *gozen chuu kare ni denwa o kaketa* (or: *denwa or shita*.). In [33], the learner translates the English expression 'give a ride' into Japanese, violating the Japanese predicate-argument structure. In English 'ride' (noseru) is introduced as the THEME (i.e., the object) by the verb 'give' (ageru), but in Japanese the means of transportation must be introduced by a preposition as the INSTRUMENT, rather than the THEME (e.g., *kereno uchi made kuruma de okutte ageta*. (Literally, 'I sent him to his home by car'.)) (cf. Liu & Wei, 2020, 2021).

The above typical instances of L1 abstract predicate-argument structure in IL production reveal that may contribute to the developing linguistic system in terms of the composite ML of IL. While it is true that learners' target is always and should be the L2 predicate-argument structure, their L1 seemingly equivalent predicate-argument structure may be exploited in IL production most probably because of learners' lack of or incomplete knowledge of this subsystem of TL abstract lexical structure. In other words, though learners se the L2 lexical items as needed for their intended meanings, they may fail to produce the predicate-argument structure as required for a particular verb. Thus, IL is predictably a composite linguistic system (i.e., the composite ML) from multiple sources. These sources may include not only L1 lexical-conceptual structure or the intended TL lexical-conceptual structure but also L1

predicate-argument structure and incompletely acquired ones in the TL (Myers-Scotton, 1994; Jake, 1998; Wei, 1996a, 1996b, 200s, 2009c). The crucial assumption underlying the BLA Model is that although learners always try to produce the TL lexical items, language-specific lemmas, in this case, L1 lemmas, of certain TL lexical items can be activated in IL production. It is in this sense that transfer of L1 abstract predicate-argument should be regarded as L1 lemma transfer.

7. Interlanguage and Its Morphological Realization Patterns

The third level (i.e., subsystem) of abstract lexical structure is morphological realization patterns. Morphological realization patterns are surface devices for language-specific grammatical requirements, such as word order (i.e., arrangement of sentential elements), case assignment, agreement, inflectional morphology for plural marking, inflectional morphology for tense/aspect/voice/mood marking, etc. Morphological realization patterns must be satisfied at the positional level of speech production. Like the other two subsystems of abstract lexical structure, learners' lack of TL morphological realization patterns may cause transfer of their L1 morphological realization patterns in IL production before they completely acquire TL morphological requirements. Below are some typical examples of such language transfer in abstract morphological realization patterns in IL production (Wei, 1995, 1996a, 1996b, 2003).

[34] I English not speak.

[35] … because I study English, just more study English.

[36] My husband in USC study.

(Chinese L1; Wei, 1995)

The Chinese basic word order is Subject-Verb-Object, but different from English and other languages, such a word order is flexible enough for speakers to move any constituents to the sentence initial position or before the verb for topicalization or emphasis. Among other things, though early-stage Chinese learners of English try to use L2 lexical items (i.e., content morphemes) known to them for intended meanings or communicative intentions, they may either miss certain TL morphological requirements or turn back on their L1 morphological realization patterns in IL production.

In [34], 'English' is the direct object but is placed before the verb, which is a normal word order in Chinese. The auxiliary verb for negation is missing since in Chinese verbs are negated directly by the adverb 'not'. In [35], 'more' is placed before the verb phrase 'study English'. Such a word order is very natural and common in Chinese. In [36], 'in USC' is placed between the subject and the verb. Such a word order is grammatically required in Chinese. Also, the verb 'study' is not inflected for the present or past tense marking. Chinese learners need to learn inflectional morphology because Chinese is not an inflectional language.

[37] Outside cold, inside warm.

[38] Hello … she not in home. She at outside at playground playing. You come? You not come?

I tell her. Bye.

[39] Go swim? No. Parent no go, you no go swim.

[40] You go too? We have three ticket.

[41] You not go library, I go.

[42] Tomorrow I no go work. I sick.

(Chinese L1; Wei, 1996a, p. 421)

In Chinese, depending on the speech context, constituents or sentential elements, such as the copular 'be', the AGENT or the THEME, can be left out as being implicitly understood, as shown in [37], [38] and [39]. Chinese morphological realization patterns have few auxiliary verbs and no system morphemes for 3rd person singular, plural and tense/aspect marking. Thus, Chinese grammatical concepts are not morphologically realized but implicitly expressed or understood, as shown in [38], [39], [40], and [41], or expressed by other means, such as adverbials of time, as shown in [42]. Chinese does not possess auxiliary verbs for negation or other grammatical purposes. In Chinese negation is realized by pacing the negative particle 'not/no' immediately before the verbs to be negated, as shown in [38], [39], [41], and 42].

[43] In Japan student English junior high school start.

[44] I in Japan my city like.

(Japanese L1; Wei, 1995)

[45] I from Japan arrive, now live in room … apartment, I, friend and EPI teacher. EPI teacher help me English speak … kind, nice teacher.

[46] I English speak not well.

[47] Here everything expensive. I everyday use bike. Taxi? No. I live not far.

[48] I go to party with friend tomorrow. We together cook, interesting.

(Japanese L1; Wei, 1996a, p. 421)

The Japanese basic or fixed word order is Subject-Object-Verb, which may cause influence in Japanese learners' sentential organization in English, as shown in [43] and [46]. Also, in Japanese any constituent must be placed before the verb final position, as in [44] and [45]. The Japanese morphological realization patterns do not possess auxiliary verbs for tense/aspect marking, negation, and other grammatical functions as required in English, such as the missing plural morpheme in [43], the missing determiners in [45] and [48], the missing auxiliary verbs for negation in [46] and [47], and the missing auxiliary verb for tense marking in [48].

[49] watashitachi wa shigoto ni iku mainichi.

'We go to work every day.'

[50] watashi wa moou kakiowatte watashino repooto.

'I already finished my paper.'

(English L1; Wei, 2003, p. 69)

In [49], the sentence basically follows the Japanese verb final word order, but the adverbial of time 'mainich' (every day) is placed in the sentence final position, which is not allowed in Japanese. Such an error is most probably caused by the learner's L1 (English) morphological realization patterns in terms

the arrangement of sentential elements at the positional level. Similarly, in [55], the sentential elements are arranged in the typical English word order where the object follows the predicate verb in an active sentence (cf. Liu & Wei, 2020, 2021).

As assumed in the BA Model, the ML of IL is a composite and abstract lexical structure of IL is also a composite where lemmas in the bilingual mental lexicon are language-specific and are in contact in L2 learning and IL production. Language-specific lemmas contain all the information necessary to project actually occurring surface forms. The above typical instances of language transfer (i.e., lemma transfer) reveal that L1 abstract lexical structure at the level of morphological realization patterns may also be employed by early-stage L2 learners to fill a 'gap' in the abstract lexical structure projected by the incompletely acquired ML of the TL.

8. Conclusion

This study discusses the composite nature of IL and explores some potential sources of language transfer in L2 learning and naturally occurring IL production. The explanations of the typical examples of incomplete projection of the subsystems of abstract lexical structure: lexical-conceptual structure, predicate-argument structure, and morphological realization patterns offer an insight into SLA in general and IL development in particular. Below are some general conclusions.

1). One of the languages in contact must be the ML. IL can be regards as an outcome of bilingual systems in contact at an abstract level. The ML of IL is a composite linguistic system. This is because such an ML is a *de facto* ML before the TL is completely acquired. Several linguistic systems, such as learners' L1, their TL, and their developing IL, may contribute different amounts to the de facto ML during the process of L2 learning along the IL continuum.

2). Learners' incomplete knowledge of their L2 includes their incomplete knowledge of lemma specification for the abstract lexical structure of the TL. Lemmas contain information about the three subsystems of abstract lexical structure: lexical-conceptual structure, predicate-argument structure, and morphological realization patterns. Unlike the monolingual mental lexicon, the bilingual mental lexicon contains language-specific lemmas, and language-specific lemmas are in context in IL production. Learners may over generalize lemma specifications for certain lexemes or lexical items based on their previously learned L1 abstract lexical structure or incompletely acquired TL abstract lexical structure. Thus, learners may activate or turn back on their L1 lemmas underlying each of the subsystems of abstract lexical structure to express their intended meanings in the TL. Though L2 learning is always target-oriented, learners' production of each of the subsystems of TL abstract lexical structure may be influenced and affected by their L1 counterparts.

3). The phenomena of language transfer in L2 learning need to be described and explained beyond any surface level. As claimed and evidenced in this study, language transfer should be understood as an outcome of bilingual lemmas in contact in L2 learning or, to be more specific, as language-specific lemma transfer in IL production at each level of abstract lexical structure. This is because lexical-conceptual

structure (i.e., lexicalization patterns), predicate-argument structure (i.e., thematic role assignments), and morphological realization patterns (i.e., surface devices for morphosyntactic configurations) are language-specific and must be leaned as such.

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