Making do: Constructing L2 phraseological chunks as complex form-meaning mappings

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Abstract

This paper argues that the cognitive usage-based model enhanced by a complexity theory perspective can provide useful insights into L2 learners' non-target-like use of L2 phraseological chunks. Firstly, L2 chunks are conceptualized here as L2 complex form-meaning mappings subject to developmental schematization and entrenchment, as well as productive cut-and-paste mechanisms. Traces of these mechanisms at community level are interpreted as emergent patterns, a complexity theory concept in line with the cognitive usage-based model. Next, learner expressions for two task-elicited notions (DEPOSITING MONEY and DONATING MONEY) in a community of L2 English learners (N=167; L1 Dutch) are analyzed for emergent patterns at different levels of schematicity. The findings indicate that L2 phraseological chunks are not constructed from a target-like initial exemplar that becomes entrenched or schematized. The paper concludes that within the cognitive usage-based model this is a major impeding factor in L2 learners' target-like use of L2 phraseological chunks.

Keywords

cognitive usage-based model, L2 acquisition, phraseological chunks, complexity theory, emergent patterns

1   Introduction

The aim of this paper is to contribute to the understanding of impeding factors in L2 learners' target-like use of L2 phraseological chunks. Phraseological chunks[1] are a characteristic feature of authentic, target-like L2 use (Pawley & Syder, 1983); they are also the default building blocks in L1 use (Dabrowska, 2014). Therefore, a crucial part of learning an L2 is mastering its phraseological chunks (Verspoor, Schmid, & Xu, 2012; Wray, 2002). It is now widely recognized that the use of L2 chunks is notoriously difficult, particularly for classroom-instructed L2 learners (Granger & Paquot, 2012; Nesselhauf, 2005; Wray, 2002). However, despite the prolific research on L2 chunks we still do not have a satisfactory explanation for why they are such a challenging aspect of mastering an L2 (Wray, 2012). A clear complication is that phraseological chunks are a vastly complex phenomenon that is difficult to conceptualize within the traditional framework of separate language modules such as grammar and lexis. Although there is tentative agreement that chunks are best conceived of as single semantic units, there is no consensus that this holds for the wide range of chunk types as recognized by different approaches; and in particular for syntactically regular chunks with a high degree of semantic compositionality that may appear as arbitrary word combinations (Jolsvai, MacCauley, & Christiansen, 2013; Smiskova, Verspoor, & Lowie, 2012; Bybee, 2008; Langacker, 2008a, b).

I argue here that the cognitive usage-based model of language (Dabrowska, 2014; Bybee, 2010; Goldberg, 2006; Langacker, 2000) enhanced by a complexity theory perspective offers a novel and useful approach to L2 phraseological chunks.

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[1] Not to be confused with the developmental phenomenon of chunking. The neutral term **chunk** is used here for brevity, and to avoid theoretical and methodological assumptions associated with the many different labels referring to multiword units (Wray 2012).

Firstly, within the cognitive usage-based model L2 chunks can be conceptualized as meaning-based linguistic units in their own right and thus as clear acquisitional targets for L2 learners. Secondly, the model offers testable hypotheses about the learning and use of L2 chunks, as it operates with generic cognitive mechanisms of language acquisition and productivity of meaning-based units. Finally, the model can accommodate the complexity concept of emergent patterns at community level, which allow new insight into how L2 chunks may be constructed. Although some previous studies of L2 chunks do take a usage-based perspective (Gustafsson & Verspoor, 2017; Smiskova et al, 2012; Yuldashev, Fernandez & Thorne, 2013), the exact place of L2 phraseological chunks in usage-based models needs to be specified in more detail to be truly useful for their study (Wray, 2012). This paper offers a step in that direction.

The paper is organized as follows. Section 2 (Theoretical framework) anchors L2 phraseological chunks as complex form-meaning mappings in the cognitive usage-based model of language representation, acquisition, and productivity. Section 3 (The study) presents an exploratory study of two task-elicited complex form-meaning mappings in a community of L2 learners of English. Section 4 (Findings) presents the findings of the study and Section 5 (Discussion) discusses the findings in relation to the research question addressed in the study. Section 6 (Conclusions) then considers the implications of the study for our understanding of the possible impeding factors in L2 learners' use of L2 phraseological chunks.

2   Theoretical framework

2.1   L2 phraseological chunks from a cognitive usage-based perspective

Cognitive usage-based approaches see language as a structured inventory of conventional **form-meaning mappings**, also referred to as symbolic units or constructions, ranging from simple to complex, from concrete to abstract, and from highly idiomatic to semantically compositional (Langacker, 1987, p. 35). Each form-meaning mapping has one pole representing the phonological / orthographic structure (the **form)** and one pole representing the semantic / conceptual structure (the **meaning)**, including conventional construal (Croft, 2015; Langacker, 2008b, p. 55; 1987, p. 35). Complex form-meaning mappings are higher-level assemblies of simpler form-meaning mappings and can be partially or fully schematic, with slots in one or more positions (as in *send me a package*; *send* NP NP; V NP NP; Langacker, 2000, p. 33). These relationships are clearly illustrated by Dabrowska (2014, p. 619) in a diagram of the concrete unit *I like it,* where the semantic and the phonological poles of the unit are represented as coherent wholes (such as the abstract transitive construction underlying the whole phrase) while comprising the individual semantic and phonological structures of their constituent units (such as *I, like, it*; HUMAN *like* THING; THING PROCESS THING). This subtle structuring of the inventory is the result of developmental schematization or entrenchment processes.

Within this model of language representation, L2 phraseological chunks can therefore be seen as complex form-meaning mappings, whose form and meaning - including construal - are conventional in the target L2. This has important implications for how L2 phraseological chunks may be treated by L2 learners. Firstly, we could assume that L2 chunks of all sizes, complexity, degrees of semantic compositionality,

with or without schematic slots are learned and used as whole units, in terms of both

form and semantics; in other words, as target-like[2] L2 word combinations expressing

target-like L2 notions. Secondly, we could assume that L2 chunks that are

syntactically regular and have a high degree of semantic compositionality - and thus

may appear as arbitrary word combinations (*give * to charity*)[3] - will only permit

creativity within their schematic slots (*give money to charity; give more to charity;*

give generously to charity). Finally, and most importantly, we could assume that the

acquisition of L2 chunks will be subject to developmental schematization or

entrenchment mechanisms, which will equip L2 learners with target-like constructions

and result in target-like L2 chunk use.

2.2   The acquisition of L2 phraseological chunks from a cognitive usage-based perspective

In general, the acquisition of form-meaning mappings is assumed to follow an

exemplar-based path of schematization or entrenchment (note that the term **exemplar[4]**

here refers to target linguistic material in the target L2, as in Ellis, 2014). The process

is facilitated by the same cognitive mechanisms as involved in the learning of any

categories, schemata and prototypes, which have been attested in both L1 and L2

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[2] As in other usage-based L2 studies (e.g., Eskildsen, 2012) the term **target-like** is used here as a reference point, not as a distinction between native and non-native speakers.

[3] The asterisk sign is used here as a placeholder since this slot can take different types of fillers. This choice follows the conventions of the WebCorp Linguist's Search Engine (Renouf, Kehoe & Banerjee, 2007), a web-based corpus tool used in this study, where the asterisk serves as a wildcard (a placeholder for different fillers) in search strings.

[4] Different strands of usage-based SLA use the term **exemplar** differently, which then bears on the understanding of **exemplar-based** path.

learners (see Ellis, 2014, for a detailed overview of L1 and L2 studies). Initially, complex form-meaning mappings are established as whole units consisting of the notion and the corresponding chunk, which is the most frequent and prototypical lexically specific exemplar for that notion in the target L2. Such expressions are considered to be path-breaking exemplars in language acquisition; and in the case of complex form-meaning mappings, this applies to all structural levels of the expression (all constructional islands, such as *put* in VOL). For instance, Ellis & Ferreira-Junior (2009a) found that when learning abstract verb-argument constructions (the caused motion VOL construction, V Obj Obl$_{path/loc}$, and the caused-possession VOO construction, V Obj Obj2), naturalistic adult L2 learners first acquire the most frequent and prototypical lexically specific exemplar in the L2 with path-breaking verbs in the constructional islands (*put* in the VOL and *give* in the VOO).

The initial exemplar then becomes entrenched as a lexically specific unit or becomes schematic to some degree. These processes are in a large part driven by type and token frequencies: type frequency plays a role in schematization of the unit (great deal of variation in individual constructional islands gradually leads to the creation of a slot), while token frequency (frequency of occurrence of the whole unit) leads to the entrenchment of the unit in its full specificity. Ellis and Ferreira-Junior (2009b) present a helpful schematic for how a schematic caused-motion construction is gradually abstracted from frequently encountered exemplars, starting with the prototypical, path-breaking exemplar (*put it on the table -> put it L -> V it L -> VOL*). Moreover, they show that the specific occupants of the individual constructional islands (such as the generic verb *put*) optimize the learning of the VAC in terms of frequency distribution, prototypicality of meaning, and contingency of form-function

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mapping. As a result of this acquisition path, the initial lexically specific exemplar

(*put it on the table*) may be stored alongside more or less schematic structures (*put it*

L; *V it L*), including a fully generalized abstract schema (VOL). All of these related

constructions are then available for use as part of the structured language inventory,

and their shape bears evidence of the developmental schematization or entrenchment

processes.

However, these generic learning mechanisms and the resulting L2

constructions L2 learners have available for use are influenced by a range of factors,

including already entrenched L1 constructions (Ellis & Cadierno, 2009; Tyler 2012;

Odlin 2008; Lowie & Verspoor 2004; Slobin 1996). Recent usage-based longitudinal

case studies of L2 English grammatical structures (such as *yes/no-* and WH-

interrogatives, *do*-negation, auxiliary *do* and *can* constructions) have found that

although the general learning trajectory was in principle exemplar-based and moving

towards schematicity, it showed characteristics of learner-specific language and did

not strictly follow the proposed usage-based acquisition path (Eskildsen, 2009). The

increasingly more schematic slots in the focal grammatical structures were not always

semantically defined: for instance, Eskildsen (2014) identified a *for REF* schema that

sanctioned expressions such as *two days for week* and *he need a help for the write;* and

a schematic representation Y *is* X that also sanctioned a lexically specific expression

your from is Mexico? (Eskildsen, 2015). Most importantly, these case studies tended

to conclude that the initial basis for the acquisition of the selected grammatical

structures were non-target-like exemplars recurrent in a learner's linguistic inventory

(for instance, Li, Eskildsen & Cadierno, 2014, identified *go the* as the starting point for

the learning of *go* and *come* constructions), rather than target-like exemplars frequent in the target L2.

In theory, therefore, the cognitive usage-based model suggests that in order to have target-like L2 phraseological chunks available in their linguistic inventory, L2 learners should ideally acquire them as whole complex form-meaning mappings with the help of an initial target-like L2 exemplar that becomes entrenched or schematized (using generic cognitive mechanisms and utilizing type- and token frequencies of target-like forms); and when expressing the notion underlying the chunk, they should use lexically specific or (partially) schematic constructions derived from the initial target-like L2 exemplar. L2 learners' use of such constructions will then be visible when they express the notion underlying the chunk; that is, in their linguistic productivity.
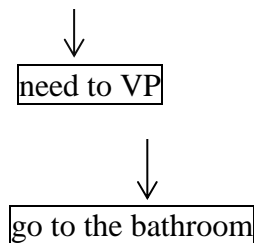
2.3   L2 phraseological chunks and linguistic productivity from a cognitive usage-based perspective

Cognitive usage-based accounts of linguistic productivity reflect the structured nature of the language inventory, which in itself is the result of the schematization or entrenchment processes. When producing utterances, language users select a construction of the degree of specification that is needed and insert previously encountered lexically specific units (words or phrases) into its schematic slots. This is generally referred to as cut-and-paste mechanisms (Tomasello, 2000, p. 74); technically, it is the superimposition of a (partially) schematic frame and specific filler, or of two partially schematic units (Dabrowska & Lieven, 2005). Such processes involve categorization, schematization, and elaboration - generic and mutually

interrelated mechanisms that are central to many aspects of human cognition

(Langacker, 2008b).

Since complex utterances consist of nested constructions (Ellis, 2014) the

productive cutting and pasting may take place at various structural levels of the

utterance. Dabrowska (2012) illustrated this by the attested example below, showing

how two fillers (one partially schematic and one fully specific) were used for the two

verb phrase slots:

You don't VP, do you?

$$\downarrow$$

$$\boxed{\text{need to VP}}$$

$$\downarrow$$

$$\boxed{\text{go to the bathroom}}$$

The observed effect of such cutting and pasting is that the constituent units within a

complex utterance elaborate different parts of each other according to their varying

schematicity or specificity (Dabrowska & Lieven, 2005). Langacker (2008b) points

out that this multi-level patterning is a pervasive characteristic of language: "schemas

and elaborative relationships are essential in every aspect of language structure" (pp.

170, 56-57). Complex utterances can therefore be analyzed for traces of productive

processes at different structural and schematic levels. Such traces have been found for

L1 users, both children and adults: Dabrowska and Lieven (2005) show that about

90% of children's utterances can be accounted for by the simple cutting and pasting of

previously encountered lexical material into slot-frames; Dabrowska (2014) shows the same recycling effects in adult L1 users.

The same generic productive processes and their traces can also be expected in L2 users, albeit not quite with the same result as in L1 users. What is pasted (lexically specific material) and where (more or less schematic constructions) will be influenced by the availability of the relevant schematic and specific L2 constructions in L2 learners' inventory, and by already entrenched L1 constructions. Some indications along these lines were found in a usage-based study of early syntactic creativity in an L2 learner of English (Eskildsen, 2014), where a traceback cut-and-paste analysis became more tentative with increasing complexity of learner utterances. L2 learners' non-target-like use of L2 phraseological chunks can be interpreted as a similar indication of L2-specific cut-and-paste processes. When expressing a certain notion, L2 learners often combine words in non-target-like ways; and while the resultant learner expressions may be in line with traditional grammar and lexicon, as a whole they do not match the phraseological chunks conventionally used to express the notion in the target L2. This effect was particularly salient in a study of learner expressions for the contextualized notion of BECOMING AN ADULT (Smiskova et al, 2012), where the learner expression *when I am a grown up adult* showed zero occurrence in all consulted reference corpora and was consistently rated by native speakers of different varieties of English as a very awkward way of expressing that notion in that context; as opposed to *when I grow up,* which had the highest corpus occurrence and was consistently rated as very natural.

In sum, the cognitive usage-based lens on linguistic productivity helps capture the schematic and lexically specific L2 (and potentially also L1) constructions an L2

learner is using to express an L2 notion, and how these constructions are used in

relation to each other in cut-and-paste productive processes. When the same L2 notion

is expressed by a number of L2 learners with the same L1 background, we will very

likely see linguistic patterning in that learner community.

2.4   L2 phraseological chunks and emergent patterns of use

Within the cognitive usage-based model, linguistic patterning is best understood from

a complexity theory perspective (Dabrowska, 2014) where language is viewed as a

complex system (Beckner et al, 2009; De Bot et al, 2007; Larsen-Freeman, &

Cameron, 2008). Patterns observable in complex systems are **emergent** (Hopper,

1998), meaning they are the **sedimented by-products** of the same repeatedly

occurring processes; and they tend to be nested as larger patterns contain smaller

patterns in scale-free and self-resembling structures. The exact shape of emergent

patterns is therefore an important source of information about the recurring processes

that have produced the patterns (de Bot & Larsen-Freeman, 2011). From a complexity

theory perspective, patterns in language are emergent in the sense that they arise when

a community of language users produce similar utterances. Emergent patterns in

language therefore represent **central tendencies** in language use at a community level

(Dabrowska, 2014).

This perspective is a very useful addition to the cognitive usage-based model

as it offers a novel analytical approach (Smiskova-Gustafsson, 2013). Firstly, the

concept of emergent patterns[5] is in line with the characteristic multi-level, nested structuring of language (Ellis, 2014; Langacker, 2008b; Dabrowska & Lieven, 2005; Hoey, 2005; Hopper, 1998), which is the result – or, the by-product - of productive cut-and-paste mechanisms utilizing various degrees of schematicity. Emergent patterns at community level are therefore the accumulated traces of productive mechanisms employed by individual language users; and they are composed of nested constructions at different schematic levels. When analyzed at different schematic levels (that is, community level patterning at different levels of schematicity), emergent patterns at community level can capture central tendencies in construction use. Emergent patterns as central tendencies in construction use then offer unique insight into how L2 complex form-meaning mappings may be constructed. For instance, they can provide indications that L2 notions were established as whole L2 complex form-meaning mappings based on a target-like L2 exemplar that became entrenched or schematized. And since L2 phraseological chunks are defined here as L2 complex form-meaning mappings – essentially target-like L2 word combinations expressing target-like L2 notions – this analytical approach may help reveal impeding factors in their target-like use by L2 learners.

3 The study

Based on the proposed theoretical framework, the aim of this exploratory study is to find indications that two selected notions were established as whole complex form-

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[5] **Emergent patterns** are understood here as linguistic patterning arising from commonalities in language use at a community level. Longitudinal usage-based research understands emergence as the appearance of patterns over time in developmental trajectories of individual language users.

meaning mappings based on a target-like L2 English exemplar that became entrenched or schematized. Emergent patterns of use, which represent central tendencies in a community of L2 learners, are analyzed for these indications. The emergent patterns are interpreted as the sedimented by-products in a process where a number of L2 learners are expressing the same notions. The emergent patterns are essentially traces of productive mechanisms and constructions at different levels of schematicity used in order to express the selected notions. As both L1 and L2 constructions can potentially play a role in productive mechanisms, the study employs both L1 and L2 reference expressions for the selected notions.

3.1 Research question

Do the central tendencies in construction use indicate that two selected notions were initially established as whole complex form-meaning mappings based on a target-like L2 exemplar?

3.2 Participants and data collection

The study was part of the OTTO project (Verspoor et al., 2010), a large-scale investigation into the effectiveness of Dutch bilingual secondary education, which collected various types of data from seven different secondary schools in the Netherlands (the project was carried out at the Department of Applied Linguistics at the University of Groningen between 2007 and 2010; it was funded by the Dutch Ministry of Education, Culture and Science, the European Platform, and the Network of TTO Schools in the Netherlands). The data selected for this study consisted of short texts (max. 200 words) written by 167 Dutch learners of English, aged around 13, both

male and female, with a similarly high scholastic aptitude (determined by the Dutch CITO test, taken by most children around age 11). The texts were elicited through a writing task phrased as follows: "*Pretend you have just won 1000 euros. Write a short text (approx.150 words) about what you would do with the money.*" The learners were asked to type the texts in class using an electronic application (ISEK, developed at the University of Groningen for educational purposes). There was no time limit but most learners completed the task within 15 minutes.

3.3   Data analysis

3.3.1 Extracting learner expressions

The writing task proved useful in eliciting a number of common notions spontaneously expressed by the majority of learners in that community. The most frequently expressed notions were two actions: DEPOSITING MONEY and DONATING MONEY. All learner expressions referring to the notions were extracted manually (see example text below).

> *Everybody wants to win money, some so you could buy a new car, some for going on holiday. But what I want is rather boring. I think I would <u>put the half of my money on a bank.</u> <u>The other half I would spend on charity</u> I think,100 euro's for Unicef and maby 100 euro's for testanimails. I think that you just can't kill animails for make-up. But I would also go shopping in Amstedam.*
>
> Notion 1: <u>DEPOSITING MONEY</u>
>
> Notion 2: <u>DONATING MONEY</u>

3.3.2 Establishing L2 English reference expressions

The extracted learner expressions for each concept were first analyzed in terms of elaborative relationships – that is, mutual specificity and schematicity (Langacker,

2008b, p. 55-56) in order to select the most generic and prototypical expressions. Next, WebCorp Linguist's Search Engine (Renouf, Kehoe, & Banerjee, 2007) was consulted to establish which of the selected expressions are the most frequent; both type and token frequency was recorded.

For the notion of DEPOSITING MONEY, the slot-frame *put NP in the bank* was singled out as the most frequent, generic, and prototypical expression. WebCorp has retrieved 23 tokens with 16 different variants in the NP slot (i.e., the token frequency is 23, the type frequency is 16), where the most frequent lexically specific exemplars are the phrases *put it in the bank* and *put money in the bank*. The phrases and slot-frames are instantiations of the Verb Object Locative construction (VOL: V Obj Obl$_{path/loc}$) encoding caused motion.

For the notion of DONATING MONEY, the slot-frame *give * to charity* was singled out as the most frequent, generic, and prototypical expression. WebCorp has retrieved 80 tokens of the slot-frame, with 39 slot variants (including not only NPs such as *charity*, but also AdvPs, such as *generously*). The most frequent lexically specific exemplars are the phrases *give the money to charity* and *give it to charity*. The phrases and slot-frames are instantiations of the *to*-dative construction encoding caused possession.

3.3.3 Establishing L1 Dutch reference expressions

Dutch equivalents of the learner expressions were established as a reference for the corresponding L1 form-meaning mappings (see Table 1). A group of five Dutch high

school teachers of English[6] were asked to read the learner texts and give the Dutch

equivalent for each learner expression referring to the two selected notions (the

expressions were highlighted). The equivalents provided were both fixed phrases in

the infinitive form as well as expressions in the first person singular, closely following

the learners' L2 English expressions that were also in the first person. Both forms

were used as L1 reference, since in some cases Dutch requires a different word order

than English.

Table 1. Dutch reference expressions for the two notions.

DEPOSITING MONEY	
fixed phrase	1st person singular
op de bank zetten	*zet NP op de bank*
on the bank put$_{INF}$	put NP on the bank
op de bank doen	*doe NP op de bank*
on the bank do$_{INF}$	do NP on the bank
op de bank sparen	*spaar NP op de bank*
on the bank save$_{INF}$	save NP on the bank
op de bank storten	*stort NP op de bank*
on the bank deposit$_{INF}$	deposit NP on the bank
DONATING MONEY	
fixed phrase	1st person singular
geld aan een goed doel geven	*geef NP aan een goed doel*
money on a good purpose give$_{INF}$	give$_{1st\ SING}$ NP on a good cause / purpose
geld aan goede doelen geven	*geef NP aan goede doelen*
money on good purposes give$_{INF}$	give$_{1st\ SING}$ NP on good causes / purposes

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[6] The reference group was selected for (a) unique insight into L2 English produced by the target learner group; (b) high linguistic awareness (knowledge of formal grammar as well as of practical usage), both in L1 Dutch and in L2 English; (c) Dutch as an L1. All three aspects were crucial for the task of establishing L1 Dutch equivalents in this particular data (notions spontaneously expressed in running text on a given topic).

3.3.4 Analysing learner expressions for emergent patterns

The extracted learner expressions for each notion were then analyzed for common features at different structural levels (from word- to phrase level) and different degrees of schematicity (from lexically specific expressions to abstract schemata). Such commonalities would then be observed as emergent patterns within the group of learner expressions for each notion.

4   Findings

Emergent patterns of use were found across the extracted learner expressions for each notion, occurring at various structural levels and various degrees of schematicity. This means that most of the patterns are nested: for example, an emergent pattern in the use of verbs (e.g., *put*) may also be part of an emergent V PREP pattern (e.g., *put on*), which in turn may be part of an emergent slot-frame (e.g., *put NP on the bank*). Moreover, any one of these units may also be used in combination with various other units, that is, not as part of an emergent pattern. For example, the verb *put* also occurs in other combinations, such as *put into;* and *put on* may be followed by other objects such as *bank account.* There is a degree of individual variation, which may pertain to one or more of aspects described above. Finally, the structural levels and the degrees of schematicity at which the patterns can be observed are similar in both notions. Therefore, the emergent patterns will be presented from the lowest and most specific level (e.g., verbs) to the highest and most schematic (e.g., abstract verb-argument constructions) simultaneously for both notions.

For a quick reference, Tables 2 and 3 in this section give an overview of all emergent patterns for each of the two notions. Full lists of complete learner expressions for the notions of DEPOSITING MONEY (N=48) and DONATING MONEY (N=96) are presented in Tables 1 and 2 in Appendix.

(INSERT TABLES 2 AND 3)

4.1 Verbs

Firstly, for both notions, there are emergent patterns in the use of verbs. About half of all learner expressions for DEPOSITING MONEY contain the verb *put* (46%); and the majority of learner expressions for DONATING MONEY contain the verb *give* (85%). About half of the expressions for DEPOSITING MONEY contain a range of other verbs (*set, do, store, save*).

4.2 V PREP chunks

Another emergent pattern across the learner expressions for both notions are verb+preposition (V PREP) chunks. For DEPOSITING MONEY the most frequent emergent pattern is V *on,* accounting for 63% of all V PREP chunks. For DONATING MONEY, *give to* is the most frequent accounting for approx. 80% of all V PREP chunks.

4.3 Object

For both notions, there are emergent patterns in the object position. In DEPOSITING MONEY, by far the most frequent object is DET *bank* (75%). In DONATING MONEY, about a half (45.8%) of all expressions in the indirect object position are various noun phrases of differing length, complexity, and specificity that elaborate each other in

different ways and to different degrees (e.g. *charity -> the needy -> poor kids in Africa*); followed by the second most frequent *charity* (19.8%).

4.4 Slot-frames

Apart from a few individual cases, most learner expressions for both notions can be grouped into more or less schematic slot-frames.

For DEPOSITING MONEY there are 7 emergent slot-frames. The most frequent is *put* NP *on* DET *bank* (25% of all expressions), followed by three other slot-frames *save* NP *on* DET *bank*, *set* NP *on* DET *bank* and *do* NP *on* DET *bank*. At the most schematic level, 56.3% of all expressions follow the generic slot-frame V NP *on* NP.

For DONATING MONEY there are 6 emergent slot-frames. The most frequent is the general schema *give* NP *to* NP (37% of all expressions) which contains a range of more or less generic/specific NPs which elaborate the notion of people in need in different ways and to different degrees. The other emergent slot-frames are more lexically specific. The prototypical slot-frame *give* NP *to charity* is the second most frequent emergent slot-frame across the learner expressions.

4.5 Abstract schematic constructions

Finally, for both notions there is also an emergent pattern at the most abstract schematic level as most learner expressions for both concepts follow L2 English verb-argument constructions: 81% of all expressions for DEPOSITING MONEY follow the caused-motion VOL construction and 87.5% of all expressions for DONATING MONEY follow the caused-possession *to*-dative construction.

5   Discussion

Taking a cognitive usage-based perspective, we could assume that the two notions are initially established as whole complex form-meaning mappings, based on the most frequent and prototypical exemplar in the target L2, which will gradually undergo schematization or entrenchment as a lexically specific unit, depending on its type and token frequency. We could also assume that, as a result of this process, for each notion L2 learners will have available a target-like L2 construction, derived from the initial exemplar, of a greater or lesser degree of specificity - from a fixed phrase, a frame with slots, to an abstract schematic construction; one or all of these. We could expect to see the availability of such constructions when learners express the notion in the L2, either using the unit as a lexically specific whole or select the degree of schematization needed (abstract schematic construction or a slot-frame) and paste previously encountered lexically specific L2 material (words and phrases). The emergent patterns of use across the learner expressions yield three main interrelated indications that the two complex form-meaning mappings were not established on the basis of the most frequent and prototypical exemplar in the target L2. Each of the following sections focuses on one of the indications.

5.1   Low occurrence of prototypical exemplars

The first such indication concerns the rather low occurrence of the most frequent, generic and prototypical L2 English exemplars for each notion, either in their full lexical specificity or partial schematicity (as slot-frames) in the learner data. Since the learners' written production provides a snapshot of their linguistic development, we

can assume that it also provides a snapshot of the prototypical exemplars in their developmental stages. So we might expect that if the learners attempt to express the notion of DEPOSITING MONEY, they will use the frequent phrases *put it in the bank, put money in the bank*, or the slot-frame *put NP in the bank.* For DONATING MONEY we might expect the specific phrases *give the money to charity, give it to charity,* or the slot-frame *give * to charity.* However, the findings show that out of the 48 learner expressions referring to DEPOSITING MONEY only 4% follow the prototypical reference expressions (two expressions match the slot-frame *put NP in the bank*). Out of the 96 learner expressions referring to DONATING MONEY, about 16% in some way follow the prototype (15 expressions match the slot-frame *give * to charity,* out of which three match the frequent fixed phrase *give it to charity* and one matches the frequent fixed phrase *give the money to charity*).

5.2   Partial form-meaning mappings

The second indication concerns the partial form-meaning mappings constructed for the two notions. The emergent patterns show that 81% of the extracted learner expressions for DEPOSITING MONEY follow the basic structure of the abstract caused-motion VOL construction; similarly, 87.5% of the extracted learner expressions DONATING MONEY follow the basic structure of the caused-possession dative construction. So we could conclude that at the highest level of schematization learners are directly operating with the two abstract constructions. However, based on the emergent patterns of use, this does not seem to be the general tendency. Emergent patterns observed in the individual constructional islands of the two abstract constructions also include expressions which are true make-do solutions (such as *go settingh it op the bank*), as

well as expressions that have a reversed verb-argument structure. See for instance the

reversed VOL in DEPOSITING MONEY, where the learner expression does not follow the

exact structure of the L2 English VOL, nor the exact L1 Dutch word order. Rather,

there is an underlying Dutch OVL verb-argument structure filled with L2 English

phrases:

(1)   a. learner expression *the rest of the money I would bring to the bank*
                              O   V   L

       b. L1 Dutch   *de rest van het geld zou ik naar de bank brengen*
                              the rest of the money would I to the bank bring$_{INF}$

Taken together, the emergent patterns seem to suggest that rather than operating with

the abstract schematic constructions directly, learners work with the constituent

meaning units of the notions. In the notion of DEPOSITING MONEY there are three basic

meaning units: PROCESS (transfer), THING (money) and LOCATION (the bank); similarly,

in the notion of DONATING MONEY, there are again three basic meaning units: PROCESS

(transfer), THING (money), RECEIVER (charity, person or entity). The findings show a

variety of solutions for each meaning unit - but since the learners are similarly affected

by their entrenched L1 constructions and by the general frequency of L2 forms, they

construct similar solutions for the same meaning units. The common form and

structure of their solutions then give rise to the observed emergent patterns at different

structural and schematic levels of the expressions.

5.2.1. DEPOSITING MONEY

About a half of the learner expressions for DEPOSITING MONEY contain the verb *put*

(45.8%); the rest of the expressions for the same notion contain verbs which are

semantically or formally influenced by L1 Dutch (*set, do, save* show semantic

influence from L1 Dutch verbs *zet/zetten, doe/doen, spaar/sparen,* while *store* and

spare show a formal similarity to *storten* and *sparen*). The preference for the English

put - despite the range of specific Dutch verbs available for the notion which have a

direct translation equivalent in English - is likely the result of its frequency and

prototypicality in the caused-motion VOL construction (*put* is the most frequent,

generic and prototypical verb to express caused motion).

Most of the verbs then combine with the preposition *on*, which gives rise to an

emergent V PREP pattern V *on*. So the meaning unit PROCESS is most often expressed

by some variation on the pattern V *on*, which corresponds to the L1 Dutch V *op*. The

most frequent expression for LOCATION is DET *bank*, which together with expressions

for PROCESS gives rise to an emergent slot-frame *put* NP *on* DET *bank,* which occurs

in 25% of all learner expressions and which directly corresponds to L1 Dutch *zet* NP

op de bank. There are three other emergent slot-frames (*save* NP *on* DET *bank*, *set* NP

on DET *bank* and *do* NP *on* DET *bank*) which also show clear L1 Dutch influence.

When we generalize over these emergent slot-frames we get the more abstract slot-

frame V NP *on* DET *bank* which accounts for 45.84% of all learner expressions and is

a semantic equivalent of the abstract L1 Dutch slot-frame V NP *op* DET *bank*.

At the most abstract level there is an emergent schema V NP *on* NP

sanctioning 56.3% of all learner expressions for the notion of DEPOSITING MONEY. An

equivalent schema V NP *op* NP sanctions all L1 Dutch reference expressions in the

first person singular form. Clearly, the learners' solutions for the meaning units in the

notion of DEPOSITING MONEY are strongly influenced by entrenched L1 Dutch

constructions.

5.2.2. DONATING MONEY

The PROCESS meaning unit in DONATING MONEY is expressed by the verb *give* in the majority of expressions (82%). This is likely a function of the frequency and prototypicality of the verb in the English caused-possession dative construction: *give*-type verbs are the prototypical dative verbs as they lexicalize caused possession and their meaning corresponds to what is encoded by the caused possession schema (Levin, 2008: 5). Moreover, 77% of all expressions contain the target V PREP combination *give to*, most likely as a result of its frequent occurrence as a fixed chunk in L2 English (the L1 Dutch *geef aan / geven aan* is not a direct semantic equivalent).

For the meaning unit RECEIVER about a half of all expressions have various noun phrases (46%) of different lengths and complexity, which more or less accurately elaborate the notion of charity; the target *charity* (20%) is the second most frequent. The emergent slot-frames for DONATING MONEY are the frequent and prototypical low-level schema *give* NP *to* NP (38%) and target prototypical slot-frame *give* NP *to charity* (16%). It seems therefore that the solutions for the meaning units in the notion of DONATING MONEY are strongly influenced by the frequency of L2 forms.

5.3 L2-specific productive mechanisms

The third indication concerns the L2-specific productive mechanisms involved in the construction - or rather, the assembly - of the two complex form-meaning mappings. The findings discussed in the previous sections indicate that the productive mechanisms employed by the learners involve (1) breaking the notions down into their constituent meaning units, (2) constructing a linguistic solution for each meaning unit, thus creating constituent form-meaning mappings, and (3) pasting the linguistic solutions in the correct slots of an abstract L1 or L2 verb-argument construction in order to assemble the whole expression. The choice of schematic constructions to be

filled and of the lexically specific fillers for the constituent meaning units show strong influence of frequency and prototypicality of lexically specific L2 English constructions as well as of entrenched L1 constructions. Moreover, these two effects interact in various ways, so the resulting expression for the whole notion may give an impression of a "make-do solution" (Larsen-Freeman 2013, p. 104). These interactions are clearly visible in the learner expressions for DONATING MONEY, where one part of the expression may be target-like while the other part may show strong L1 influence (e.g., *give money on a good doel*), as well as in some of the noun phrases used for the RECEIVER meaning unit (*a foundation before war childs*). As a result, some learner expressions for the whole notions are more advanced than others in terms of how well they approximate L2 English target forms. Some expressions are entirely target-like (*give NP to charity, put NP in the bank*), some show a clear L1 influence (*give NP on a good doel; give NP good purpose; put NP on the bank*) but some are true make-do solutions, in that they are assembled from available L2 resources and L1 constructions (*put NP by charity, go settingh it op de bank,* etc.). In this sense the learner expressions form a continuum of target-likeness: at one end there are expressions with a strong L1 Dutch influence, while at the other are target-like L2 English forms.

The continua are particularly noticeable in the individual meaning units. For DEPOSITING MONEY, there is a continuum in the PROCESS meaning unit (Figure 1), as different learners are drawing on their L1 constructions for the process of depositing money.
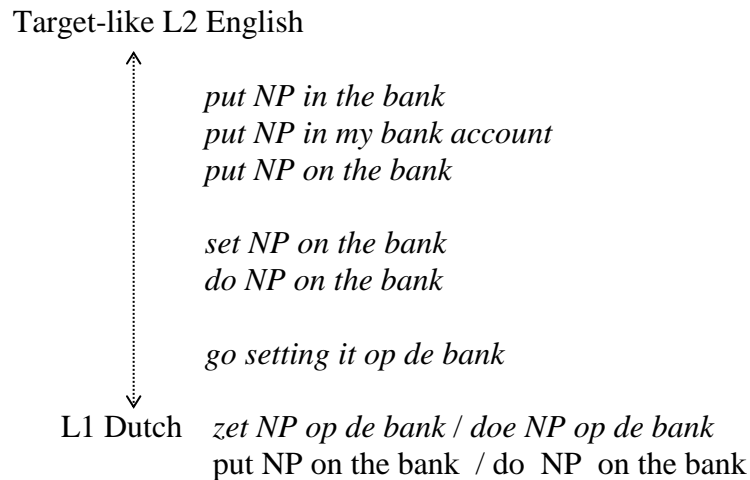
Target-like L2 English

put NP in the bank
put NP in my bank account
put NP on the bank

set NP on the bank
do NP on the bank

go setting it op de bank

L1 Dutch   *zet NP op de bank / doe NP op de bank*
            put NP on the bank / do NP on the bank

Figure 1. L1 Dutch / L2 English continuum of learner expressions for the notion of DEPOSITING MONEY.

For DONATING MONEY, there is a continuum in the RECEIVER / CHARITY meaning unit, as different learners are drawing on their L1 constructions for the notion of charity. The impression of a continuum is further strengthened by a high degree of elaboration (Figure 2).

Target-like L2 English

give NP to charity
give NP to a good cause

give NP to good organizations like: ZOA or an organization that give help to poor countries
give NP to a good incorpation that makespoor child go to school and kind of that thing
give NP to good organisations
give NP on a good purpose
give NP to a good thing
give NP on a good doel

L1 Dutch   *geef geld aan een goed doel*
            give$_{1st\ SING}$ money on a good purpose

Figure 2. L1 Dutch / L2 English continuum of learner expressions for the meaning unit of RECEIVER.

6   Conclusions

The primary aim of this paper was to contribute to the understanding of impeding factors in L2 learners' use of L2 phraseological chunks from a cognitive usage-based perspective, where they can be conceptualized as complex form-meaning mappings subject to developmental schematization/entrenchment and productive cut-and-paste processes. The study has indeed produced useful insights, particularly for chunks types that are syntactically regular and have a high degree of semantic compositionality.

Firstly, L2 learners may not be using L2 phraseological chunks as whole complex form-meaning mappings, in terms of both form and semantics (as target-like L2 word combinations expressing target-like L2 notions). In expressing a notion for which there is a target-like L2 chunk L2 learners may be using L2-specific productive mechanisms influenced by complex interactions of entrenched L1- and available L2 constructions at various structural and schematic levels. Rather than using the slots in schematic constructions mapping onto the notion of the whole complex-form-meaning mapping (DONATING MONEY), they may be splitting the notion into partial form-meaning mappings (PROCESS, THING, RECEIVER) and finding linguistic solutions for each of those (*give* NP *on a good doel*). As a result – and contrary to the cognitive usage-based expectations - L2 learners may be creative outside of the chunks' schematic slots. For instance, L2 chunks that are syntactically regular and have a high degree of semantic compositionality will only permit creativity within their schematic slots (such as in *give* NP *to charity*); however, L2 learners may be creative at the level

of partial form-meaning mappings (PROCESS, THING, RECEIVER) and use all their existing L1 and L2 resources to do so (*give* NP *on a good doel*).

Secondly, learners may be using elaboration too extensively. As the learner expressions show, the notions can be expressed generically or elaborated to some degree. Although a higher degree of elaboration may in principle be seen as creative and perhaps more informative, it seems to interfere with target-like use of L2 phraseological chunks (compare *give* NP *to charity* and *give* NP *to good organisations like: ZOA or an organisation that give help to poor countries*). This finding resonates with Wray's (2002, p. 206) observation that L2 learners have "too much choice" when expressing a notion for which there is a target-like L2 chunk. This is particularly relevant for syntactically regular chunks with a high degree of semantic compositionality, which to L2 learners may give the impression of arbitrary word combinations. However, target-likeness - or, conventionalization - is a matter of degree: while one way of phrasing a certain notion is most frequently used, there may be several conventional expressions for the same notion (*give * to charity; give * to a good cause*), or, for what may for all practical purposes be considered the same notion, albeit with some degree of elaboration (*put NP in the bank; put NP in the bank account*). The exact relevance of these aspects in relation to target-like use of L2 chunks will very much depend on one's specific research, teaching, and assessment purposes.

Most crucially, however, the findings suggest that L2 phraseological chunks may not be acquired following the cognitive usage-based path of schematization or entrenchment starting with a target-like L2 exemplar - a process which would theoretically result in the desired target-like L2 use. Initially, L2 phraseological chunks

may not be learnt as whole form-meaning mappings conventionalized in the L2, that is, the chunk together with its underlying notion, including L2 construal. Consequently, there may not be a target-like developmental path as there is a lack of a target-like initial L2 exemplar for the whole notion that could gradually become entrenched as a whole unit or partially schematized. It follows that the target-like L2 constructions that could be expected to result from the developmental path are also missing. As a result, L2 learners may not be equipped with the same constructions in the target L2 as its L1 users; and when expressing the relevant notion, L2 learners may be less successful in using the target L2 phraseological chunk.

These conclusions are only tentative as the analytical approach is novel, which presents both challenges to the present study and opportunities for further research. Firstly, emergent patterns represent central tendencies in language use within a community of L2 learners at a certain point in time (Dabrowska, 2014; 2015), and the exact unfolding of the developmental path of complex form-meaning mappings would be more suitably addressed in longitudinal studies in individual learners. However, central tendencies are valuable as they capture regularities at community level that may not be easily captured in the language of an individual learner (for instance, as this study shows, cross-sectional analysis of emergent patterns can capture L1 influence at different levels of schematicity of a selected complex form-meaning mapping). Emergent patterns thus serve to magnify prototypical mechanisms of language use within a learner community and help formulate questions that can be investigated in case studies of individual learners. For instance, the cross-sectional analysis of emergent patterns captured L1 influence at the most schematic level of a selected complex form-meaning mapping (more than half of learner expressions for

the notion of DEPOSITING MONEY follow the abstract schema V NP *on* NP in L2 English, which corresponds to the L1 Dutch schema V NP *op* NP for the same notion). Follow-up case studies of complex form-meaning mappings could then investigate whether L1 influence observed in lexically specific units (*op* → *on*) in fact originates at the most schematic levels. Secondly, future studies of L2 complex form-meaning mappings inspired by the present approach should ideally be of a larger scale, and should use more extensive reference data when establishing L1 equivalents and L2 conventions (such as texts on the same topic by the same learners in Dutch and texts on the same topic by L1 English users matched for age). Finally, for all these research avenues there is a data collection challenge that will need to be tackled first: the elicitation of learner expressions for notions used in their natural textual environment without influencing the learners' word choice in the process.

To conclude, this paper provides further evidence that L2 learning makes use of the same generic learning mechanisms as L1 learning does (such as categorization, schematization and elaboration, Ellis, 2014; Langacker, 2008b) and that it is strongly influenced by L2-specific effects, particularly in classroom-instructed L2 learners (Eskildsen, 2015; Ellis & Cadierno, 2009). If L2 phraseological chunks are re-conceptualized as complex form-meaning mappings conventional in the target L2, perhaps the most valuable insight is that L2 learners approach their learning with already entrenched L1 complex form-meaning mappings. As a result, L2 phraseological chunks may not be initially established as whole complex form-meaning mappings based on a target-like L2 exemplar. As a starting point for further and diverse research on L2 chunks from a cognitive usage-based perspective, these

insights may bring us closer to understanding why "learners do not feel more

empowered to harvest L2 input in larger chunks" (Wray, 2012, p. 236).

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Appendix

Table 1. Extracted learner expressions for DEPOSITING MONEY.

go settingh it op the bank
do it on the bank
do money on the bank
put it on my giro
spare it on my bankvault
develop an account with an own name
put everything on the bank
go to the bank and put 800 euros on it
poot my mony on the bank
put 500 euro on the bank for later
With the money, that is over, I'll bring it to the bank
put it on a saving account of my bank
go to the bank and store it there
save the half of the money an the bank
The rest of my money goes to the bank
put it on the bank
put it on the bank
put it on a bank
put it on the bank.
put it on my bank
put the money on my bankaccount
set 950 euros on my bank
set lesser money on my bank
set it all on my bank
bring it to the bank
bring it to the bank
bring it to the bank
store it in a bank
(the best option is to) store it
(it is the best to) store it
the rest of the money I would store
save the other money on the bank
save it on the bank

save the money at the bank
put the half of my money on a bank.
put the rest on my bank
put more than 1500 Euro on the bank
the rest I would bring to the bank
the rest I would bring to the bank, to save
put it in my bank account
put most of it on a bankacount
the rest of the money I will put in the bank
give it to the bank
take some of it and bring it to to the bank
put it in my bank account
put something like 150 euros in a savings acount
put some of it in the bank
go to the bank and I put the money into the bank

Table 2. Extracted learner expressions for DONATING MONEY

give the money to charity
give much money to the church
give a lot of money to a organisation foor animals and little childeren, they haven`t parents any more
the money that I have left I will give to poor people
give poor people something
give a couple of euro's to pour children
give the mony to childeren, childeren with no mony no home and por childeren
give all the money ti to the children in afrika
give allot away from the money to some children wo really need it
spend some money on charity
give some money on a good doel
give some money to charities, charities to help children
give some to an organsation like stichting de opkikker
give my mony to people en animals who have it not good
give also some money to pour peaple in Africa
give it to some poor kids in Africa
give some money to children who don`t have enough food or money
give the most to pour people
give also some money to the pour peaple, in Afrika
give the money away
give some money away to poor people
spend out money to WNF or something else
a part of it i would give to a good cause
give a little bit of that money to a good thing. Afrika our Asie.
make a donation for the WWF
a lot of my money shall goes to a good organisation
give a part to charities
give money to charities
give some to charities
give 100 euros to charities and other kind-heart things
giving some money to charities
giving some money to charities
give something to charity
give some money to a charity

give some money to a charity
give it to a charity
give some money to a charity for the children in Ghana
give a bit to Greenpeace or WWF
give a bit to the wnf or War-child
give some money to green peace
give it to a foundation before war childs
give some money to the church
give it to a foundation for war childs
give it too to a animal foundation
give some of the money to the poorer people
give et least 10% to the pour people
give money to people who have shortage of money and can`t live anymore with the money they have.
give some money to the poor
give the money to the people in the third world
give it to the poor and to the people who don`t have a job
give it to the poor people in Africa
give it to a poor family that I know
give something away maybe to an organization who helps other people
spend the money on Unicef
give some euros on a good purpose
give money to several charities
give a part to charity
give it to charity
give something to charity
give half the money to charity
give half of it to charity
give it to charity
give a part of it to charity
give the rest of the money to charity
give some of the money to charity for example War Child or WNF
give it to charity
have given money to charity
give some money to a charity
give about 200/300 euros to a charity
give some money to charity organisations
give a bit to a charity organization
give some money to War-Child and KIKA
give some to foundations
give mcuh money to a good incorpation that makespoor child go to school and kind of that thing
give a part to important companies for the right development of poor countries
give a lot to the poorer people
give money to others who need it
help people by giving them some of my money
give it away to a charity like Unicef, Kika or War-Child
give everything away too the poorer people
the other half I would spend on charity
put some money by charity organisations
save some money for charity
send it to poor children
send something to charities
give some money to good organisations like: ZOA or an organisation that give help to poor countries
a good organisation would get some of the money
give some of it to the poor countries
give some of it to charities
give money to charities
give a lot of money to charities
give some money to charity

giving some money to charity
use some of the money for a charity
spend it on charity

Funding details

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