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From construction grammar to embodied construction practice

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In recent years, foreign language pedagogy has recognized the need to focus on larger meaningful sequences of words and on communicative goals. Construction grammar (CxG) has a number of assets to address these issues. First, with the postulate of meaningful schematic templates, CxG makes it possible to establish a structured inventory of abstract constructions. In this paper, this is illustrated by the inventory of German constructions with the preposition *bis* ‘up to, until’. Second, constructions, having a certain degree of schematicity, are particularly suitable to be practiced as whole sequences. Interactive activities based on ‘embodied teaching and learning’ can help foster the entrenchment of constructions.

Keywords: applications of construction grammar, foreign language teaching, foreign language learning, construction practice, embodiment, German preposition *bis* ‘up to/until’

1. The learning of patterns

The focus on larger sequences in foreign language teaching (FLT) has a long tradition. Already in 1945, Fries, and later his student Lado (1957), drew on insights from behaviorist psychology with its stimulus-response model to develop an innovative teaching method based on the learning of so-called ‘patterns’. This new approach was motivated by the need of American troops being sent to Europe in World War II to learn foreign languages very quickly in order to be able to communicate with the Europeans in basic terms. Before the behaviorist turn, foreign language learning (FLL) mainly consisted in the acquisition of vocabulary lists and grammar rules with some examples detached from their communicative setting. FLT often focused on translation exercises. Lado & Fries’ (1961) ‘English pattern practice’ has to be understood as a reaction to the translation approach. The practice of patterns was supported by the parallel development of technical appli-

ances. It took place in language laboratories and therefore has also been known as the ‘audiolingual method’. Lado and Fries’ approach aimed at habit formation with drills of so-called ‘language patterns’. These were defined as “the significant framework[s] of the sentence” (Lado & Fries 1961: xv) with lexical elements conceived as slot-fillers. To give an example, in a simple question pattern with the verb *do*, like e.g. *Do you see the train?*, the lexeme *train* should be replaced by *ship*, *car*, or *truck*. With the repetition of the pattern and the substitution of lexemes, learners were expected to practice and internalize the new patterns. Accordingly, the structure of the English language was conceived in terms of word classes in which lexemes could be substituted in the same paradigm. The idea behind this method was that learning could be influenced by “inducing the correct behaviour” (Politzer 1961: 2).

After the initial enthusiasm for this new method and the innovative environment in language laboratories, Lado and Fries’ approach was soon criticized. Central to the pattern practice was the idea of a mechanical process of “habit formation” (Ellis 1990: 27), simply based on repetition and substitution. “For learning to be effective habits had to become automatic” (Ellis 1990: 23). But the major critique was that “[i]t is entirely possible to teach the major patterns of a foreign language without letting the student know what he is saying” (Politzer 1961: 19). As a consequence of this approach, learners did not link patterns to a specific meaning and were not able to produce sentences, let alone to interact with each other in a productive way. Moreover, the patterns they learned were often non-authentic sentences detached from their communicative setting (compare also Nunan 1991; Savignon 2000). The audiolingual method further developed and focused on error (Corder 1967) and contrastive analysis (among others with Wardhaugh 1970), with the aim to identify the patterns which were likely to cause learning difficulties (Ellis 1990: 25).

And yet, Lado and Fries’ focus on larger sequences has inspired FLT and numerous new studies elaborated on their insights. Vocabulary learning became conceived as ‘collocation learning’ (Hausmann 1984), that is the learning of habitual larger sequences. Wong-Fillmore’s (1976) was the first study to have demonstrated that prefabricated patterns play a major role in the acquisition of English as a foreign language by young Spanish-speaking children. Since then, several studies have dealt with the role of larger sequences in FLT or FLL, with a different terminology. Nattinger & DeCarrico (1992: 114) describe the advantage for FLT and FLL of so-called ‘lexical phrases’: they are learned as a whole and because they are embedded in communicative situations they can be memorized and then retrieved more easily. This offers learners the possibility to interact with other participants in communication. With more advanced learners, lexical phrases can be segmented into smaller meaningful units. With the next step, one can “introduce the students to controlled variation in these basic phrases with the help of sim-

ple substitution drills, which would demonstrate that the chunks learnt previously were not invariable routines but were instead patterns with open slots” (Nattinger & DeCarrico 1992: 117). This approach is in line with Lado and Fries’ view and with Pawley & Syder’s (1983) earlier insight about the knowledge of a language:

Fluent and idiomatic control of a language rests to a considerable extent on knowledge of a body of ‘sentence stems’ which are ‘institutionalized’ or ‘lexicalized’. A lexicalized sentence stem is a unit of clause length or longer whose grammatical form and lexical content is wholly or largely fixed. [...] In the store of familiar collocations there are expressions for a wide range of familiar concepts and speech acts, and the speaker is able to retrieve these as wholes or as automatic chains from the long-term memory. (Pawley & Syder 1983: 191–192)

Wray (2002: 192) prefers the term ‘formulaic language’, she goes one step further when she claims that “success in second language is heavily dependent on the ability to learn sequences”. Handwerker (2008) and Handwerker & Madlener (2006) stress the need to teach in ‘chunks’. In section 3.3 we propose some concrete ideas to implement this.

The advent of construction grammar (CxG) brought new perspectives with the concept of ‘construction’ and its application to FLT and FLL – see, among others, Ellis & Cadierno (2009), Ellis & Ferreira-Jr. (2009a, 2009b), or Robinson & Ellis (2008). Most studies are based on Goldberg’s model (1995, 2006), which defines constructions as conventional form-meaning mappings with different degrees of abstractness and open slots which have to be filled. In that sense, constructions differ substantially from the patterns defined by Lado & Fries (1961) as they have a meaning of their own, even at a more abstract level. Instantiations of constructions are linked to more abstract constructions by semantic inheritance links, i.e. polysemy, metaphor, part-of- or instance-of-relation. To assume that languages consist of meaningful constructions constitutes a useful asset for the teaching and learning of foreign structures. Learners can infer the meaning of new constructional instantiations from their knowledge of the meaning of the abstract constructions. The present contribution aims at illustrating and showing how the CxG model can foster FLT and FLL. To do so, it describes an application field in German which constitutes a challenge for foreign learners (section 2). First, it focuses on examples of constructions with the German preposition *bis* ‘up to/ until’, which have been collected in the core corpora of the Digitales Wörterbuch der Deutschen Sprache (DWDS) and the Deutsches Referenzkorpus (DeReKo) of the Institut für Deutsche Sprache (IDS) in Mannheim. But having learned some patterns or constructions does not guarantee that learners are able to use them in a productive way. Practice is needed. Section 3 deals with the design of some interactive activities for construction practice. Cognitive linguistics claims that concepts and conceptualizations are the result of embodiment. It is surprising

that FLT has not much exploited this insight for the development of a more adequate teaching methodology. We aim to fill this gap in the third section. Finally, section 4 draws some conclusions and summarizes how CxG and cognitive linguistics (CL) views on embodiment turn out to be complementary frameworks for fostering FLT.

2. Assets of construction grammar for FLT/FLL

As discussed in Gilquin & De Knop (2016: 5), several studies – see Baicchi (2013), Bencini & Goldberg (2000), Gries & Wulff (2005, 2009), Liang (2002), Valenzuela Manzanares & Rojo López (2008) – have shown that “learners from different mother tongue (L1) backgrounds and different proficiency levels have some mental representation of various constructions, just like native speakers”. In the volume by De Knop & Gilquin (2016), some chapters demonstrate that learners indeed do have constructions in the foreign language (L2) (Baicchi 2016; De Knop & Mollica 2016) but that their knowledge of the L1 constructions can function as an obstacle when learning the foreign language (Della Putta 2016). In the present contribution, we do not want to discuss this claim in more detail but we focus more on the added value of CxG for teaching methodology by way of exemplification with German constructions with the preposition *bis* ‘up to/until’.

2.1 Syntactic variety of German constructions with *bis*

The use of prepositions in a foreign language often constitutes a challenge for learners. In spite of a similar meaning in L1 and L2, they can differ in the underlying conceptualization and the categories they reflect. In their contrastive study on lexicalization patterns in English and Korean, Choi & Bowerman (1991) show how similar prepositions in both languages are distributed differently in similar contexts in L1 and L2 (see also Bowerman’s 1996 cross-linguistic analysis of spatial prepositions in English, Spanish, Dutch, and Finnish). This observation also applies to the German preposition *bis* ‘up to/until’ and its counterparts in other languages. To start with, let us look at a few examples.

- (1) *Wir fahren bis Paris.*
we drive up.to Paris
‘We drive to Paris.’
- (2) *Bitte laufe bis dorthin und nicht weiter!*
please run up.to there and not farther
‘Please do not run farther than that point!’

- (3) *Es hat bis heute nur geregnet!*
 it has up.to today only rained
 'It has rained till today.'
- (4) *Wir fahren bis an den See.*
 we drive up.to at the lake
 'We drive up to the lake.'
- (5) *Das Auto ist bis in den See gefahren.*
 the car is up.to into the sea driven
 'The car has driven into the sea.'
- (6) *Sie fahren bis an den See hinunter.*
 they drive up.to at the lake downwards
 'They drive down to the lake.'
- (7) *Sie laufen bis an den See hinauf.*
 they run up.to at the lake upwards.
 'They run up to the lake.'

These few examples illustrate a small sample of the syntactic variety and the combinatorial possibilities of the preposition *bis*. It can be used with a proper noun (1), an adverb (2) and (3), or with a nominal phrase introduced by a second preposition [PREP₂], in examples (4) – (7). Sometimes, there is also a further pronominal adverb accompanying the prepositional phrase, e.g. *hinunter* 'downwards' in (6) or *hinauf* 'upwards' in (7). [PREP₂] can be omitted if the noun in the nominal phrase is used without an article, i.e. when it is a proper noun, as illustrated in (1). The examples express the idea of a spatial or temporal stretch up to a limit with the implicit viewpoint of the speaker. The second preposition after *bis* expresses an additional orientational dimension, its selection depends on the conceptualization determined by the noun in the prepositional group. There are many possibilities: *bis an die Grenze* '(lit.) up to at the border', *bis ins Wasser* '(lit.) up into the water', *bis über den Kopf* '(lit.) up to over the head', *bis unter das Dach* '(lit.) up to under the roof', *bis hinter den Horizont* '(lit.) up to behind the horizon', *bis zum Gartentor* '(lit.) up to the garden gate'.¹ The variety constitutes a challenge for foreign language learners, especially when their mother tongue is not so differentiated, as can be seen from the translation of the above examples into English, for instance. Because the examples are form-meaning mappings, con-

1. As said before, the examples have been collected in the core corpora of the Digitales Wörterbuch der deutschen Sprache (DWDS) or in the DeReKo corpora of the Institut für Deutsche Sprache (IDS, Cosmas II) in Mannheim. If no reference is quoted, the examples come from the author's personal collection. Their correctness and use have been checked with native speakers.

sisting of a prepositional phrase which expresses the meaning of spatial or temporal motion, they can best be described as constructions in the constructionist sense (see, among others, Goldberg 1995, 2006). In her first book (1995), Goldberg quotes non-compositionality as one of the defining conditions for considering a specific structure to be a construction. In her later study (2006), she revisits this principle and discusses the property of frequency. This means that constructions can also be compositional as soon as they are frequent enough. A quick look at corpus data brings to the fore the observation that this structure is frequent. On 31 October 2017, we looked up the preposition *bis* in the core corpora (press articles, scientific works, fiction, etc.) of the Digitales Wörterbuch der Deutschen Sprache (DWDS) for the time between 1900 and 1999 and we got 52 573 hits of a construction with this preposition followed by another preposition. As a result, we can claim that the prepositional phrase under study has the status of a construction.

The advantage of a study of structures with *bis* in terms of constructions consists in the possibility to define an abstract construction with its own meaning, which can have many instantiations linked to each other by so-called inheritance links. We will deal with these links in more detail in the following sections.

2.2 Semantic variety of German constructions with *bis*

The above list of examples illustrates different possible semantic uses of the construction introduced by the preposition *bis*. The most current one is spatial in nature, as e.g. examples (1), (2), or (4) – (7). But spatial motion is not the only meaning which can be conveyed by constructions with *bis*. Temporal meaning is also quite common, as in the following examples:

- (8) *Große Spieler sitzen spät bis in die Nacht.*
 great players sit late until into the night
 ‘Great players sit till late at night.’ (Cosmas II: Ioo/DEZ.75273)
- (9) *In Wien tanzt man gewöhnlich bis zu Ostern, also bis in den April hinein.²*
 in Vienna dances one usually until to Easter i.e. until into the April
 within (DWDS)
 ‘In Vienna, one dances usually until Easter, i.e. until April.’

In its temporal use, *bis* can also simply combine with an adverb:

2. *Hinein* is a pronominal adverb, see examples (6) and (7).

- (10) *Bis bald!*
till soon
'See you soon!'
- (11) *Bis später!*
till later
'See you later!'

The use of *bis* to express the temporal meaning 'until' is grounded in the metaphorical extension TIME IS SPACE (Evans 2003; Radden 2003). For Goldberg (1995, 2006), instantiations of constructions are linked to the abstract construction or to each other by so-called inheritance links. These include metaphorical extensions, polysemy, part-of relations, which correspond to metonymical extensions, or instantiation-of relations. As a consequence, examples with *bis* instantiating temporal semantics are linked to the abstract construction expressing spatial motion by metaphor. In this case, Goldberg (1995, 2006) postulates one and the same construction.

In the same way, instantiations with *bis* expressing fictive or subjective motion resulting from mental scanning are also linked to the abstract construction with *bis* by metaphorical extension:

- (12) *Ich werde dich lieben bis in den Tod.* (DWDS)
I will you love until into the death
'I will love you even beyond the grave.'
- (13) *Die Älteren sind motiviert bis unter die Haarspitzen.*
the elder are motivated up.to under the hair.ends.'
'The elderly are motivated right down to the tips of their hair.'
(Cosmas II: Mo2/FEB.10642)
- (14) *Er ist konservativ bis in die Knochen.* (DWDS)
he is conservative up.to into the bones
'He is conservative to the core.'

Compared with the first set of examples (1) – (7) above, these instantiations are non-compositional constructions as their meaning is not simply the result of their constituents' meaning, they express intensity. The semantic extension is based on the conceptual metaphor ABSTRACT STATE IS LOCATION/MOTION. As can be observed with (13) or (14), often a body-part is used for the expression of a limit which is motivated by an anthropocentric view.

In combination with a prepositional phrase introduced by *auf* as [PREP₂], the construction with *bis* can express opposite meanings, namely completion, total

inclusion vs. restriction or exclusion. Some examples for both categories are given in (15) – (18).

- (15) *Bis auf einen haben alle Bewährungsstrafen erhalten.*
 up.to on one have all suspended.sentences received
 ‘Except for one, everybody received suspended sentences.’
 (Cosmas II: RHZoo/JAN.07520)
- (16) *...so dass alle bis auf zwei lachten, statt zu singen.*
 ...so that all up.to on two laughed instead of sing
 ‘...so that all except two laughed instead of singing.’
 (Cosmas II: Koo/JAN.04437)
- (17) *...ist der Saal bis auf den letzten Platz gefüllt.*
 ...is the room up.to on the last seat filled
 ‘... the room is filled up to the last seat.’ (Cosmas II: Aoo/JAN.03295)
- (18) *Wir haben den Fleck bis auf die letzte Spur entfernt.*
 we have the spot up.to on the last trace cleared
 ‘We have cleared the spot down to the last trace.’ (Cosmas II: Aoo/JAN.00484)

The construction with *bis auf* is polysemous as it can convey two different meanings. The disambiguation of both example categories can take place with the collexemes appearing with the prepositions. In (15) and (16), a numeral is used after *bis auf*, namely, *einen* ‘one’ (in the accusative case for the direct object) in (15), or *zwei* ‘two’ in (16).³ Further in the sentence, the full-set quantifier (Radden & Dirven 2007: 121) *alle* ‘all’ is used to designate the group which is being restricted by the small subset expressed by the prepositional phrase introduced by *bis auf*. The last two examples do not express quantification but the meaning of a total inclusion or completion. The semantically relevant collexemes for the recognition of this sense are, e.g., *letzt* ‘last’ in (17) or (18).

2.3 Complex constructions with *bis* and directional adverbs

In the introductory list of examples above, two instantiations of more complex constructions with *bis* were quoted. For the sake of clarity, we repeat them here:

- (19) *Sie fahren bis an den See hinunter.*
 they drive up.to at the lake downwards
 ‘They drive down to the lake.’

3. In these examples, *einen* is a numeral and not an indefinite article, which can have the same form.

- (20) *Sie laufen bis an den See hinauf.*
 they run up.to at the lake upwards
 ‘They run up to the lake.’

The prepositional phrase introduced by *bis* has a more complex structure, as it contains a directional adverb as a postposition after the noun: *hinunter* ‘downwards’ or *hinauf* ‘upwards’. Here, too, we are confronted with a large variety of possible directional adverbs, e.g. *heran*, *hinaus*, *hinein*, *hinweg*, etc., as illustrated below:

- (21) *...schafften es die Knaben bis auf den Sitz hinauf.* (Cosmas II: Aoo/JAN.)
 ...managed it the boys up.to on the seat upwards
 ‘... the boys managed to get up to the seat.’
- (22) *Getanzt wurde bis in die Morgenstunden hinein.*
 danced was until in the morning.hours within
 ‘People danced till the morning.’ (Cosmas II: Aoo/APR.26150)
- (23) *...Handelsplatz für Textilien mit Beziehungen bis über Europa hinaus*
 ...trading.center for textiles with connections up.to over Europe outwards
 ‘trading center for textiles with connections farther than Europe’
 (Cosmas II: Aoo/APRI.26755)

The first part of the directional adverb expresses the vantage point of the speaker, either away from him/her (*hin*) or towards him/her (*her*). The second constituent of the directional adverb can duplicate [PREP₂], in this case the semantics of the motion stretch is reinforced:

- (24) *ein herrlicher Wanderweg bis auf den Berg hinauf*
 a wonderful hiking.path up.to on the mountain on
 ‘a wonderful hiking path on the mountain’
 (www.peterkamin.de/Harz/harz.htm)
- (25) *Die Häuser reichen bis ans Wasser heran.* (DWDS Kernkorpus)
 the houses stretch up.to at.the water at
 ‘The houses go up to the water.’

In some cases, the directional adverb is composed of a preposition which differs from [PREP₂], the postposition expresses the completion of a motion path, as illustrated in the above example (23) or in (26) below:

- (23) *...Handelsplatz für Textilien mit Beziehungen bis über Europa hinaus*
 ...trading.center for textiles with connections up.to over Europe outwards
 ‘trading center for textiles with connections farther than Europe’
 (Cosmas II: Aoo/APRI.26755)

- (26) *Sie will auf ihn warten bis über den Tod hinaus.*
 she wants on him wait till over the death outside
 ‘She wants to wait for him forever, even beyond the grave.’
 (Cosmas II: A01/AUG.24164)

The noun in the prepositional phrase does not express the goal of motion, but one step on the path towards a goal.

Finally, the directional adverb can bring some complementary information or express some additional motion, for example as follows:

- (27) *Am häufigsten bringt das Wetter in der Winterzeit bei uns gegen Ende*
 the most.frequently brings the weather in the winter.time at us around end
November erstmals Schnee bis an den See hinunter,...
 November first snow up.to at the lake downwards...
 ‘Often in the winter, the weather brings the first snow down to the lake around
 the end of November.’
 (Cosmas II: A00/MAR.16690)

In this complex example, one can imagine the speaker standing on a hill and looking down at the lake, saying that snow falls down to the lake. The expression of a complex event in this German example is realized mainly with so-called satellites like prepositions (*bis*, *an*) and the directional adverb composed of *hin* for the vantage point and *unter* for the motion downwards. By contrast, the following example is also possible, it expresses the opposite perspective:

- (28) *Sie laufen bis an den See hinauf.*
 they run up.to at the lake upwards
 ‘They run up to the lake.’

These examples illustrate the flexibility of the German language in motion expressions with prepositions, the large semantic and syntactic variety with the preposition *bis* and the need to focus on larger sequences for their interpretation. This applies more particularly to temporal and metaphorical instantiations which are non-compositional.

2.4 Morpho-syntactic description of German constructions with *bis*

Before we close the descriptive section on German constructions with the preposition *bis*, we want to deal with the morpho-syntax of the examples under discussion. The motivation for the description of morpho-syntactic aspects results from two observations: (i) German is a strongly inflectional language (Thieroff & Vogel 2011) with the use of cases for the different functions in sentences or phrases. This allows clear semantic distinctions. (ii) From the L2 learning perspective, the selection of cases is difficult. This applies particularly to German constructions with

the preposition *bis*. Grammar books of German or articles on German prepositions do not always deal with this difficulty – see, among others, the description on the use of prepositions in Carstensen (2000), Griebhaber (2009), or Lutzeier (1995). But when they do, they either offer rather vague information about the case to be used after *bis* (Klein 1991), or, even worse, the wrong explanations. For instance, the Duden-Grammatik (Eisenberg et al. 2009) claims that the selection of the right case is dependent on [PREP2], which is simply not true – as we show hereunder. A useful overview of the uses of *bis* can be found in Schröder (1986) or in Schmitz (1964). Although useful, these books do not explain the relationship and the motivation between the different uses of the preposition *bis*.

The selection of the proper case after *bis* and [PREP2] is grounded in the conceptual and semantic variety. Most prepositions after *bis* are the so-called ‘two-way prepositions’ (Serra-Borneto 1997; Smith 1995), which are used either with the dative or the accusative case. The selection of the proper case “must, at least partly, be due to constructional regularities which do not follow from the grammatical (formal and semantic) features of the prepositions alone” (Willems 2011: 329). Former studies have tried to explain the difference between both cases with concepts like dynamic event (which would justify the accusative case) vs. stative event (with the dative case) (see Carroll 2000; Draye 1996). Willems (2011), Rys et al. (2014), and Willems et al. (2018) do not find the dichotomy ‘dynamic’ vs. ‘stative’ adequate to explain the motivation behind the selection of the accusative vs. dative. Inspired by Paul’s (1916–1920) grammar book and by Leys’ (1989, 1995) studies, Willems (2011: 351) suggests to use their terminology, claiming that the accusative is used “when a spatial relationship to an object is being established”, whereas the dative is preferred for an already established, existing relationship. The preposition *bis* implies a concrete, fictive or metaphorical path or a stretch and an incipient motion along this path towards a goal. As can be observed, in most examples with *bis*, the accusative is used:

- (29) *Das Auto ist bis in den See gefahren.*
 the car is up.to into the sea driven
 ‘The car has driven into the sea.’

- (30) *Sie begleitete die Mädchen bis an die Tür und blieb dort...*
 she accompanied the girls up.to at the door and stayed there
 ‘She accompanied the girls to the door and stayed there...’

(Cosmas II: RHZ03/FEB.03426)

Interestingly, even in temporal⁴ or metaphorical expressions the accusative case prevails:

- (31) *Ich werde dich lieben bis in den Tod.* (DWDS)
 I will love you until into the death.
 'I will love you forever, even beyond the grave.'
- (32) *Die Älteren sind motiviert bis unter die Haarspitzen.*
 the elder are motivated up.to under the hair.ends
 'The elderly are motivated right down to the tips of their hair.'
 (Cosmas II:Mo2/FEB.10642)

The expression of a stretch, a path towards a goal depends on the semantics of *bis* and not on the two-way preposition after it. Hence, the claim made in the Duden-grammar book must be revisited.

The accusative case is also required in examples with a verb expressing stative localization or even immobility, which again provides evidence for the decisive role of the semantics of *bis*:

- (33) *Ich werde dich lieben bis in den Tod.* (DWDS Kernkorpus)
 I will love you till into the death
 'I will love you forever, even beyond the grave.'
- (34) *Die Wut steht ihm bis über den Kopf.* (DWDS Kernkorpus)
 the anger stands to.him up.to over the head
 'The anger grows over his head.'
- (35) *Er ist konservativ bis in die Knochen.* (DWDS Kernkorpus)
 he is conservative up.to in the bones
 'He is conservative to the core.'

These examples seem to be characterized by a semantic contradiction between the stative verb and the dynamic prepositional phrase. Serra-Borneto (1997: 192) justifies the use of the accusative in a similar example: *Das Wasser reicht ihm bis über die Schenkel* 'the water reaches up to his thighs' (lit. 'the water reaches to him up to over the thighs_{ACC}') and claims that "you can imagine the eyes of the speaker following a trajectory from the ground up to the thighs and beyond them". This process of mental scanning has been described as "subjective motion" by Langacker (1987: 171). Here, too, it becomes clear that it is important to transcend the limited morphosyntactic frame of the examples and to analyze larger structures as

4. There is one restriction, though. In combination with [PREP2] *vor* 'before', the dative case is used, which is understandable as a retrospective process being expressed, and not a stretch towards a goal. E.g. *Bis vor kurzem_{DAT} hatte er Schmerzen* 'He was in pain until recently.'

well as their semantics. How this can be achieved with foreign language learners is the topic of the next section.

3. Pedagogical issues and teaching strategies

The preceding sections have presented and illustrated the large variety of possible constructions and instantiations with the preposition *bis*. In this section, we first want to point to possible difficulties encountered by L2 learners with this construction and then propose some strategies which can foster the learning of this construction and its instantiations.

3.1 The learning of constructions – a challenging enterprise

Constructions with *bis* instantiate preferred lexicalization patterns in German. From a typological point of view, German has been described as belonging to ‘satellite-framed languages’ (Talmy 2000), which favor so-called satellites for the expression of the path of motion. Satellites can be prepositions or particles, e.g. *bis auf* and *hinauf* in the following example:⁵

- (36) *Das Motorrad fährt bis auf den Berg hinauf.*
 the motorcycle drives up.to on the mountain upwards
 ‘The motorcycle drives on the mountain.’

Satellite-framed languages are also known to focus on the manner of motion (Iwata 2002, 2008). The basic, prototypical meaning conveyed by the prepositional satellite *bis* is the stretch along a path and towards a goal; [PREP₂] and the pronominal adverb often express the manner of motion – as we can tell e.g. from (36) above. By contrast, Romance languages like French or Spanish belong to so-called ‘verb-framed languages’, which express the path of motion in the main verb. The manner of motion is either not explicitly expressed or, if it is, with an adverb or a gerund. Consequently, an authentic translation of (36) above into French would be:

- (36') *La moto monte sur la montagne (en roulant),*
 lit. ‘The motorcycle goes up/climbs on the mountain (by riding).’

5. Recently, a discussion about the nature of satellites has taken place. Whereas Talmy (2000) also includes prepositions in the class of satellites, Ibarretxe-Antuñano (2017) and Filipovic & Ibarretxe-Antuñano (2015) suggest discarding prepositions. Because prepositions combined with morpho-syntactic cases in German contribute to the expression of a motion path towards a goal, we will consider them to be satellites as well.

The verb *monte* simply expresses a movement upwards (= the path), whereas the manner of motion is expressed with the gerund *en roulant*. But the manner would probably not be expressed at all in the French example, as it is obvious that the motorcycle is riding. Of course, French also has a corresponding verb for German *fahren* which is *rouler* but it cannot be combined with satellites to express the path and manner of motion. The German pronominal adverb *hinauf*, which reinforces the semantics of the path and manner of motion is not expressed in French. Several cross-linguistic empirical studies – among others by Bowerman (1996), Choi & Bowerman (1991), Slobin (1996, 2000) – have shown that “speakers of satellite-framed languages represent manner and directed motion as a single conceptual event, while users of verb-framed languages build mental images of physical scenes with minimal focus on the manner of movement” (Pavlenko 2005:442). The translation process between German and French corresponds to a so-called ‘conceptualization transfer’, i.e. a “[t]ransfer arising from cross-linguistic differences in the ways L2 users process conceptual knowledge and form temporary representations in their working memory” (Jarvis 2007:53). As a consequence, one can expect foreign language learners belonging to a different language background to experience more difficulties with the learning of German motion expressions (Jarvis & Pavlenko 2008). For French-speaking learners of German, this means more specifically that they have to become aware (i) of the differences in the lexicalization patterns in German, which expresses the path of motion with satellites which can even lead to verbless constructions like verbless directives (De Knop & Mollica 2019), e.g. *auf den Berg hinauf!* (lit.) ‘upon the mountain upwards!’, and (ii) that the expression of the manner of motion is a salient conceptual dimension in German – see also De Knop (2016) or Flecken et al. (2015). A further difficulty results from the need to select the correct case form in this specific construction, either the dative or the accusative.

3.2 Generalization and scaffolding

A first step toward facilitating the learning of foreign constructions consists in awareness-raising exercises that bring to light the differences between the mother tongue and German. This implies describing the different constructional instantiations as we did in section 2. But in order to learn a foreign language properly, learners must also be able to abstract and generalize, which in CxG terms means recognizing abstract constructions and their possible instantiations. Experimental evidence (for an overview, see Gries 2003) has shown that speakers generalize starting from the exemplars with which they are confronted and that they recognize a prototype among these exemplars. This also applies to constructions (Goldberg 2006). In the examples with *bis*, the prototypical meaning is that

of a stretch, which is mostly realized with concrete spatial expressions. In cognitive linguistics, spatial senses are generally assumed to be more central than non-spatial ones (Taylor 2008: 50; Lakoff 1987). The advantage of postulating a prototypical abstract construction resides in the possibility for the learner to reconstruct the meaning of new instances if s/he knows the meaning of the abstract construction. In Goldberg's (1995, 2006) construction-based framework, constructions and their instantiations are organized in a structured inventory called the *constructicon*, and connections between the prototype and other exemplars of the same construction are motivated by so-called inheritance links. As we saw before, temporal and metaphorical structures with the preposition *bis* instantiate specific conceptual metaphors and hence are linked to the spatial prototype by metaphor and instance-of-relations. It is advisable to start with the teaching of the prototypes as the most general and stable exemplars and to introduce the metaphorical extensions later. Through the organization of the constructions and their instantiations around a prototype and the definition of inheritance links, there is no further need to talk about exceptions to the rules.

But teachers of foreign languages will agree that the learning procedure is a complex enterprise and that simply providing learners with L2's constructional templates does not guarantee that they will be able to produce instantiations of constructions in a communicative way: "Teaching does not automatically convert into learning, as many teachers erroneously believe. Therefore the focus of the language teaching design must not be on the teaching, but on how the learning might happen" (Weideman 2016: 130).

To be able to generalize, learners need to be confronted with much practice, i.e. with large amounts of instantiations (Holme 2010). But seeing the limited learning context and time, this seems to be difficult. As stressed by Herbst (2016), because of the smaller amount of input encountered by learners, "generalizations are arguably more difficult to make in L2 acquisition" (Gilquin & De Knop 2016: 11).

Teaching, therefore, should compensate for this low exposure and implement strategies that encourage learners to generalize (Holme 2010: 126). This could involve the repeated exposure to – and noticing of – various instantiations of a construction in different contexts, through the use of texts that "recycle new tokens of previously taught constructions" (Holme 2010: 127).

(Gilquin & De Knop 2016: 7)

But this "scaffolding" strategy (Gilquin & De Knop 2016: 7) is not the only possibility. Starting from the premise that learners should be provided "with user-friendly versions of the generalizations that they should ultimately arrive at" (Gilquin & De Knop 2016: 12), especially the ones contrasting with their L1, Ruiz

de Mendoza Ibáñez & Agustín Llach (2016) propose some pedagogical interventions based, among other things, on an inferential activity and construction-based meaning composition.

The lack of time is not the only difficulty in the teaching and learning process. Constructions in the native language can also function as ‘obstacles’ to L2 learning – just as different categorizations can do (see Boers et al. 2010: 5). That is why Della Putta (2016) suggests some strategies for ‘unlearning’ L1 constructions in order to discourage negative transfer phenomena. He distinguishes between (i) transcodification activities (from images to language and vice versa), which aim at explaining the embodied nature of some constructions and making them “cognitively accessible to learners” (Della Putta 2016: 258); (ii) interactive strategies that should help students notice the ungrammaticality of some patterns; and finally, (iii) input-manipulation activities that should be organized with the aim to give learners the positive evidence of what should be used in a specific language (Della Putta 2016: 258).

In the transcodification activities, Della Putta is already referring to the “embodied nature” of some constructions (Della Putta 2016: 258). Inspired by previous research about embodiment, our study wants to propose a complementary approach which starts from insights gained in cognitive linguistics about conceptual categories and their expressions as the result of embodied processes (Lakoff 1987). As already claimed by Ellis & Cadierno (2009: 111), constructions are the fundamental units of language acquisition and they reflect the most direct embodiment of learners’ communicative intentions. This insight can be exploited for a more efficient teaching methodology.

3.3 First studies on embodiment

Evidence for embodiment in language comes from neurolinguistics. Feldman & Narayanan (2004: 389) claim that “[...] all understanding involves simulating or enacting the appropriate embodied experience. When asked to grasp, we enact it. When hearing or reading about grasping, we simulate grasping or watching someone grasp”.

The conceptual understanding of an utterance implies the internal activation of embodied schemas (Bergen & Chang 2005: 2). For Lakoff & Johnson (1999: 22), “human concepts are not just reflections of an external reality, but [...] they are crucially shaped by our bodies and brains, especially by our sensorimotor system”. Rathunde (2009: 71) even claims that it is “through our bodily perceptions, movements, emotions, and feelings that meaning becomes possible”. Coming back to the examples discussed before, it becomes clear that constructions with *bis* express an embodied orientation, i.e. of the speaker towards the event, towards

the goal, the path of motion, etc. The difficulty when learning a foreign language results from the fact that learners have the L1 categorization in mind and have not made the 'embodied' experience with L2 concepts as children. Achard (2008: 449) notices that

[t]he pedagogical challenge of teaching construal consists in placing students in situations where native speakers are the most likely to exercise a specific choice, so that they can make the same choices the natives make, and enjoy the same flexibility of expression.

Consequently, it is only justified to ground FLT in embodiment to make up for the missing experience between foreign concepts and L2 patterns.

In a paper called *Constructionism: A new opportunity for elementary science education* (1986), Piaget's student Papert pointed to the possibility to foster the learning process with active acting. Constructionism assumes that knowledge should be 'constructed' by learners and not only transmitted to them. This implies that learners should build or manipulate concrete artefacts while learning, so that the learning procedure becomes more successful. In spite of the fact that Papert's interest focuses on computer skills with children (Papert 1980), this idea can inspire FLT and FLL. Constructionism in Papert's sense has its origin in developmental psychology and should not be confounded with the constructionist approach advocated by the CxG model, which interests us more particularly.

It comes as a surprise that cognitive linguistics insights about embodiment have not been better exploited in FLT/FLL. In our Western world, teaching methodology is very much disembodied (Rathunde 2009). Still, we can quote some first tentative studies which focus on embodiment to foster FLL. Embodiment can take many forms: bodily engagement, visualization with pictures, gesturing, enactment; for a general overview, see Skulmowski & Rey (2018). Asher (1982) developed the 'total physical response' and proposed interactive activities essentially based on motion in the class-room for more effective language learning. Students are invited to react to verbal input in a physical way. Asher could achieve some good results, as it allows reducing student inhibitions and anxiety. The 'small LAB learning' method developed by Birchfield (2015) can aid reading comprehension in young children through (imagined) activity. It is kinesthetic, i.e. based on the full-body interactivity in physical space, it is also collaborative, as it is face-to-face teaching and learning; and, finally, it is multimodal, i.e. based on the experience of seeing, hearing, and touching.⁶ For Rathunde (2009: 73), it is important to "find ways to put the body back into the mind and create more embodied educational environments". This can be achieved through the inte-

6. < <http://smallablearning.com/embodied-learning> >

gration of nature into foreign language pedagogy. Lapaire (2013) and Lapaire & Etcheto (2010) teach English grammar with dancing movements. This presents the advantage of emphasizing “a holistic process, including body-based feelings and perceptions” (Rathunde 2009: 77). In spite of their inspiring insights, these studies are still in their fledgling stages and have not been further extended or exploited. The following section makes some further suggestions for embodied teaching methodology.

3.4 Embodied construction practice

This section deals with the question of what embodied construction practice can look like. There are many possibilities to create exercises based on embodiment. To do so, we look again at the illustrative field of constructions with *bis* discussed above and see how teachers can proceed very concretely. But first, we want to express a caveat about this method. Exercises based on embodiment are mostly possible with concrete expressions, which represent actions or processes which can be performed. Not all patterns can be represented in an embodied way, the more abstract the expressions, the more difficult it becomes.

3.4.1 *Interactive exercises with bodily engagement*

One possibility consists in exploiting own body for an interactive practice. Constructions with *bis* in their more concrete spatial meanings are very suitable for such exercises. Teachers can express a few examples of patterns with *bis* and ask learners to perform what they hear. E.g.,

- (37) *Peter geht bis an die Tür und öffnet sie mit dem Schlüssel.*

Peter goes up.to at the door and opens it with the key

‘Peter goes to the door and opens it with the key.’

- (38) *Maria streckt sich bis an die Tischecke.*

Maria stretches herself up.to at the table.corner

‘Maria stretches herself to the table corner.’

The class-room is an ideal place to perform such examples. The teacher may also bring some objects which can be moved by the learners and with which learners can represent “scenarios or lifelike situations” (Di Pietro 1987: 3). For sentence (37) for instance, a key could be provided.

3.4.2 *Exercises with pictures*

Another possibility for embodied exercises consists in the use of pictures or images. The internet is a treasure trove of pictures which can be used during the lessons. In the above study of constructions with the preposition *bis* it became

obvious that often a body part is being used to express a certain limit. A complex construction with a free dative⁷ referring to a human being can be practiced as a fill-in exercise with different body-parts:

- (39) *Das Wasser steht dem Mann bis...*
 the water stands to.the man up.to
 ‘The man has water up to...’

If necessary, the teacher can first introduce the different terms for body parts in German. Then, s/he can show different pictures representing the situation depicted in (39) and s/he can invite students to fill in the missing body-part. Here are some concrete pictures taken from the internet:



(source: faz.net)

- (39a) *Das Wasser steht dem Mann bis an die Knie.*
 the water stands to.the man up.to at the knees
 ‘The man stands in the water up to his knees.’



(source: zoonar.de)

- (39b) *Das Wasser steht dem Mann bis an die Taille/bis an die Brust.*
 the water stands to.the man up.to at the waist/up.to at the breast
 ‘The man stands in the water up to his waist/to his chest.’

7. The term ‘free dative’ refers to a complement which does not belong to the verb valency, it is not an argument of the verb *stehen*.



(source: lustigerblog.fungesteuert.com)

- (39c) *Das Wasser steht dem Hund bis an den Hals/bis an das Kinn.*
 the water stands to.the dog up.to at the neck/up.to at the chin
 ‘The dog stands in the water up to his neck.’



(source: zoonar.de)

- (39d) *Das Wasser steht dem Mann bis an die Nase/bis an die Augen/bis an die Stirn.*
 the water stands to.the man up.to at the nose/up.to at the eyes/up.to at
 the forehead
 ‘The man stands in the water up to his nose/his eyes/his forehead.’

A side-effect of this approach is the possibility to learn the second preposition after *bis* (e.g. in (39a) *an* ‘at’), the foreign terms for body-parts, but also to understand the use of the dative case for the indirect object and the accusative after the second preposition for the expression of dynamic subjective motion. These exercises make it possible to repeat the instantiations of the same construction but with different lexemes after *bis*. If the same construction is being practiced with a certain frequency – even with different lexemes – some generalization is possible and it can become entrenched with the learners (see Ellis 2009). Ellis & Cadierno (2009: 118) claim that “frequency of exposure promotes learning”.

As an alternative, Handwerker & Madlener (2006) suggest to work with film sequences and animations for the learning of chunks, they propose a three-step procedure: (i) presentation of film sequences and animations with a large offer of chunks; (ii) a reduced and simplified series of chunks (without particles, adjuncts, ...) are presented in parallel in a photo series that can be used to check the use or meaning of the chunk; and (iii) concrete explanations of the specific chunk in (ii). This three-step procedure should be accompanied by many exercises.

Before we close this section, we want to express some reservations about the results of this methodology. Although the embodied methodology sounds promising – as we can tell from our teaching practice with French-speaking students of German in Belgium – it has not been empirically tested yet and we cannot report on positive results attesting to the efficiency of this method. Still, an embodied methodology presents some assets which cannot be denied:

- i. The teaching lessons become livelier and more active, they lead to more interactive learning in a natural setting.
- ii. Learners who actively use the internet and social networks which ally shorter verbal messages with pictures or visual materials are better motivated when they are presented with stimulating pictures and materials.
- iii. Nowadays, for teachers to find proper materials like pictures or videos is not so time-consuming with the internet (see pictures above) and many teachers are happy to develop personalized ideas to implement in the curriculum.

Embodied teaching sessions can also be based on a scaffolding methodology which allows to introduce and practice new aspects starting from already known structures or events.

4. Conclusions and future perspectives

It is clear that not all constructions can be taught according to the embodied perspective. Constructions need to have a certain degree of concreteness to be suitable for embodied learning. This is mainly the case with basic constructions. But even more abstract constructions grounded in metaphorical or metonymical extension are often based on embodiment and can be explained with some embodied processes – see, among others, Boers (2011) and Boers & Demecheleer (1998). The small sample of constructions we have discussed constitutes a good starting point for an extension to further constructions and for exemplifying the differences between L1 and L2 constructions. Progressively, learners “should be able to build networks of constructions that will help them store constructions

more efficiently in their mental construction and retrieve the information more rapidly” (Gilquin & De Knop 2016: 7). Teachers play a major role in this process, as they should provide learners with “a stock of prefabricated units in order to improve their communication skills” (Gonzalez Rey 2013: 7), that is, a list of basic relevant constructions in German which learners would need at several stages of proficiency. Providing such a list is a future challenge for linguists, teachers, and manual designers.

Another important issue for future research would be to test the embodied methodology and to measure the results with learners.⁸ As suggested by an anonymous reviewer, with the simple description of the embodied teaching methodology, it is not yet clear whether this approach is more efficient than traditional techniques and whether the preparation of materials for this methodology – which can be time-consuming – is worth doing. Future research which focuses on further empirical studies, which include testing and the development of proper exercises, will show the added value of this new methodology.

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8. I thank the anonymous reviewer for pointing out this reservation.

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