

The Bloomsbury Companion to Cognitive Linguistics

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and
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B L O O M S B U R Y
LONDON • NEW DELHI • NEW YORK • SYDNEY

Bloomsbury Academic
An imprint of Bloomsbury Publishing Plc

50 Bedford Square	1385 Broadway
London	New York
WC1B 3DP	NY 10018
UK	USA

www.bloomsbury.com

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First published 2014

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British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

ISBN: HB: 978-1-4411-9509-8
ePDF: 978-1-4411-5291-6
ePub: 978-1-4411-3048-8

Library of Congress Cataloging-in-Publication Data

Bloomsbury Companion to Cognitive linguistics / edited by

Jeannette Littlemore and John R. Taylor.

pages cm. – (Bloomsbury Companions)

Includes bibliographical references and index.

ISBN 978-1-4411-9509-8 (hardback) - ISBN 978-1-4411-5291-6 (epdf) -

ISBN 978-1-4411-3048-8 (epub) 1. Cognitive grammar editor of compilation. 2. Linguistics editor of compilation. I. Littlemore, Jeannette.

II. Taylor, John R., 1944- III. Title: Cognitive linguistics.

P165.B56 2014

415 – dc23

013047768

Typeset by Newgen Knowledge Works (P) Ltd., Chennai, India
Printed and bound in Great Britain

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Jörg Matthias Roche

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1 Introduction

Language acquisition research and language pedagogy often appear to be like two reclusive woodsmen, often crossing paths but stubbornly refusing to acknowledge their common ground. While acquisition research has always been influenced by or oriented towards psycholinguistic, psychological and cognitive issues, language pedagogy tends to be preoccupied with issues of grammar teaching and instructional methodologies. Despite the fact that modern language education and language teacher training programmes are well-grounded in acquisition research, the fact remains that language classes, textbooks and review grammars tend to be slow in accepting such research findings. The purpose of this chapter is to show that the application of Cognitive Linguistics to language acquisition research and language instruction offers an intriguing venue for bridging the gap between these estranged disciplines (cf. Achard, 2008; Holme, 2009; Littlemore, 2009; Robinson et al., 2008; Tyler, 2008).

After situating language pedagogy in the context of current methodological developments, this chapter explores how various strands of Cognitive Linguistics can be brought to fruition in a model of 'cognitive language pedagogy'. As this model is far from being coherent, complete, or unified, only a few eclectic aspects of an as yet undiscovered potential are portrayed here. The extent of this potential will then be illustrated using the case example of grammar animations based on conceptual metaphor theory.

2 Language Pedagogy – Shades of Grey

If one were to name the three most prominent areas of attention in language pedagogy, grammar would no doubt rank first, followed by teaching methodologies and the use of technology and media – and, at the same time, these areas could hardly be more thoroughly governed by spurious myths, idiosyncratic preferences and beliefs (cf. the 'Credo' of the American Council of Teachers of Foreign Languages, ACTFL guidelines 1983, and Achard, 2008 for an overview of widely debated issues in L2 pedagogy). In the larger view of the field of language teaching, one thing can be seen as certain: the fashionable variations of the moment may change over time in the classroom or in teaching materials and media, but the fundamental orientation towards structures and structural elements so far remains unchanged. There are notable exceptions of course: there is a substantial and growing body of advanced research on teaching and acquisition, and a wide interest on the part of instructors in modern advances on research and teaching. However, a look at current textbooks and commercial media products easily confirms that the practice of mainstream language pedagogy hardly reflects research advances, such as process-based and usage-based models of acquisition sequences. The presentation of grammar in language teaching has moved increasingly from prescriptive to descriptive (mainly structuralist and contrastive) approaches, with occasional references to, and examples of, everyday usage of language. However, the structuralist compartmentalization of language into smaller and smallest linguistic units (syllables, phonemes) with the sentence often being the largest one has changed little over time, as has the belief that teaching linguistic structures, in one palatable way or the other, addresses the primary needs of the learners. The debates on implicit versus explicit grammar teaching, focus on form, focus on forms and focus on meaning, various input hypotheses and models, and language awareness reflect this kind of orientation on grammatical structures. Moreover, input models which attempt to match the learners' linguistic needs in the sense of *i+1* structured input activities etc. (Krashen, 1985; Schmidt, 1990; Wong, 2004; cf. Roche et al., 2006; Sharwood Smith, 1993; VanPatten, 2004 for critical presentations) not only operate on structural aspects of learner progress, but assume

that controlled frequency effects of input features ought to play the crucial role in language instruction, a claim contested by acquisition experts such as Klein (1986). If the amount and mere frequency of input played the crucial role in language acquisition, migrants living in target-language environments would acquire the new language easily – if not automatically – in a short period of time. This, unfortunately, has proven not to be the case. Rather, rudimentary acquisition and fossilization in the acquisition process occur frequently, in all observed languages and under various environmental conditions. Obviously, input models frequently underestimate the fact that ‘natural’ foreign language acquisition is less governed by formal concerns and effects of quantity than it is driven by non-linguistic interests of the learner to communicate meaning. After all, language acquisition can occur under restricted conditions and without any formal instruction. Almost all people learn their first languages without instruction and most people who use second or foreign languages on a more advanced level have learned them through a motivation to communicate meaning rather than through instruction.

3 Research and Teaching: The Missing Links – Cognition and Pragmatics

In an exemplary survey of the presentation of modals in current English grammar books Tyler (2008) investigates how strongly the books are based in traditional approaches to grammar and to what extent they recognize findings of Cognitive Linguistics. The results are disenchanting. Tyler concludes that textbooks continue to be restricted to presenting the root meanings of the modals, for example, but do not deal with their dual meanings as epistemic expressions. She finds no other evidence of cognitive aspects of grammar being portrayed in modern grammar books.¹

Predominantly structure-oriented approaches seem to fit perfectly with a pedagogical orientation towards interventionist methodologies. In the wake of such interventionist or instructionist methodologies, language teaching approaches that focus on truly autonomous, task-based, functional (competence-oriented) and other aspects typically accorded to constructivist models continue to remain an exception. This applies even more to approaches that focus on rich, authentic cultural and linguistic environments as a precondition of the learner’s ability to use language creatively. The fact that Papert’s constructionist model of language learning (understood as a specification of constructivist learning theory) opens a wider usage- and task-based horizon to modern language teaching approaches is little known in language pedagogy. Papert not only emphasizes the importance of rich context for understanding the input but also stresses the catalytic significance of public domains for the production of

learner output. It is through the presentation of products (texts) that the learner receives rich, authentic, interactive feedback which contains vital cues for linguistic accuracy and the communicatively appropriate embedding of the productions (Beers, 2011; Fischhaber, 2002; Goldman-Segall, 1998; Papert, 1980). Common modern approaches to task-based learning, by contrast, are often reduced to the aspect of content teaching which is undoubtedly important but not sufficient (Roche et al., 2012). The recent European movement on Content and Language Integrated Learning (CLIL) is a good illustration of the fact that previous foci on content initiatives dating back to Comenius' didactic approach of the seventeenth century (Comenius, 1981), the reform movement of the turn of the nineteenth/twentieth century (Gouin, 1880; Jespersen, 1922; Viëtor, 1882) and including more recent communicative approaches on foreign languages in/ across the curriculum (FLIC/FLAC; Krueger et al., 1993) in the 1970s and 1980s have had little effect on mainstream language instruction. Again, the evidence is disenchanting: had content orientation been established as a fundamental component of the dominant movement of communicative language instruction in the 1970s, it would not have to be reinvented by the CLIL-initiative today. Besides, the mere orientation towards content ignores the fact that language use – and hence language learning – do not emerge from content alone but rather are propelled by task-based actions. 'How to do tasks with words' is the most essential issue in any pragmatic paradigm of language use and language learning.

A look at commercial language learning software is revealing: It shows that the pragmatic understanding of language (doing things with language) is far from being accepted in language teaching. In fact, quite the contrary seems to apply: it is fair to say that basic methodological advancements in media applications (e.g. towards the communicative approaches to language teaching since the 1970s) often have been pulled back several generations to the audio-visual era of the 1950s army method and the grammar-translation approach of previous times. Tyler (2008: 458) gives a sobering but accurate account of the predominant views on language in language pedagogy as she states the following:

This traditional view of language, which underlies most L2 grammars and texts, treats language as a system unto itself, separate from other cognitive and social abilities. Being an isolated system, disconnected from general cognitive processes and conceptual structure, language has traditionally been understood as operating under its own set of rules and properties, most of which have been assumed to be largely arbitrary, idiosyncratic, and mysterious. This view tends to represent language as a set of rules (often attempting to represent 'alternating,' 'synonymous' sentence patterns, such as so-called dative alternation or active-passive alternation, as transforms of a basic pattern), a list of vocabulary items that plug into the rules, and a list of

exceptions to the rules. Lexical items with multiple meanings are presented as homophones, with virtually no attempt to demonstrate any motivated connections among the meanings. The approach to language learning that accompanies this view of language emphasizes the need for the learner to memorize forms, master the rules, and memorize the exceptions.

In light of the lack of empirical studies supporting the prevalent interventionist teaching philosophies, Goldberg/Casenhiser (2008: 210) caution that '[. . .] of course, there are other factors that play a role in a classroom setting. It is possible that focused training exclusively on a narrow subtype of a pattern could lead to excessive boredom.'

4 The Emergence of New Horizons in Language Pedagogy

To avoid such consequences, a fresh approach to the linguistic basis of language pedagogy would appear to be needed. Clearly, this approach would have to take into account what insights on language acquisition Cognitive Linguistics has to offer. Arguably, this includes a pragmalinguistic foundation of language teaching and constructionist methodologies. How such approaches may impact language pedagogy in general has been stated concisely by Langacker (2008: 66).

Few would maintain that language instruction is easy. Nor can the advice of linguists always be counted on to make it any easier. Unless they are themselves experienced language teachers, the advice of linguists on language pedagogy is likely to be of no more practical value than the advice of theoretical physicists on how to teach pole vaulting. What they can offer, *qua* linguists, is insight into the structure of particular languages and the properties of language in general. But even when limited in this fashion, the input of linguists cannot necessarily be trusted. They quarrel with one another about the most fundamental issues, suggesting that some of them (at least) must be fundamentally wrong. It is therefore unsurprising that the impact of linguistic theory on language pedagogy has been less than miraculous and sometimes less than helpful.

Among the few notable exceptions of experimental studies that apply Cognitive Linguistics to language learning are the volumes edited by Achard and Niemeier (2004), Littlemore and Juchem-Grundmann (2010), Tyler and Evans (2003), the unpublished studies by Hama (2005) and Abbuhl (2005) reported in Tyler (2008), Scheller (2008), and Roche/Scheller (2008). While we are indeed far from conceiving a unified, complete and operational approach to Applied Cognitive

Linguistics, Cognitive Linguistics has highlighted a number of areas – and produced a number of results – which are transferable to language learning and instruction. Unfortunately, many of the suggestions by cognitive linguists on just how the transfer could be managed – as freely admitted by the respective authors – remain tied to the traditional input-oriented and interventionist methodologies described above (e.g. most contributions in the volume edited by Robinson et al., 2008).² Language pedagogy and Cognitive Linguistics need a viable interface which allows the application of mental models of grammar to task-based, pragma-oriented learning and teaching.

5 Usage-based Orientation Towards Language and Language Learning

Achard (2008) suggests that the teaching of structural properties of languages ought to parallel the teaching of lexical (meaningful) units. Syntax in this line of thought does not represent an independent organizational system in its own right (as it is commonly treated in language teaching) but rather ought to be treated by instructors, and explained to learners, as a system of meaningful mental constructions. Learners do not map language along the lines of reference grammars. Rather, they construct interim grammars as mental models similar to, and compatible with, the way Cognitive Linguistics treats linguistic means as mental constructions.³ An environment which is not considered relevant by the learner tends to pass unnoticed while input which is simplified or otherwise manipulated for pedagogical reasons tends to forego the benefits of authentic input. Such input often leads to a rather abstract knowledge of grammatical rules which learners find difficult to apply in real-time communication.

The usage-based approach to language appears to be particularly productive for language learning and teaching as it traces form to underlying meanings. In fact, this is where Cognitive Linguistics comes into play: it seems to provide the best framework for the transfer of grammatical schemata into immediate, everyday language use by the learner.

While generative theories take constructions to be the output of abstract and autonomous rule applications and constraints, constructions from a usage-based perspective are conceived as what speakers of a language infer from the input (Tomasello, 2008). The inference of the input is grounded in speakers' immediate perceptual experience. Constructions, that is patterns of smaller or bigger linguistic units, such as words, morphemes and phrases, can thus be described both from the semantic and functional perspective ('What is the meaning conveyed by the construction?', 'What is its function in the given context?') and from the formal perspective ('What kinds of items are likely to occur in the construction, and in what kind of configuration?').⁴ With such a foundation, the

transparency of usage-based categories can avoid the most fundamental misconception of traditional approaches to language teaching: overburdening the learners with a distracting amount and degree of abstract rules.

A great advantage of Usage-Based Theory over Generative Theories is that it does not rely on innateness to explain linguistic categories but rather proposes that much of grammar can be explained on the basis of the domain-general abilities of humans [. . .]. Given these very generalized cognitive abilities, usage factors themselves become part of the explanation for the properties evident in human language. (Bybee, 2008: 233)

Grammatical rules can, therefore, be processed easily by a learner when they carry meaning that contributes to the construction of mental models and schemata. Such mental constructions, according to Langacker (2008: 68), are dependent on, and reflect, various cognitive factors: specificity (as expressed by specific lexical items), prominence in terms of profiling (e.g. the different focus expressed in the general message 'she flew' versus the more explicit specification of the means of travelling in 'she travelled by plane'), and in terms of focal prominence of relational participants, that is, the relationship of trajector and landmark, and perspective (the expression of vantage point, orientation, local vs global perspective as expressed by the temporal aspect in 'the road is winding' vs. 'the road winds through the mountains'). Consequently, the specific shape of mental constructions is largely dependent on the speaker's attention to specific details.

Applying a usage-based approach to (authentic) language promises to have many advantages for language pedagogy. Among the most apparent are the following: (1) language is embedded in authentic and, therefore, relevant contexts (including visual and gestural expressions), (2) structures become more transparent and accessible to the learner, (3) naturally occurring language variation resulting from contextualized uses of language in specific situations can be traced back to its pragma-linguistic functions, (4) specific textual patterns are inherently represented in genres and registers, (5) language occurs in larger constructions (chunks) reflecting meaning (form-meaning pairings), (6) these chunks are easier to grasp and faster to apply and, therefore, advance and increase the learner's linguistic mobility and motivation, (7) at the same time, chunks form the necessary basis for further grammatical analysis and expansion (cf. Goldberg et al., 2008), and finally (8) form-meaning constructions can be better related by the learner to the reactions (feedback) of the communicative environment, allowing the learner to benefit from communicative interaction. As a result, an authentic, usage-oriented language environment increases the learner's chances to keep grammatical principles and rules in active memory, especially when the language is relevant to the speaker/learner. After all, the

speaker's attention is governed by his/her assessment of relevance in a given situation and under given circumstances. In other words: language use has a conceptual motivation (grounding) which itself is influenced by pragmatic experience (environment, culture). When confirmed through communicative interaction, it becomes entrenched. It needs to be stressed that there is no reason to assume that learners in this respect act differently from 'native speakers'. Meaningful constructions increase transparency and produce a stronger and more lasting effect on long-term memory.

6 Possible Fields of Application

This section portrays some of the theoretical implications arising from a cognition-based approach to language learning and teaching. This includes aspects of the development of syntax, morphology, textuality, semantics and the lexicon.

6.1 The Basic Variety and the Learner's Path to Grammar

Common basic organizing principles of rudimentary language systems such as pidgins, aphasia and learner varieties were originally proposed by Givón in his language typology (1979: 98). The principles were later refined by Klein/Perdue (1997) to form the pragmatic organizing framework of the 'Basic Variety'. Klein and Perdue's research on learner varieties has shown that the pragmatic mode is more than just a transient mode in language acquisition, as had long been thought. According to Klein/Perdue (1997), the Basic Variety is in itself a language that has all the features of a complete natural language and, therefore, may be considered the first major fossilization option in the process of acquiring a foreign language. In fact, the grammar of the Basic Variety and the macro structures of learner utterances and texts can be represented as a set of cognitive principles: topic-comment structures consistently represent gestalt figure ground principles, the transfer of concepts of time, space, and motion determines the expression and sequence of essential grammatical categories, and grammar is lexicalized (cf. Langacker, 1999; Reinhart, 1984; Roche et al., 2008; Rosch, 1975). As a result, grammar in the learner language is often expressed lexically or, especially in the very early phases, manifests itself in implicit organizing principles. Klein/Perdue (1997) argue that all essential aspects of natural languages are represented in the Basic Variety.

While the organizing principles of the Basic Variety allow the speaker to communicate within the range of essential everyday topics and functions this range is somewhat limited by the constraints of a largely situation-based framework of communication. For many speakers who never exceed the grammatical

range of the Basic Variety, language expansion may nevertheless occur in the realm of the lexicon. In other words, the lexicon may be adapted to increased communicative needs while the basic grammar remains the same or fossilizes. However, while the Basic Variety can describe the pragmatic language system it cannot explain how a learner moves on from the purely pragmatic mode (with optional expandable lexical bases) to more sophisticated, target-adequate rules.

This process can be explained best by the chunking/de-chunking model applied to foreign language acquisition by Handwerker/Madlener (2009) in an exemplary manner. The model is based on Tomasello's well-documented account of chunking processes in L1 acquisition (Tomasello, 2003, 2006).

In fact, much of the language import from the language to be acquired has been shown to be presented to and represented by the learner in chunks. As acquisition progresses, the language of the learner will become more and more diversified and entrenched provided the input is demanding, sufficient, salient and relevant. As has been presented above, mere frequency in this process is not a sufficient condition for acquisition to occur. Research has shown that the noticing of salient features in the input by the learner is more important than the mere frequency of elements in the input (cf. Ellis, 2006a on aspects of selective attention and transfer phenomena in L2 acquisition, Ellis, 2006b; Klein, 1986; Schmidt, 1990). Bybee's assessment of the role of frequency (sufficient exposure), therefore, appears to be too optimistic unless sufficient exposure refers to the quality and relevance of the input rather than the mere quantity.

The only requirement is sufficient exposure to the categories of the L2. And finally, the chunking and automatization processes needed to gain fluency occur naturally with practice of both linguistic and non-linguistic tasks. (Bybee, 2008: 233)

The holistic meaning of chunks is of critical importance as learners manage to interpret it in a specific pragmatic context, and subsequently use it with increasing accuracy in the aforementioned acquisition sequences. The chunks are stored and remain available at the learner's disposal, initially for identical contexts only, and later on for merely similar contexts as well. Through receptive processing of further, similar, and (as the case may be) actively modified input, the learner begins to identify and subsequently analyse individual parts with respect to their grammatical functions. Concurrently, this allows the learner to generate applicable paradigms that enable him or her to recognize and identify individual elements again. Since these elements appear in other contexts and in other chunks, the result is a certain familiarity with the elements as well as a certain proficiency in analysing strategies that allow the learner to reconstruct various meanings and pragmatic functions even though they may contain a

significant amount of unknown elements. After the complete or partial analysis of the input structures, also called 'de-chunking', parts or entire elements may be resynthesized for active use by the learner. Ultimately, the structures may come to be embedded in the existing language system of the learner. This is a process which becomes more refined and accurate through further feedback and practice.

Somewhat more elaborated chunks, for example, provide slots for variable elements (Lieven et al., 2008). This phase is later expanded into forming something even more sophisticated: basic rules. For instance, a basic chunk may display the form 'I'm gonna x' before it is elaborated into 'I want to x'. In other words, learners are not only copying chunks but building them – a task which requires at least some metalinguistic awareness. As learners progress even further they develop their skills in the de-chunking of larger elements in order to develop and test new grammatical rules. It is, of course, to be expected that learners would also employ these forms in contexts that are not entirely appropriate; a certain degree of overgeneralization is typically the result.

Bybee (2008) points to the importance of pre-acquired tokens in L1 to influence chunking in L2. According to Bybee's model, it can be assumed that L2 learners activate pre-acquired language elements from their linguistic storage in order to use them productively in L2. However, while this strategy can be observed in reading and listening in a foreign language – if the learner shows a certain kind of (courageous) disposition vis-à-vis foreign elements – the strategy obviously does not apply to the same extent in the realm of productive skills of speaking and to an even lesser extent to writing. In fact, previously acquired structures may produce interferences that inhibit language development. L1 and L2 acquisition in this respect are certainly not identical. While Bybee (2008: 232) interprets this observation as an expression of the learner's willingness to integrate into the foreign culture, L3 acquisition research shows that foreign language learners often deliberately refrain from modelling utterances in the new language based on L1 structures (cf. Grosjean, 1988; Bot, 2004; cf. Roche, 2013 on the ecological-economic/organic model of language acquisition).⁵

6.2 Conceptual Transfer: Temporality, Space and Motion

The extent to which mental models determine language acquisition can best be understood by examining the existential categories of space and time. This presupposes the assumption that L1-entrenched and conventionalized mental concepts, such as those of temporality, space and motion, form the matrix in the acquisition of new linguistic systems (cf. Lieven et al., 2008 on L1 acquisition). The cognitive basis of this approach is rooted in the sequences (and the variational parameters) by which L2 learners approach new temporal and spatial

target systems (Becker et al., 1997; Perdue, 1982; Ramat et al., 1995; Stutterheim, 1986; Véronique, 1990; Vogel et al., 1993).

The morphological rules for expressing temporality with German as the target language, for example, are usually acquired by learners in the following sequence (cf. Stutterheim, 1991: 145):

- First, perfect participles appear as mechanical forms of verbs. These have an inherent perfect meaning (e.g. *gefunden* 'found'). In this phase, the learner has not yet recognized the morphological structure.
- Next, a formal comparison of perfect form as a global marker for past and unmarked form for all other cases. The learner acquires a rule which only applies to a small number of verbs (e.g. *fund* – *finden*).
- The next step involves expanding the rule to include further verbs. In this phase, the perfect category is marked selectively in conversation (strong verbs formed according to the aforementioned pattern, but differentiation between perfect and infinitive use).
- A further step is necessary to align the verb to the target language rules of obligatory markings of temporal categories (tense). This can also mean a change or expansion of the meaning of the form in question, such as the switch from an aspect system to a tense system (e.g. the gradual conversion to the target language tense system).

This basic temporal system can be developed further at a later point in time, as long as the acquisition process does not fossilize beforehand.⁶

Like the acquisition of temporal concepts, the acquisition of spatial concepts also proceeds through several stages (Becker et al., 1988). Based on both experimental lab data from description tasks and narratives from storytellings, story recountings, and descriptions of scenes from silent movies, learning how to express location and spatial relationships can be described as the process of acquiring two different reference systems, that is, topological reference (e.g. 'on', 'in', and other prototypical descriptors in a direct reference system), and, subsequently, projective reference. Projective reference is not concerned with the immediate origo of the speaker, but rather projects it onto a second reference system, as in 'die tasche die stuhl' / 'the bag the chair' ('the bag next to the chair'), according to the construction principle of 'x = where y is'. This development process is composed of six parts:

1. Basic topological designations with a clear speaker reference (origo) belong to the standard configuration of the Basic Variety and appear first. Nominal statements appear before other categories.
2. Core designations are acquired before peripheral designations. Deictic expressions ('here', 'there', 'da') become the first markers in this respect.

The differentiation between speaker inclusion ('here'/'hier') and speaker exclusion in the reference area using 'there'/'da' appears subsequently.

3. The designation of the proximity of objects, such as, 'book inside the glass' (= 'beside'), 'côté de la chaise' (= 'side of the chair'), 'seine tasche in die seite' (= 'his bag in the side') (Becker et al., 1988: 130) remains relatively constant throughout the further acquisition process, as the learner does not perceive problems in the basic system and it therefore appears to be adequate.
4. Verticality is realized as the first referential axis, presumably because it allows for clear form-function assignments.
5. The lateral axis follows as the second referential axis.
6. The sagittal axis is the last to be implemented, presumably because of the high variability and flexibility in possible form-function assignments.

Usually, directional markers appear before location markers. This may be due to the presumably higher complexity of expressing location versus direction, as Becker/Carroll/Kelly (1988) propose. Another reason may be that directional markers contain specific information which is not intrinsically accessible in the reference area and, therefore, requires a larger linguistic inventory.

Several experiments using artificial languages have shown that learners tend to concentrate on a single element when acquiring new forms, often for prolonged periods of time (Ellis, 2006a). Semantically transparent (non-salient) forms with no clear referent are generally acquired late and slowly. Acquisition occurs faster only when the expressions represent fundamental (ontological) functions. However, stages cannot be skipped. If variation does occur, it plays out within a stage.

Interestingly, the general core inventory of expressions shows many similarities across various learner varieties, regardless of background languages, but learners judge the relevance of the focus to be expressed and the accuracy of how to express it in individually different ways. These idiosyncratic differences result in much of the linguistic variation that can be observed across learner varieties. At the same time, a number of commonalities in learner varieties define what unites and what distinguishes certain groups of learners.

As with the acquisition of temporal markers, the acquisition of spatial markers in general shows no specific mappings of concepts onto specific grammatical categories. Rather, the available acquisition data displays particular differences in the meaning-form mappings of various languages. While the prevalence of meaning and function remains central for all learners regardless of their language, the preference for grammatical categories differs to a certain degree. When choosing grammatical categories, interestingly, learners are often guided by the structures of the target language rather than those of the L1. For instance, adult learners of L2 French prefer to use, as is customary for colloquial French,

verb-based forms such as 'sort-' (derived from 'sortir', expressing a motion away from the referent), 'mont-' (from 'monter', expressing an upward motion), 'arriv-' (from 'arriver', expressing a motion towards the referent).⁷

By contrast, adult L2 learners of German, Dutch, or English favour prepositions, prepositional prefixes and similar constructions ('auf'/'on', 'raus'/'out', 'weg'/'away' and others) as is customary for the target language. Remarkably, the preposition 'auf' ('on') is a special case for both L1 and L2 learners: this preposition appears later than its equivalents in other languages. The reason for this can presumably be found in the complex and multifunctional system of this preposition in German.

There are, however, exceptions to the major acquisition principles: not all learner groups use an approach that is oriented to the same degree towards principles of the target language. Learners with L1 Punjabi, for example, favour overgeneralizations over direct transfers from the target language. This diversified picture shows that source language (L1), target language (L2), and learner language interact during the acquisition process to a varying extent (Becker et al., 1997).

It is important to remember that the acquisition of basic spatial perception principles, like any other perception principles, begins in childhood and, consequently, affects further acquisition with respect to and through primary languages (L1s). The resulting conceptual transfer affects spatial dimensions as well as spatial relations and functions (cf. Coventry et al., 2008: 132; Pederson et al., 1998).⁸

As learners acquire a temporal or spatial system in particular sequences following specific strategies, language pedagogy would be well advised to focus on conceptual transfer and make concrete suggestions on how languages could be taught along those lines, not in conflict with them.

6.3 Text as Cognitive Process

It is a commonly observed phenomenon that learners may be able to recite grammatical rules or manipulate inflectional morphology, but at the same time are not able to communicate adequately in coherent and cohesive language. Moreover, in language classes – and textbooks to be sure – it is often overlooked that a text is not as so much a linear (additive) product comprised of unrelated phonemes, words and sentences as it is a cognitive, that is a hypertextual, process. If we consider a text to be a mental construct rather than a physical product (Bühler, 1934; Foschi Albert, 2012; Schnotz, 2006, 1994; Talmy, 2008) the consequences for the teaching of languages would mark a significant paradigm shift similar in extent to the focus on conceptual transfer described in the previous paragraph. The explicit treatment of aspects of textuality in teaching

materials for foreign language instruction has so far restricted itself to establishing textual references through pronominal links (cohesion), and so remains firmly entrenched in a traditional perspective on structural grammar. The acquisition of language, however, entails the acquisition of skills for comprehending and producing texts that go far beyond the grammatical rules of linking sentences through means of cohesion. For a reader or listener to understand a text properly not only requires the knowledge of key lexical elements and cohesion principles; it also requires complex knowledge of the lexicon's grounding in cultural contexts as well as its connectedness with pragmatic principles of coherence construction. Only the ability to decode the cultural embedding and the pragmatic framework of a text provide the necessary means to reconstruct or produce coherence. A model that encapsulates the cognitive reality of texts as mental constructs of author and reader has been proposed by Schnotz (2006, 1994) in reference to Bühler's organon model (Bühler, 1934, see Figure 4.3.1).

In this model, a text has a physical structure, which emerges through the interconnection of individual elements (syntax, cohesive elements). Order and connections alone, however, do not lead to an understanding of the text. The comprehension of a text, rather, requires different means for the generation of coherence: referential, causal, temporal, local and structural coherence (Foschi Albert, 2012). The process of merging these elements into a mental construct has essentially been described as being equivalent to the process of alternating top-down / bottom-up reading with hypertexts. Accordingly, the principle of cognitive flexibility and the principle of cognitive plausibility stipulate that the emphasis on certain structural properties in the text may trigger or foster cognitive processes relevant for the structuring of the contents of, and for providing multi-perspective access to, the text (Issing et al., 2002; Spiro et al., 1991; Suñer Muñoz, 2011). It has been argued that the processes involved are especially suited to facilitate reading and writing in the instruction of foreign languages, but the empirical evidence for this claim is not yet conclusive and requires more consideration of the learner's skill levels (Roche, 2006).

6.4 Metaphorization

Lakoff and Johnson (1980), in their ground-breaking work on metaphorization, argued that most of our ordinary conceptual system is metaphorical in nature, that is, human thoughts are metaphorical per se, as human cognition is based on physical experience but cannot be directly commuted to mental processes without some measure of symbolic interpretation (Evans et al., 2006; Grady, 2005; Oakley, 2007). As a result, language too is thought to be governed by metaphorization processes as it is an expression of human experience. Vice versa, language is an important element in shaping humans' perception and

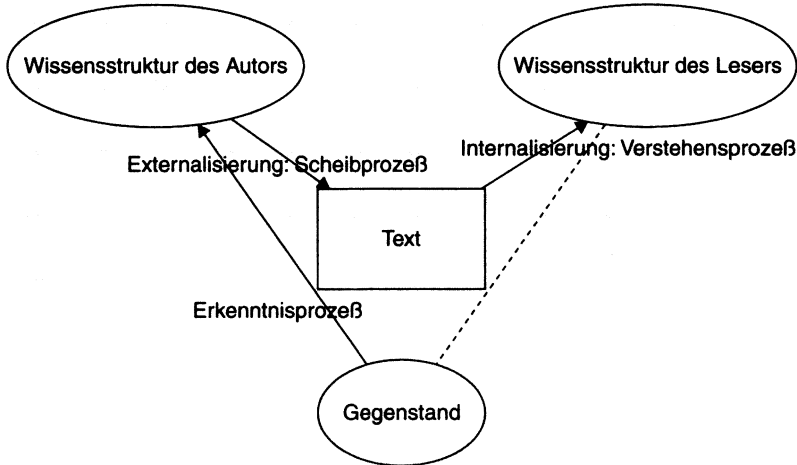


Figure 4.3.1 Text as a mental construct according to Schnotz (2006: 225)

mental modelling. Metaphorization processes are thus an important element in the brain's construction of the world rather than a representation of an objective reality (cf. Slobin's 1996 *Thinking for Speaking* hypothesis, and the works of language philosophers such as Condillac, 1746; Humboldt, 1801/2; Locke, 1690; Osgood et al., 1954; Vico, 1725; Vygotskij, 1962 and Weinreich, 1953 and remarks on language by physicists such as Heisenberg, 1959). Every aspect of human symbolic behaviour is grounded in this projection of reality and it is, naturally, influenced by idiosyncratic and culture-specific experiences, ways of thinking, norms and linguistic symbols.

In other words, the culture-specific and idiosyncratic perceptual environment has a large influence on the conceptualization of the world through the association with metaphors, and, hence, its mapping onto language. With reference to current teaching practices, Webber (2013) argues convincingly that neglecting the conceptual context in both the analysis of metaphor and the inclusion in curricula leads to an unjustified and unproductive reductionism which in the end inhibits our understanding of the systematics of metaphors and defeats the purpose of raising awareness of metaphor in and through language teaching.

Several studies on intercultural semantics and pragmatics provide evidence for the relativity, quality, and extent of the mutual influence of perception and language (Boroditsky, 2000; Gentner et al., 1983; Kühn, 2006; Matlock et al., 2001; Roche et al., 2006; Schaubig et al., 2004; van Lancker Sidtis, 2006). Several approaches have been proposed to apply the findings of research on various aspects of the broad field of intercultural linguistics (e.g. Földes, 2003) to language teaching, including culture-based language pedagogy (Byram,

1997; Kramsch, 1993), intercultural language pedagogy (Foschi Albert et al., 2010; Reeg, 2006; Roche, 2001), the sceptical hermeneutics approach based in intercultural hermeneutics (BMW AG, 1997; Hunfeld, 2004) and, more recently, Conceptual Metaphor Theory (Danesi, 2008). Conceptual Metaphor Theory is a particular attempt to systematize intercultural semantics in combination with metaphorization theory for the use in language pedagogy. As such, it constitutes another radical departure from the way metaphors are generally treated in language, literature or culture instruction. For the sake of brevity, in the following, some of the essential ramifications of metaphor-based theories for language teaching will be presented.

The basic motive for using metaphors in the teaching of languages draws on the fact that metaphors represent a conceptual and orientational systematic projection of the world which is easily accessible to learners because of its immediacy and transparency. The focus of the approach could be different. It could be based on structural metaphors, it could be guided by spatial, temporal, or other orientations, or it could be derived from ontological categories representing general human experiences with the world, such as heat, cold, darkness, light, life or death (for instance in French 'pris entre le marteau et l'enclume'/'caught between a rock and a hard place'; in German: 'zwischen Pest und Cholera'). As with other subject matter, for an efficient instruction metaphors in the foreign language need to be relevant for the learner. Rather than presenting a context-free list of semantic elements of metaphors it is more efficient to embark on a usage-based approach to the most evident concepts and structures. Metaphors ought to be salient to the extent necessary to capture and hold the interest of the learner. Where source or target domains of metaphors differ between the languages of the learner and the target language, the resulting transference discrepancy is less of a problem than often thought. In fact, it may prove to be of a particular benefit as the difference may provide the right means to trigger a particular curiosity in the learner. Unusual cultural equivalencies of, and discrepancies between, languages, such as 'green with envy'/'vert de jalousie' (French) and 'gelb vor Neid' ('yellow with envy') in German, have a tendency to generate a particularly high degree of salience for the learner. The increased level of interest subsequently can lead to an intensified processing of the metaphors involved and possibly a co-activation of related items. This increased cognitive effort produces a larger impact in the cognitive system and therefore strengthens the activation paths of the mental lexicon resulting in improved meaning and form retention. Under certain conditions, multimodal processing through different processing channels (modes) and different codings (formats) can help facilitate the processing task (cf. Scheller, 2008; Suñer Muñoz, 2011).

There is also a grammatical aspect to the processing of metaphors as their syntactic patterns often provide a chunk-like model for related constructions.

Because of their highly salient (sometimes archaic or odd appearing) structure those patterns carry a high potential for long-term retention (cf. List of Didactic Encouragements by Littlemore, 2009). This process is not a one-way street, since organizing and reorganizing processes in the mental lexicon affect all active languages acquired by a learner. Reorganizing effects on previously acquired language systems are likely to occur. However, these effects are not only to be expected as an incidental by-product of language contact. Rather, they can be optimized by adequate instructional measures by the teacher and the teaching materials.

6.5 Conceptual Metaphors in Grammar Instruction

Interestingly, metaphors do not only improve the knowledge of the lexical basis but may also serve as a means to teach grammatical rules. This is what the last section of this chapter attempts to illustrate. This seems to be quite an ambitious attempt as neither L2 teachers nor L1 speakers – who are supposed to know their own language – tend to have a metalinguistic access to the conceptual basis of the grammatical rules. In other words, few L1 speakers will in fact be able to explain to a foreigner the tense or case system of their own L1 (yet no one would dispute their language awareness). But how then are L2 learners supposed to develop a sense of the meaning and functions of an alien grammatical system? It has been suggested recently, that an innovative answer to this common problem in language pedagogy may be provided by metaphors applied to the teaching of grammar.

To illustrate the importance and scope of such metaphors in grammar learning and teaching it is instructive to turn to one of the most prominent fields of metaphor-prone grammar across languages: the field of motion. Of particular interest to Cognitive Linguistics in this field has been the relation of moving objects in space as they produce a perceived contrast between a background (landmark) and the moving object (trajector) (Langacker, 1999). A landmark in this framework represents the spatial area in which a moving object is situated. For example, in contrast to formal descriptions of grammar, cognitive approaches have stressed the significance of the crossing of an (imaginary) boundary as the determining feature for the choice of the accusative case in German with two-way prepositions (Freitag et al., 2005; Roche et al., 1995; Wilmots et al., 1997). Consequently, the differentiating criterion for two-way prepositions in German is not the semantic feature of motion inherent to the verb, as is widely claimed by almost all reference grammars, but the conceptual and functional feature of the marking of a boundary crossing. As a result, the location or movement within a given boundary or area is marked by the dative regardless of whether the verb expresses motion or not. In the words of

Langacker (1999) the criteria for choosing the appropriate case in German can thus be formulated as follows:

- dative: the subject (trajector) remains within the immediate search area of the prepositional object (landmark); the landmark area is not being crossed
- accusative: the subject (trajector) moves into the immediate area of the prepositional object (landmark) and crosses its boundaries.

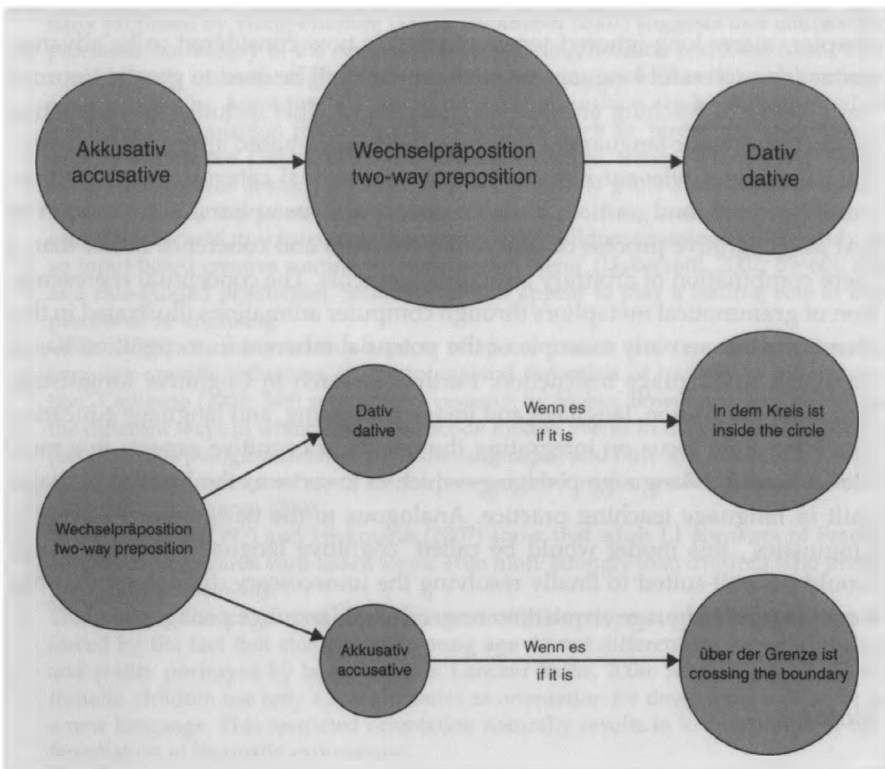
Recent studies indicate that such conceptual representations of grammatical constraints are productive across different languages (e.g. Özçalışkan, 2003, for Turkish) and work well in language learning and teaching (Grass, 2013; Roche et al., 2008; Scheller, 2008). The study by Scheller (2008) is unique in this respect as it combines the investigation of such a conceptual approach to grammar with various modes of input presentation. The success of the programmes



Figure 4.3.2 Screenshot of an animation taken from Scheller (2008: 132). Left the dative expression (trajector remains within the perimeter of the landmark), accusative on the right (trajector moves into the perimeter of the landmark)

developed for, and used in, the study is measured in terms of short- and long-term learner performances in the application of grammatical rules. Four groups of informants were formed to test four different combinations of the presented materials. The groups used either a conceptual/metaphor-based or traditional/rule-governed approach to grammar explanation and either an animation or static presentation mode.⁹ The results document the overall superiority of the conceptual approach to grammar when presented in the animation mode. The study shows that metaphor-based animations produce significant and lasting improvements in the acquisition of grammar by students who have progressed little or not at all over a long period of time (see Figure 4.3.2).

More recently, a study by Grass (2013) which used similar animations and was based on an approach developed by cognitive psychologists (Ifenthaler et al., 2005) to measure modifications in mental models has traced the nature of the modifications and thus has added evidence to the claims made by Scheller's study. In support of the findings of the largely quantitative studies by Scheller,



Figures 4.3.3 and 4.3.4 Mental models of two-way prepositions in learners before and after using conceptual animations. Study by Scheller (2008) (Grass, 2013)

the study by Grass shows how diffuse and arbitrary mental representations of grammatical rules based on diffuse representations of traditional grammar approaches (Figure 4.3.3.) may be turned into plausible, structured and focused mental models by using conceptual animations (see Figure 4.3.4). Such models in turn are the precondition for the accurate and lasting application of the rules in authentic communication.

7 Conclusion

In contrast to current wide-spread 'superstitions' regarding foreign language instruction, a conceptual approach to language learning allows for a more transparent and effective representation of grammatical rules and, consequently, for a more accurate prediction of, and tuning of instructional measures to, developmental processes. Initial empirical studies show that teaching methods derived from such principles have proven effective in teaching and learning practice and produce lasting learning improvements. As discussed in this chapter, many long-ignored tenets of what is now considered to be advantageous for successful language acquisition could all be used to greatly improve the process of teaching and learning languages. This includes an orientation towards authentic language, a pragmatic and usage-based approach to providing salient and relevant input, a basis in conceptual categories such as temporality, space, and motion, a use of conceptual metaphors, and a notion of text as a cognitive process of generating cohesion and coherence rather than a mere combination of arbitrary structural elements. The conceptual representation of grammatical metaphors through computer animations illustrated in this chapter is but an early example of the potential inherent in a cognition-based approach to language instruction. Further research in Cognitive Linguistics, language acquisition, language and image processing, and language education must therefore focus on integrating the results of cognitive aspects in a multilevel model to language pedagogy which is to serve as the basis for a major shift in language teaching practice. Analogous to the designation 'Cognitive Linguistics', this model would be called 'cognitive language pedagogy' and would be well-suited to finally resolving the unnecessary dissonance that has long plagued language acquisition research and language pedagogy.

Notes

1. An example should suffice to illustrate the limitations of common structural perspectives on grammar in current language pedagogy: Cognition is often used in language pedagogy as a synonym for metalinguistic awareness as it forms the basis of many

traditional and neo-grammatical teaching approaches. In German, for instance, the term 'Kognitivierung' ('external cognitization') is commonly used to label such form-based teaching approaches in the sense of externally generated language awareness. The complex processes of language learning and information processing are not represented in this notion of cognition. Neither is the fact that language awareness expresses itself most adequately in the appropriate use of language in various contexts.

2. It is symptomatic that suggestions on the transferability of the findings to language pedagogy practically include no mentioning of task-based approaches to language instruction.
3. 'The pervasive importance of construal shows clearly that linguistic meaning does not reside in the objective nature of the situation described but is crucially dependent on how the situation is apprehended. Indeed, the situation in question is very often a mental construction which has no objective existence in the first place' (Langacker, 2008: 69) 'An important development within Cognitive Linguistics has been the status accorded to constructions. As is to be expected, we find disagreement on what, precisely, is to come under the purview of the concept (Taylor, 2004)' (Taylor, 2008: 55).
4. Both of these aspects are liable to give rise to prototype effects. Cf. Verhagen's (2007) cautioning comments on the assumption held by some linguists that a linguistic category is simply represented by its prototype.
5. Using the concept of chunks as viewed from a Construction Grammar standpoint, initially proposed by Wong-Fillmore (1979), Haberzettl (2007) suggests that chunks are processed holistically in the context of their meaning/function and their form. This could initially occur through their immediate meaning, as well as through partially analysed chunks. Accordingly, primary language acquisition can be characterized as a process of acquisition from concrete indicatives, such as 'birdie', to holophrases, such as 'lemme-see' ('let me see'), and schemata, such as 'where's the x?', and finally to the deduction of abstract constructions in the form of generalizations (Tomasello, 2006: 271; 2003: 38). In contrast to the process of chunking and de-chunking presented, Haberzettl thus interprets the output of the children examined in her study as an input-based creative routine or 'construction blend' (Haberzettl, 2007: 59–60), not as a rule-guided production. Semantic aspects appear to play a leading role in this process of de-chunking.
6. Odlin (2008) discusses various aspects of space, motion and time with respect to language-specific influences on mappings and potentials of transfer in L2 acquisition. Cadierno (2008: 249) summarizes research by Slobin, Bowerman and others on the different ways in which speakers encode motion events in their native languages (because of typological differences in the languages) and how this affects their organization of the conceptual space for purposes of thinking for speaking. See also Jarvis et al. (2007), Cadierno (2008).
7. Becker/Carroll (1997) and Hickmann (2007) show that adult L1 speakers of French actually tend towards verb-based forms even more strongly than children who prefer prepositional elements.
8. This early influence of ambient language on the development of concepts is reinforced by the fact that children at a young age do not differentiate between reality and reality portrayed by language (van Lancker Sidtis, 2006; Schaunig et al., 2004). Initially, children use only a few attributes as orientation for developing a concept in a new language. This restricted orientation naturally results in low variation or differentiation of linguistic expressions.
9. The rules have an iconic value and therefore call for visualization (cf. the notion of iconicity in Givón, 1991).

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