Thinking and Speaking in Two Languages

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MULTILINGUAL MATTERS

Contents

Chapter 3

Language-specific Patterns in Event Construal of Advanced Second Language Speakers

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3.1 Introduction

People communicating with second language (L2) users[1] of their native language often have the feeling that their interlocutors sound non-native even if they do not make obvious lexical and grammatical errors. In fact, Carroll and colleagues (Carroll & Lambert, 2003, 2006; Carroll & v. Stutterheim, 2003) have demonstrated that very advanced L2 speakers rarely display formal inaccuracies: their L2 grammar is nearly perfect. And yet the perception of 'non-nativeness' persists and it is not necessarily limited to pronunciation. This phenomenon is particularly evident in the production of complex stretches of discourse. In what follows, we will review a series of studies suggesting that the problem may lie in insufficient knowledge about language-specific principles of information organization, i.e. selecting and structuring information for expression. This issue will be examined with the focus on event[2] construal.

Previous studies of event construal in typologically different languages (Carroll et al., 2004; Carroll & v. Stutterheim, in press; v. Stutterheim & Nüse, 2003; v. Stutterheim et al., 2002) have demonstrated that the way speakers select and organize information depends on specific features of the grammatical system of a given language, in particular tense and aspect.[3] The findings show that categories that are deeply anchored in the linguistic system (i.e. grammaticalized) give rise to highly automatized preferences when selecting and structuring information for expression. The use of these preferences results in language-specific principles of information organization that speakers implement when solving complex verbal tasks (cf. Nüse, 2003; v. Stutterheim & Nüse, 2003). This view is in line with Slobin's (1996a) Thinking for Speaking hypothesis: the preparation of content for verbalization in the mind of a speaker is shaped by specific linguistic categories available in the speaker's language system.

The novelty of the work presented here is in showing that linguistic categories are not only relevant in the organization of information for verbalization, but that they also focus speakers' attention on certain aspects of a given situation. This is the so-called Seeing for Speaking hypothesis, as proposed by Carroll et al. (2004): when language A codes a certain meaning grammatically and language B codes the same meaning lexically or by phrasal means, then speakers of language A should attend to the relevant feature of a given visual scene, when the associated concept is relevant for the context in question, while speakers of language B may not do so, or at least not to the same extent. In what follows, we will discuss a number of studies conducted to test both the Thinking for Speaking and Seeing for Speaking hypotheses.

The structure of the chapter is as follows: Section 3.2 provides a brief overview of the theoretical framework; Sections 3.3 and 3.4 summarize findings of previous studies of event construal by native speakers of different languages and by L2 users; Section 3.5 introduces the methodology used in the three studies discussed here; Section 3.6 presents the findings of these studies and, in some cases, reanalyses or additional analyses of the data; and Section 3.7 is dedicated to a discussion of the findings. We end with some preliminary conclusions.

3.2 Theoretical Framework

3.2.1 Organizing information for verbalization: Conceptualization

In the model of language production proposed in Levelt (1989, 1999), the process of conceptualization takes place in the *conceptualizer*, where the so-called 'preverbal message' is constructed before it is mapped onto the linguistic form by accessing lexical, syntactic and phonological resources (the formulator) and is prepared for articulation (the articulator). In modeling processes involved in event conceptualization, however, we need a more detailed theory of the different processes that take place in the conceptualizer. According to v. Stutterheim and Nüse (2003), these processes involve segmentation, selection, structuring and linearization of the information to be expressed (cf. also Habel & Tappe, 1999).

In the first step, *segmentation*, particular components (or units) have to be selected from a knowledge base that is not organized hierarchically with respect to a given subject. Complex dynamic situations, for example, may be decomposed into smaller events, states or processes. In the process of information *selection*, the speaker has to choose those units that will be verbalized as well as the components by which these units can be represented. These components include entities, spaces, times and actions/states that can be described in terms of propositional units.

The next step is *structuring*. The units chosen must be structured in accordance with the requirements related to the type of predicate and argument roles (e.g. 'give' versus 'receive') and how they are anchored within a particular referential frame (e.g. spatial and temporal anchoring), as well as information status (i.e. allocation of topic and focus). In this process, the speaker has to choose the point of view from which the situation will be reported, which, in the case of event construal, for example, refers to whether the event is described as ongoing or as completed (v. Stutterheim & Nüse, 2003: 865). The next step in the planning process is *linearization*. Here, words are ordered in such a way that they can be expressed in a linguistic sequence (Levelt, 1982).

3.2.2 Grammaticalization and grammaticalized concepts

So, what role does grammar, and more specifically aspect, play in these four processes when talking about events? In the present approach, grammar is seen as a system of meanings that has gained prominence in a given language through the process of grammaticalization (cf. Bybee *et al.*, 1994; Talmy, 1988). Speakers have to attend to grammaticalized conceptual categories when planning expression for speaking. The assumption is that when a fully grammaticalized linguistic category is obligatory, it has a high level of automatization in use in the relevant contexts.

Aspectual concepts, such as 'ongoingness' or 'perfectivity', are prime examples of grammaticalized conceptual categories. As the cross-linguistic findings discussed below show, speakers of languages in which an aspectual viewpoint is expressed obligatorily by means of verbal morphology (e.g. Modern Standard (MS) Arabic, English, Russian or Spanish), are led to conceptualize and convey corresponding aspects of a dynamic situation. Speakers of languages that offer only lexical means to convey the same kind of information (e.g. German, Norwegian), do so to a lesser extent. In this sense, preferences in structuring information emerge given the presence of particular grammaticalized forms that encode a particular concept in a given language.

3.2.3 The theory of event construal

Undoubtedly, speakers do not put into words everything they perceive. Consequently, what is selected for verbalization does not completely reflect all that the speaker has perceived with respect to a given situation. When speakers process input for verbalization, they select and interpret information on the basis of a particular perspective. Carroll *et al.* (2004) have proposed that possible preferences in event construal are driven, in part, by what is considered in a particular language as a *reportable event* when grounding events in context.

In the past decade, numerous studies have examined how language-specific structures influence event representation and conceptualization. These studies examined how relevant concepts are mapped linguistically in motion events (Bohnemeyer *et al.*, 2007; Gumperz & Levinson, 1996; Kopecka, 2008; Slobin, 1991, 2000; Talmy, 1988, 2000), in separation events, such as to cut or break something (Majid *et al.*, 2007, 2008), in event serialization (Talmy, 2000) and in sequencing sets of events in larger pieces of discourse (Carroll *et al.*, 2008; Carroll & v. Stutterheim, in press; v. Stutterheim *et al.*, 2003; v. Stutterheim & Nüse, 2003).

The specific focus of the work presented in this chapter is on the construal of goal-oriented motion events. Characteristic of this event type is the continuing motion of entities (animate or inanimate objects) toward an endpoint. In situations of this type, speakers may refer to the motion event in holistic terms, thereby including the goal, or they may select a beginning, intermediate or final phase of the motion event. As the studies show, the choice of one of these views is not random, but is dependent on the presence or absence of grammatical aspectual markers expressing the concept of ongoingness in the linguistic system of a given language.

3.3 Language-specific Patterns in the Encoding of Motion Events by Native Speakers

Empirical research on general motion events has mainly focused on the typological theory of lexicalization patterns as described by Talmy (1988, 1991, 2000). Talmy differentiates between *satellite-framed languages* (S-languages), such as English, and *verb-framed languages* (V-languages), such as Spanish. In S-languages, the path information is typically expressed in the satellite whereas the manner of motion and the co-event are coded in the verb root, e.g. in English 'the rock rolled down the hill'. V-languages, in contrast, typically code path in the verb together with the fact of motion and the coding of manner is not obligatory, e.g. in Spanish *'la botella entró a la cueva (flotando)'* [the bottle moved into the cave (floating)].[4] Research based on Talmy's framework was undertaken by Slobin and colleagues (Berman & Slobin, 1994; Slobin, 1996a, 1996b, 1997, 2000, 2003, 2006). They found that English and Spanish speakers differ in their attention to specific aspects of motion events in both linguistic and conceptual tasks. English speakers used more verbs of motion encoding manner and provided richer descriptions of path trajectories in separate constituents. They also attended more to the manner of movement along a path, whereas Spanish speakers paid more attention to scene setting and static descriptions. Slobin (2004, 2006) also refined Talmy's original proposal by introducing a third type of language – the *equipollent* type in which attention to path and manner are equally balanced. Slobin's general thesis, however, has remained unchanged: the salience and the

of manner encoding can influence attention to details of experienced motion events as well as the imagery formed on the basis of motion event descriptions in speech or writing (Slobin, 2006: 59).

While earlier research on native speakers has been concerned with the question of whether linguistic categories affect conceptualization or verbalization, more recent research is also concerned with the scope of these effects. The latter is examined by including carefully designed non-linguistic tasks (e.g. categorization, memory, recognition, similarity judgments) into the experimental design. Some studies have shown systematic linguistic preferences in linguistic tasks (e.g. narrations, picture description); these effects, however, disappeared in non-linguistic tasks (e.g. Papafragou *et al.*, 2002, 2006). Several other studies have found language-specific differences in non-linguistic tasks that were performed without or after verbal encoding (e.g. categorization/matching: Athanasopoulos & Kasai, 2008; Levinson *et al.*, 2002; Lucy, 1992; Naigles & Terrazas, 1998; memory and/or similarity judgments: Gennari *et al.*, 2002; v. Stutterheim *et al.*, in press; recognition: Billman & Krych, 1998; Billman *et al.*, 2000). For example, Gennari *et al.* (2002) examined the influence of language-specific lexicalization patterns on similarity judgments after linguistic encoding. They found that Spanish speakers were more likely to select the same-path alternate, while English speakers showed no preference. This was consistent with the pattern of descriptions observed in the same study for each language (Gennari *et al.*, 2002: 74).

Recent eye-tracking studies provided further evidence that speakers pay attention to language-specific aspects of motion events (Flecken, in press; Papafragou *et al.*, 2008; v. Stutterheim *et al.*, in press; v. Stutterheim & Carroll, 2006). Papafragou *et al.* (2008) investigated the allocation of attention to path and manner components in English and Greek speakers. It was found that Greek speakers were more likely than English speakers to focus on the path-endpoint region, and English speakers were more likely than Greek speakers to focus first on the manner region. The authors argued that attention allocation at the earliest stages of event apprehension is affected by linguistic encoding preferences, but only when language is needed for the given task (Papafragou *et al.*, 2008: 174).

Another line of research has focused on the role of aspect in conceptualization of events (cf. Carroll & v. Stutterheim, 2003; Schmiedtová *et al.*, 2007; v. Stutterheim & Nüse, 2003). It was found that the presence or absence of aspect in the language system affects the way in which events are construed. Several recent studies found evidence for aspect affecting the encoding of goal-oriented motion (cf. for Swedish and Spanish: Bylund, 2008, 2009, this volume; for Italian: Natale, 2008; for Dutch and German: Flecken, in press). Hart and Albarracín (2009) argue that aspect plays a central role in conceptualization. Their study investigated the

influence of aspect on memory and re-enactment in English. It was found that the use of the imperfective aspect denoting ongoingness enhanced memory for action-relevant knowledge and increased tendencies to reproduce an action at a later time (Hart & Albarracín, 2009: 6).

To sum up, more than a decade of research on the encoding and conceptualization of motion events demonstrated that language-specific linguistic categories play a central role in event construal. There is no consensus, however, regarding the scope of these effects. Some researchers limit these effects to linguistic tasks (e.g. Papafragou *et al.*, 2002), while others also find effects in non-linguistic tasks[5] (e.g. Gennari *et al.*, 2002; Naigles & Terrazas, 1998). Eye-tracking studies of motion events corroborate the view that language-specific categories focus speakers' attention on specific components of the presented event (e.g. Papafragou *et al.*, 2008). The differences in the results may be due to differences in the experimental design, choice of stimulus type and, in some cases, to relatively small numbers of participants. In any case, since only a limited number of studies so far have tackled this issue experimentally, more studies are needed to understand the size of the effect language-specific categories have on event construal.

3.4 Language-specific Patterns in the Encoding of Motion Events by Second Language Speakers

In view of the differences found between speakers of typologically different languages, the next question to address is how these differences play out in second language acquisition (SLA). SLA research on motion events has also centered on Talmy's (1985, 1991, 2000) framework, mainly investigating the realization of manner and path information in L2 learning and use. The leading questions here are: how do L2 speakers master the mapping between linguistic form and conceptual representation for motion events in the L2, and to what degree can L2 speakers adapt their first language (L1)-specific thinking for speaking patterns to those of the L2? An important variable for this line of research is the degree of typological similarity between the L1 and the L2 in question.

As Cadierno (2008) notes, to date only a few SLA studies have addressed the L2 expression of motion events. Cadierno (2004) studied the acquisition of L2 Spanish by intermediate and advanced learners with Danish as the L1. The study focused on the semantic components 'path' and 'ground'. The researcher found that L1 patterns influenced the elaboration of path and the degree of complexity in the L2. However, the learners did not produce any event conflation constructions. In other words, the L2 learners in this study construed – at least to some degree – motion events in a target-like fashion. In a follow-up study, Cadierno and Ruiz (2006) compared two groups of advanced L1 Danish learners of L2

Spanish, focusing on their expression of path and manner. The study found only traces of the L1 patterns in the L2. The main conclusion was that L1-specific thinking for speaking patterns plays only a limited role in advanced learners and a more prominent role in initial and intermediate learners. Navarro and Nicoladis (2005) examined whether L1 English advanced speakers of L2 Spanish can learn to map path of motion onto the main verb. The authors came to a conclusion similar to Cadierno and Ruiz (2006): despite some traces of English patterns in the target language, the learners came close to mastering the L2 Spanish patterns, but still displayed some traces of the L1 English pattern. Yet another view on the role of L1-specific patterns in SLA is represented by Hendriks *et al.* (2008), who studied the acquisition of caused motion by intermediate and advanced L1 English speakers of L2 French. Their findings show that even advanced learners rely on L1 patterns when construing causal motion in the L2.

Another line of research focuses on the interplay between language and gestures in the description of motion events in L2 learners (Kellerman & van Hoof, 2003; Negueruela *et al.*, 2004). The findings suggest that some learners can adapt to the L2 pattern, while others, including some advanced learners, make systematic use of L1-specific gestures. Kellerman and van Hoof (2003) coined the term 'manual accents' to refer to advanced learners whose spoken language is nearly perfect but whose gestures nevertheless follow an L1-specific pattern.

To sum up, the findings of empirical studies of event construal are mixed. Some studies claim that restructuring of L1 concepts in favor of L2 concepts is possible (e.g. Cadierno, 2004), depending on L2 learners' proficiency in the target language as well as perceived typological distance between the L1 and the L2. In turn, Hendriks *et al.* (2008) argue that such restructuring either does not happen at all, or happens only for a few learners. Evidence from SLA studies investigating restructuring of conceptual knowledge in other domains also varies. A conceptual shift toward the L2 has been found for classification preferences in object naming and categorization (Athanasopoulos, 2006; Athanasopoulos & Kasai, 2008; see also Athanasopoulos, this volume) but not for time and space (Carroll, 1993, 1997; Carroll & v. Stutterheim, 2003; Schmiedtová, 2003, 2004, 2010).

The purpose of this chapter is to add to this body of evidence by discussing three related studies of construal of goal-oriented events. The studies reviewed here focus on the role of grammatical aspect, providing a new angle on the construal of events. Furthermore, in addition to linguistic production, other data, such as speech onset times and eye tracking, are presented. These data provide indispensable insights into the conceptualization process. The present review of this research might thus shed more light on the complex relationship between linguistic form,

associated meaning and the underlying concepts used when events are construed. Finally, it can also contribute to the current debate on conceptual restructuring in L2 speakers. We will begin with the research question posited in the studies, then outline typological differences between the languages examined, and provide information about participants, materials and procedure used.

3.5 Method

3.5.1 Research question

Although each of the three studies reviewed below has its own particular focus, it is possible to formulate a general research question that unites all of them, namely, what are the similarities and differences between L1 and L2 speakers in conceptualizing motion events for verbalization? Based on the work reviewed earlier, we posit that the absence or presence of grammaticalized concepts, such as aspect, in a given L1 plays a decisive role in learning to structure information in an L2. Grammaticalized concepts are pertinent in any type of language production since they constitute highly automatized preferences that L1 or L2 speakers must recruit when selecting and organizing information for expression. The acquisition of grammaticalized concepts and of principles of use related to these categories pose a formidable task for the learner. We begin our overview by discussing how different languages construe goal-oriented motion events, i.e. in what respects they differ and what grammaticalized structures are responsible for these differences.

3.5.2 Languages studied

Two groups of languages are examined in the studies discussed below: the aspect group, which comprises MS Arabic, Czech, Russian, English, Spanish, and the non-aspect group, which includes German and Norwegian. The interaction between grammatical aspect and attention paid to a possible endpoint will be discussed in depth for German, English, Czech and Russian. The results for MS Arabic, Norwegian and Spanish will be provided for additional support.

Table 3.1 provides an overview of the languages investigated in terms of the relevant aspectual categories, based on Dahl's (1985) crosslinguistic study. The aspectual categories, *imperfective, progressive* and *secondary imperfective*, refer to an ongoing action or event, although they do not denote this viewpoint in the same way. In contrast, *perfective* is used to refer to a *completed* action. (For a more detailed discussion of the difference between imperfective, progressive and secondary imperfective, see Schmiedtová & Flecken, 2008; Schmiedtová & Sahonenko, 2008; v. Stutterheim *et al.* 2009.)

Table 3.1 Aspect systems

	German	Norwegian	English	Spanish	MS Arabic	Czech	Russian
Imperfective	No	No	No	Yes	Yes	Yes	Yes
Progressive	No	No	Yes	Yes	Yes	No	No
Secondary imperfective	No	No	No	No	No	Yes	Yes
Perfective	No	No	No	Yes (in the past tense)	Yes	Yes	Yes

In German, no grammatical device is available for expressing ongoingness: speakers construe goal-oriented events as bounded with the inclusion of a possible endpoint, applying a holistic view. It should be kept in mind that in some dialects German speakers can express ongoingness using the constructions *bei/am* (at the) + verbal noun, e.g. *Eine Frau ist am Stricken* [a woman is knitting (at-the knit)] or *dabei* (there-at) + *sein* (to be) + INF, e.g. *Jemand ist dabei das Brot zu schneiden* [someone is cutting bread]. The crucial difference between German and English, however, is in the fact that the English progressive is a highly automatized, obligatory linguistic marker that speakers must consider when construing events, whereas for German speakers this construction represents a highly marked option constrained to particular types of situations and contexts.

Norwegian is similar to German in that Norwegian, too, does not have grammatical aspect. Speakers of Norwegian must resort to lexical means when they want to express ongoingness. Usually, serial posture verbs are used for this purpose, such as *sitter/ligger/står* (to sit/to lie/to stand) + *og* (and) + FIN, e.g. *En dame sitter og strikker* [a lady is sitting and knitting].

Spanish conveys aspect through verb stem inflection and verbal periphrasis. A distinction is made in the present tense between the simple form and the progressive, which is created through *estar* (to be) + present participle, e.g. *Una señora está tejiendo* [a woman is knitting]. The present participle thus conveys imperfectivity and its basic function is to present the unfolding phase of a situation without attention to its temporal confines (cf. Bylund, 2008, this volume).

In English, the grammaticalized opposition between the simple form and the progressive *be* + *ing* requires the selection of a temporal perspective. Events can be decomposed into phases (e.g. a person is leaving the supermarket and heading across the parking lot). Two factors are relevant in this context: (a) any phase can be selected, in principle, as

a reportable event; (b) the progressive allows the speaker to anchor the event in the domain of discourse (i.e. specify the time interval or time of assertion, cf. Klein, 1994), as in 'a man is fishing'; 'a chef is cooking'; 'a duck is waddling'. Consequently, the progressive delivers information on a specific time of assertion, in contrast to the use of the simple present verb form (e.g. a man fishes, a chef cooks, a duck waddles), where a generic reading is suggested. If the simple present verb form is used, generic readings can be avoided, where necessary, by adding adjuncts, as in 'the duck waddles into the barn'. The necessity of supplying anchorings in clarifying the status of the event with respect to specificity and time of assertion may lead speakers to take a more holistic view of the event (Carroll *et al.*, 2004).

Turning to Czech and Russian, it should be stressed that, unlike in English, two aspects can be marked in these languages: the imperfective aspect conveying ongoingness expressed by two forms (either the simplex imperfective or the secondary imperfective),[6] and the perfective aspect denoting completion.[7] The use of the perfective aspect may lead to a preference for endpoints when construing goal-oriented motion events (holistic perspective). Consider the following examples from Czech (1) and Russian (2). The event described in the examples is a goal-oriented motion in which a person is walking toward a building with a prominent door:

(1) *Někdo*   *ve-jde*   *do dveří*
    Somebody (Nom)   enter (Perf.Prs.3.SG)   in door (Gen)
    Somebody   will be entering/enters   through the door
(2) *Kto-to*   *vo-jdet*   *v dveri*
    Somebody (Nom)   will enter (Fut.3.SG)   in door (Acc[8])
    Somebody   will enter/come in   through the door

Crucially, a verb marked for perfectivity requires an additional argument referring to a possible endpoint. Here the prefixed Czech verb *ve-jít* (to enter, to come in) is marked for the perfective and used in combination with the locative adjunct specifying the reaching of the endpoint. An utterance with a perfectively marked verb and no additional arguments is not commonly used in isolation to refer to a single event in the present tense, as in Example (3).[9] The same holds true for Russian (4).

(3) *Někdo*   *ve-jde (?)*
    Somebody (Nom)   enter-in (Perf.Prs.3.SG)
    Somebody   will be entering/enters
(4) *Kto-to*   *vo-jdet (?)*
    Somebody (Nom)   will enter-in (Fut.3.SG)
    Somebody   will enter/come in

The utterances in Examples (1) and (2) can also appear in the past tense, as in Example (5) for Czech and Example (6) for Russian. The attendance to the endpoint and the argument structure remain the same.

(5) *Někdo*   *ve-še-l*   *do dveří.*
    Somebody (Nom)   walk-in (Perf.Past.3.SG)   in door (Gen)
    Somebody   walked in   through the door
(6) *Kto-to*   *vo-she-l*   *v dveri*
    Somebody (Nom)   walk-in (Perf.Past.3.SG)   in door (Acc)
    Somebody   walked in   through the door

Overall, when the perfective aspect is used, the endpoint must be included in the verbalization. To complete the picture, we will also go through the other two aspectual categories, the simplex imperfective and the secondary imperfective, which are available in the Czech and Russian aspectual systems and focus speakers' view on the ongoingness of the event presented.

The use of the simplex imperfective[10] – a morphologically unmarked form that is inherently imperfective – and the mentioning of a possible endpoint seem to work differently in Czech and Russian. In Russian, as seen in Example (7), the simplex imperfective can be used as a bare phrase without any other arguments, while in Czech, as seen in Example (8), the use of the simplex imperfective requires some kind of anchoring that does not need to relate to endpoint specification.

(7) *Mašina*   *jed'et*
    Car (Nom) ride (Impf.Prs.3.SG)
    A car   is riding
(8) *Auto*   *jede*   *rychle / po silnici / do vesnice*
    Car (Nom) ride (Impf.Prs.3.SG) fast /on road.LOC /in village.LOC
    A car   is riding   fast / on the road / into the village

A counterpart of the Russian utterance in Example (7) would not be grammatical in Czech. In addition, in both languages the encoding of manner, path and endpoint presented in Example (8) as three alternatives for anchoring the simplex imperfective can occur together in one utterance.

By means of suffixation (Czech suffixes *-a-, -(o)va*; Russian suffixes: *-iva-/-yva-, -va-, -a-/-ja-*) perfective verbal stems can be imperfectivized. This aspectual form is called the secondary imperfective.[11] Like the perfectively marked verbs, verbs in the secondary imperfective require the use of additional arguments. Since the secondary imperfective is not combinable with verbs of motion, we will not discuss this form any further here.[12]

Czech and Russian share an aspectual system that provides aspectual means for speakers to view goal-oriented motion events under two

perspectives: (1) under the holistic perspective by using the perfective aspect, thereby including a possible endpoint; or (2) focusing on the ongoingness of the event by using the simplex imperfective. The two languages differ insofar as in Russian the simplex imperfective can be used alone without any other arguments, while in Czech the simplex imperfective has to be combined with another argument, but this argument does not have to express the endpoint in question.

MS Arabic, like Czech and Russian, is an aspect-dominant language. It too disposes of grammatical means to express completion (perfective aspect) and ongoingness (imperfective and progressive aspect). Hence, MS Arabic can, in principle, view goal-oriented events under two perspectives, depending on what aspect is used: perfective ⇒ focus on completion; imperfective/progressive ⇒ focus on ongoingness.

To sum up, based on the assumption that grammaticalization of aspect plays a crucial role in structuring information, we investigated two groups of languages: the aspect group (MS Arabic, Czech, Russian, English, Spanish) and the non-aspect group (German, Norwegian). We posited that when the aspect category is absent, as in German, speakers may tend to take a holistic perspective on goal-oriented motion events, with endpoints a part of the conceptualization and verbalization of these events. Other languages, such as English, have only one grammaticalized aspect. There, the progressive aspect is fully grammaticalized and when used, there is a high likelihood that goal-oriented motion events are conceptualized as ongoing. In this case, the perspective taken is the phasal decomposition. There are also languages, such as Russian or MS Arabic, which have more than one grammaticalized aspect: usually, a grammaticalized opposition between the perfective and the imperfective (or progressive) aspect. Speakers of these languages must choose an aspect when construing goal-oriented motion. In other words, they have to choose either the holistic perspective or the phasal decomposition.

Importantly, while the absence or presence of aspect guides the selection of a particular perspective for conceptualization of goal-oriented events, it does not exclude the use of other perspectives. One could say that in terms of information structure, speakers are guided by the available aspectual devices to choose a particular perspective that enables them to select and highlight some pieces of information and suspend others.

3.5.3 Participants

All the L1 and L2 speakers who participated in the three studies discussed below were undergraduate or graduate students, or, in the case of some L2 speakers, professionals (e.g. German translators, teachers of German as a foreign language). All participants were ...

language spoken by both parents and in that environment at least until schooling age (usually at age five or six). At the time of the experiment, all had knowledge of other languages.

L1 speakers of languages other than German were typically recruited from the beginner courses in the annual 'International summer school of German culture and language' at the University of Heidelberg (for a discussion of participants interviewed elsewhere, see descriptions of studies 2 and 3). These L1 speakers had no or very rudimentary knowledge of German. To control as much as possible for the potential influence of German on the native speakers' L1 system, the recordings in their mother tongue were restricted to the first week of their stay in Heidelberg. Overall, all L1 speakers, except for native speakers of German, had either no knowledge of German or showed lower levels of proficiency in the L2 than any L2 speaker. Participants in all studies were financially rewarded for their participation (between €5–10).

The L2 speaker data were also collected in Heidelberg, except for Czech learners of German (for more details, see study 3 by Schmiedtová & Sahonenko, 2008). In the studies reviewed in this chapter, proficiency in L2 German was not tested by means of a language proficiency test, but was assessed on the basis of several criteria linked to linguistic and extra-linguistic parameters.[13] (a) Formal accuracy was considered with respect to nominal and verbal morphology, syntax and lexical repertoire. All measures were assessed in relation to linguistic means used by native speakers in the same task. For example, if errors in declination and/or verbal inflection were found in the L2 speaker's production, this participant was excluded from the L2 speaker group. (b) All L2 speakers spoke German on a daily basis. According to the self-assessment questionnaires,[14] 87% of these speakers perceived German as their dominant language. (c) Only participants whose length of exposure to German – defined as a combination of the length of residence in the L2 environment and the length of L2 instruction – was longer than seven years (on average 8.15 years, SD = 2.59) were selected. L1 English and Russian speakers of L2 German lived in Germany for an average of 10.1 years (SD = 2.4). L1 Czech learners of L2 German and L1 German learners of L2 English spent at least one year in the respective target language country.

Study 1: v. Stutterheim (2003)

One hundred and ten participants took part in the study. Eighty L1 speakers included 20 L1 speakers of MS Arabic, 20 L1 speakers of English, 20 L1 speakers of German and 20 L1 speakers of Spanish. The average age of the participants was 25.6 years (age range 19–28 years). Each group consisted of 10 females and 10 males, except for MS Arabic,

where there were 17 females and 3 males. Thirty L2 speakers included 15 L1 German speakers of L2 English (10 females, 5 males) and 15 L1 English speakers of L2 German (8 females, 7 males). The average age of these participants was 28.9 years (age range 26–34). All participants were interviewed in Heidelberg.

Study 2: v. Stutterheim and Carroll (2006)

One hundred and twenty participants took part in the study. Eighty L1 speakers included 20 L1 speakers of MS Arabic (15 females, 5 males), 20 L1 speakers of English (10 females, 10 males), 20 L1 speakers of German (10 females, 10 males) and 20 L1 speakers of Norwegian (10 females, 10 males). The L1 English and L1 German participants were the same as in the previous study. The average age of these participants was 26.5 years (age range 20–29 years). Forty L2 speakers included 20 L1 English speakers of L2 German (12 females, 8 males) and 20 L1 German speakers of L2 English (13 females, 7 males). Their average age was 29.7 years (age range 26–37). All participants were interviewed in Heidelberg, with the exception of L1 Norwegian speakers who were interviewed at the University of Oslo, Norway.

Study 3: Schmiedtová and Sahonenko (2008)

One hundred and twenty participants took part in the study. Ninety L1 speakers included 30 L1 speakers of Czech, 30 L1 speakers of German and 30 L1 speakers of Russian. Each group consisted of 15 females and 15 males. The average age of the participants was 24.6 years (age range 18–28 years). Thirty L2 speakers included 15 L1 Russian speakers of L2 German (11 females, 4 males) and 15 L1 Czech speakers of L2 German (9 females, 6 males). The first group was composed of Russian students and postgraduates at the University of Heidelberg. By the time of the study, all had lived in Germany for a minimum of five years and used German daily. The average age of the participants was 28.7 years (age range 26–34 years). In the second group, there were advanced students of German at the Charles University in Prague.[15] The average age of the participants was 23.7 years (age range 18–24). The participants were interviewed in Heidelberg, with the exception of L1 Czech speakers (interviewed in Prague, Czech Republic) and L1 Russian speakers (interviewed in St. Petersburg, Russia).

3.5.4 Materials

The three studies used the same materials, a set of short video clips showing everyday situations depicting goal-oriented motion that were filmed by the members of the project. There were three types of clips:

(1) *Critical* test items showed locomotions in which a possible endpoint was not reached. For instance, the clip 'two women walking toward

a house' depicted the initial or intermediate phases of the event – the endpoint was not shown, but could be inferred. It was hypothesized that on these items speakers of different languages would display differences in the inclusion of the possible endpoint.

(2) *Control* test items showed locomotions in which the movement reached the endpoint. It was hypothesized that on these items speakers of different languages would select the same components for verbalization. For instance, describing the clip 'somebody walking into a house', all speakers were expected to mention the endpoint, which is the house.

(3) *Fillers* (distractors) showed activities with no inferable endpoint (e.g. 'a washing machine working') or static scenes with no observable change (e.g. 'a boat on the river', 'a candle burning').

The critical and control test items were mixed with fillers (distractors) with an approximate ratio of 20% critical and 20% control items to 60% fillers. Presentations were carried out on the basis of several randomized testing lists that were distributed equally across all participants tested with a given set. Fillers were inserted semi-randomly in-between critical and control items to ensure that participants did not easily deduce the structure of the experiment. Study 1 (v. Stutterheim, 2003) employed 36 clips (8 critical, 8 control, 20 fillers); study 2 (v. Stutterheim & Carroll, 2006) employed 80 clips (18 critical, 18 control, 44 fillers); and study 3 (Schmiedtová & Sahonenko, 2008) employed 40 clips (8 critical, 8 control, 24 fillers). The 8 critical and 8 control items were identical for all three studies; 10 additional items for each set were used in study 2. There was also an overlap in the use of fillers: 10 fillers used in study 1 were also used in studies 2 and 3; all fillers used in study 3 were also used in study 2.

3.5.5 Experimental procedure

Video clips were presented to the participants on a computer screen. The instructions were first presented in written form and then explained orally to the participants. The language of instructions was the language under investigation and the person giving the instructions was a native speaker of that language. In this manner, the influence of language mode on the experimental design was kept under control. The text of the instructions was kept constant across all investigated languages. Participants were asked to say what was happening in the scenes as soon as they recognized the situation. The question posed to them in the respective language was *What is happening?*[16] In addition, it was stressed that the participant should not concentrate on other features of the scene, but focus on the events taking place.

The length of the clips within each set was kept constant; depending on the set, it was between 6 and 12 seconds. Five training clips were first

presented to each participant. The five clips included the critical feature tested in the experiment (the reaching or not reaching of the endpoint) and were used only in the training phase and not in the experiment itself. In the experiment, the clips were presented one by one, with an 8 second pause in between. The participants provided their verbalizations on-line and it was acceptable to talk during the pauses, but the verbalization was not supposed to interfere with the presentation of the next scene. All participants practiced this aspect in the training phase. In the real experiment, all verbalizations were produced within the time window given by the length of the movie and the length of the pause (approximately 14 seconds). The production was recorded automatically by the same computer that presented the stimuli. All participants were recorded individually. Afterward, the participants were asked to fill out a questionnaire regarding their age, gender, schooling, education and knowledge of languages. Altogether, the study took approximately 25 minutes.

Apart from audio data, which were collected in all three studies, v. Stutterheim (2003) also recorded speech onset times (SOT) and v. Stutterheim and Carroll (2006) eye-tracking data. Both data types were recorded automatically and simultaneously with audio recordings. The apparatus used in recording SOT and eye movement was the remote system, *Eye Follower*™, developed by Interactive Minds, Dresden, Germany, on the basis of an *LC-Technologies* system. The cameras were attached to the monitor for binocular eye tracking and the eye-gaze system accommodated all natural head movements during normal computer operation. The gaze point sampling rate was 120 Hz, with a highly accurate 0.45° gaze-point tracking accuracy throughout the operational head range. The TFT monitor was 20″ and participants were seated approximately 50–80 cm from the screen. Calibration was carried out once for each participant before the experiment (tracking eye gaze on yellow dots on a black screen that appeared in identical order at specific positions on the screen).

3.5.6 Data analysis

Data elicited on the basis of the control and critical items were transcribed and analyzed in the original language. Responses to filler items were not considered for data analysis. The verbs were coded using Klein's (1994) differentiation between zero-state, one-state and two-state verb types. In addition, aspect was also coded for aspect languages (MS Arabic, Czech, English, Russian). Here, a distinction was made between the progressive/imperfective and the perfective form. The final coding variable was the expression of endpoint, encoded either lexically by a locative adjunct (e.g. 'to a house', 'in the direction of a house') or by a

combination of morphological and lexical marking, as outlined for Czech and Russian in Section 3.5.2 above (e.g. *v-jiždět do dvora* [to be riding into a backyard] (prefixed verb + local adjunct)). The transcription and all linguistic analyses were carried out by native speakers of the respective languages.

Inferential statistics were not applied consistently in the original studies. Study 1 and 2 reported statistics for SOTs and eye-tracking data, study 3 for some linguistic data. For the purposes of the chapter, whenever possible, we have reanalyzed the raw data to provide statistical results. For the analyses of linguistic data, non-parametric statistics were used, in particular the chi-square test for comparing proportions within one sample (we are, however, aware of the limitations of the multiple chi-square tests).

3.6 Results

We will first present production data results from L1 speakers, considering the three studies in chronological order. Then, we will proceed to the findings from L2 speakers and present them in the same manner.

3.6.1 First Language speakers

Study 1 (v. Stutterheim, 2003) showed that no crosslinguistic differences occurred for the control items. In other words, there were no differences between MS Arabic, English, German and Spanish speakers with respect to the construal of goal-oriented motion in scenes that depicted the reaching of an endpoint (χ^2 (3) = 6.91, n.s.). However, the study revealed differences for critical items, in which the endpoint was not reached but could be inferred (χ^2 (3) = 22.87, $p < 0.05$). L1 German speakers showed a preference to construe a possible endpoint, while speakers of MS Arabic, English and Spanish were unlikely to do so. Figure 3.1 provides an overview of endpoints mentioned in descriptions of the critical items.

Findings showed that speakers of German mentioned an endpoint three times as frequently as speakers of MS Arabic, English and Spanish. The differences between speakers of German and speakers of the other three languages were significant (German-MS Arabic: χ^2 (1) = 88.2, $p < 0.001$; German-English: χ^2 (1) = 84.06, $p < 0.001$; German-Spanish: χ^2(1) = 86.1, $p < 0.001$). No significant effects were found comparing MS Arabic, English and Spanish (MS Arabic-Spanish: χ^2 (1) = 0.02, n.s.; MS Arabic-English: χ^2 (1) = 0.07, n.s.; English-Spanish: χ^2 (1) = 0.02, n.s.).

The following examples illustrate these preferences in descriptions of a single critical item depicting two women walking toward a house.
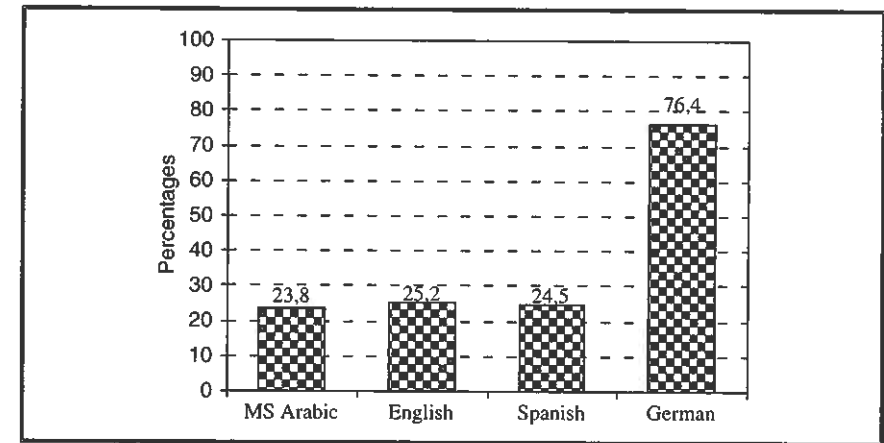
Figure 3.1 Study 1: Percentage of endpoints mentioned in eight critical items ($n = 20$ participants per group; MS Arabic: SD = 5.4; English: SD = 4.8; Spanish: SD = 4.2; German: SD = 5.8)

(9)	Two women	are walking		down the road	L1 English
(10)	'Imra'atāni	tasīrāni		fi š-šāri'	L1 MS Arabic
	woman (dual)	walk (Imperf.dual)		on the-road	
	Two women	are walking		on the road	
(11)	Dos mujeres	están caminando		por la calle	L1 Spanish
	two women	walk (Prog.Prs.3.PL)		on the road	
	Two women	are walking		on the road	
(12)	Zwei Frauen	laufen		auf einemFeldwegRichtung	
	two women	walk (Prs.3.PL)		on a (DAT) path direction	
	Two women	are walking		down on a path towards	
	einesHauses				L1 German
	a (GEN) house (GEN)				
	a house.				

Then, comparative analysis of SOTs was conducted based on the assumption that speakers of languages that require an endpoint for the construal of a reportable event will wait for the event to become evident as a whole before starting to speak, whereas speakers of languages that can depict any phase of the event in its own right will not have to wait for the unfolding of the endpoint (v. Stutterheim, 2003: 193). The SOT findings for native speakers of English and German are presented in Figure 3.2.[17]

The results showed that, on average, English native speakers started to speak 3.6 seconds after the stimulus onset (i.e. after the beginning of the video clip), while German native speakers started to speak 4.3 seconds after the stimulus onset, i.e. 0.7 seconds later ($t1$ (24) = 3.13, $p = 0.04$; $t2$
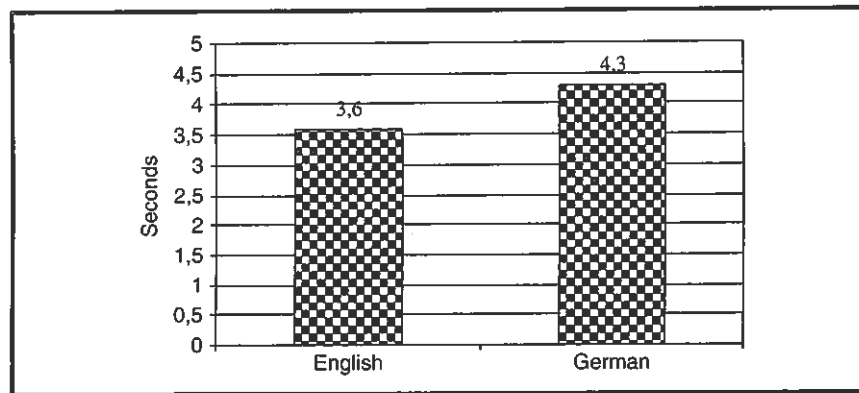
Figure 3.2 Study 1: Average SOTs in English and German for eight critical items ($n = 20$ participants per group; English: SD = 0.4; German: SD = 0.5)

$(27) = 10.71$, p < 0.001). It appears then that German speakers waited for the goal-oriented motion event to unfold.

Study 2 (v. Stutterheim & Carroll, 2006) investigated the encoding of endpoints in four different languages: MS Arabic, English, German and Norwegian. In addition to audio data, eye-tracking data were collected.

The analysis revealed that there were no differences for the control items ($\chi^2 (3) = 4.85$, n.s.). In critical scenes, speakers of German and Norwegian mentioned the endpoint more frequently than speakers of English and MS Arabic, in which phasal decomposition is grammaticalized (Figure 3.3). No differences existed in terms of the number of endpoints mentioned between speakers of German and Norwegian ($\chi^2 (1) = 0.48$, n.s.) or between speakers of English and MS Arabic ($\chi^2 (1) = 0.12$, n.s.). Differences were found between speakers of Norwegian and MS Arabic ($\chi^2 (1) = 151.1$, $p < 0.001$), Norwegian and English ($\chi^2 (1) = 144.4$, $p < 0.001$), German and MS Arabic ($\chi^2 (1) = 198.45$, $p < 0.001$) and German and English ($\chi^2 (1) = 190.18$, $p < 0.001$).

Study 2 also examined eye tracking based on the assumption that speakers of non-aspect languages, such as German, will scan more and dwell longer in the critical region (the possible endpoint) than speakers of aspect languages, such as English, who are less likely to mention endpoints in goal-oriented motion events. In order to determine whether speakers looked at the critical region before they started speaking or while they were already speaking, the authors distinguished between fixations[18] before and after speech onset (SO). The findings for English and German are summarized in Figure 3.4.

A paired samples *t*-test revealed that native speakers of German focused on the critical region longer than native speakers of English
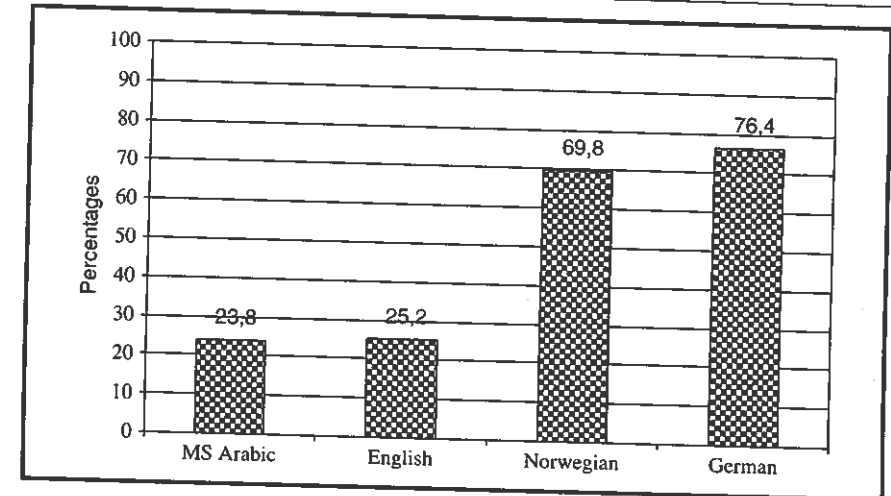
Figure 3.3 Study 2: Percentage of endpoints mentioned in 18 critical items ($n = 20$ participants per group; MS Arabic: SD = 5.4; English: SD = 4.8; Norwegian: SD = 4.0; German: SD = 5.8)
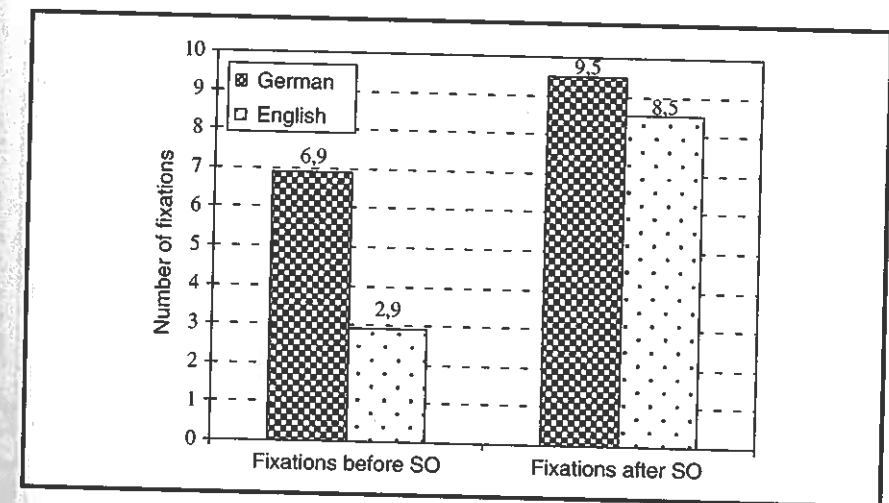
Figure 3.4 Study 2: Number of fixations before and after SO on 18 critical items ($n = 20$ participants per group; before SO: German: SD = 1.3; English: SD = 1.2; after SO: German: SD = 1.5; English: SD = 1.5)

both before (t (17) $= 5.45$, $p < 0.001$) and after speaking onset (t (17) $= 4.55$, $p < 0.001$).

Study 3 (Schmiedtová & Sahonenko, 2008) examined the endpoint encoding in Czech, German and Russian. There were no differences between the groups for the control items (χ^2 (2) $= 3.72$, n.s.). In descriptions of critical items, Czech speakers provided more endpoints than Russian speakers (χ^2 (1) $= 11.59$, $p < 0.001$). Significant differences were also identified in endpoint mentioning between speakers of German and speakers of Czech (χ^2 (1) $= 13.45$, $p < 0.001$), as well as between speakers of German and speakers of Russian (χ^2 (1) $= 4.8$, $p < 0.05$). Figure 3.5 sums up the findings for Czech, German and Russian.

The following examples illustrate a typical description of a goal-oriented motion event by Czech and Russian speakers (for a typical German description, see Example (12).

(13) *Dvě ženy*   *jdou*   *po cestě k nějakému stavení*
     two women walk (Impf.prs.3.PL) on road (LOC) to some (DAT) building.DAT
     Two women   are walking   down the road to a building
(14) *Dve ženščiny*   *idut*   *po*   *doroge*
     two women   walk (Impf.prs.3.PL)   on   road (LOC)
     Two women   are walking   on   the road

In the Russian example (14), the event is presented as unbounded and in progress, without mentioning the endpoint. In contrast, the
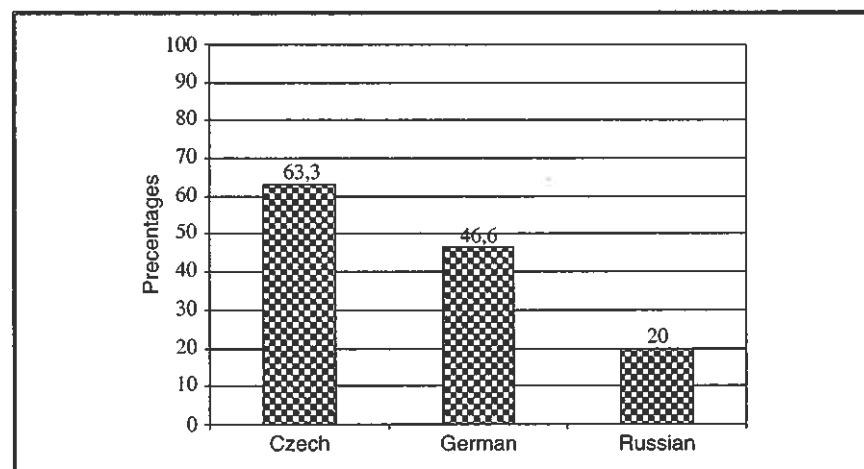

Figure 3.5 Study 3: Percentage of endpoints mentioned for eight critical items ($n = 30$ participants per group; Czech: SD $= 4.0$; German: SD $= 5.2$; Russian: SD $= 4.9$)

Czech example (13) illustrates the use of the local adjunct, *k nějakému stavení*, which makes the event bounded. Although Czech and Russian speakers employ two different perspectives to encode an identical event, they both use the same aspect and the same verb: the simplex imperfective of the verb *to walk* (Czech: *jít*, Russian: *idti*). To understand how differences in endpoint mentioning between Czech and Russian are related to aspectual differences, we have to briefly review some findings on events other than motion, i.e. situations with a qualified resultant state, e.g. 'somebody throwing away garbage', 'somebody cutting down a tree'. In these situations, an activity leads to a result that is depicted in the scene presented to the participants. That is, one can see in the scene 'somebody throwing away garbage' that the garbage gets thrown away. Schmiedtová and Sahonenko (2008) found that native speakers of Czech and Russian used different aspects when construing this type of events despite having the same morphological means at their disposal in the respective aspectual systems. The results are shown in Figure 3.6.

We can see that for events with a qualified resultant state, native speakers of Czech favored the prefixed perfective over any other
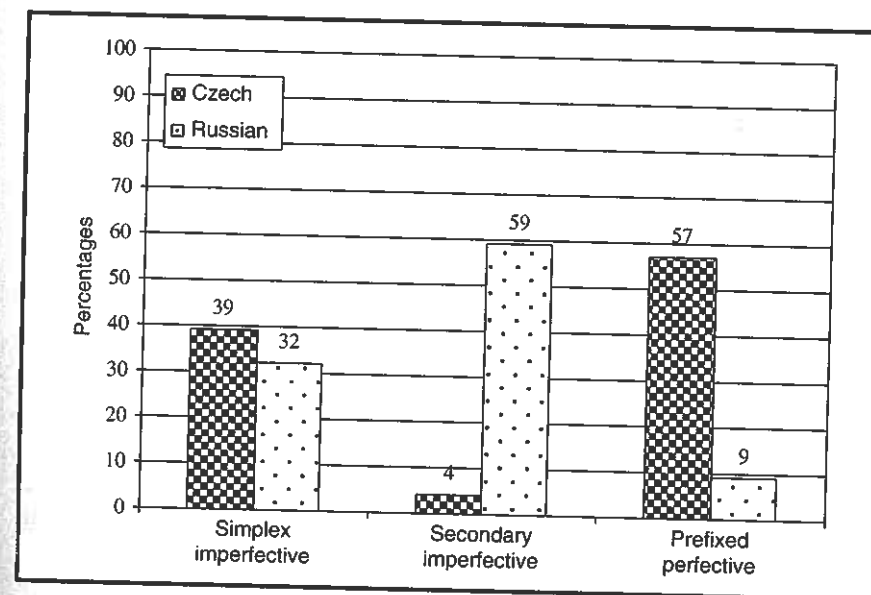

Figure 3.6 Study 3: Aspectual preferences for events with a qualified resultant state in eight critical items ($n = 30$ participants per group; simplex imperfective: Czech: SD $= 3.5$; Russian: SD $= 4.4$; secondary imperfective: Czech: SD $= 2.3$; Russian: SD $= 4.7$; prefixed perfective: Czech: SD $= 4.3$; Russian: SD $= 3.7$)

aspectual form (χ^2 (2) = 13.4, p < 0.001). In contrast, native speakers of Russian showed a preference for the secondary imperfective (χ^2 (2) = 11.4, p = 0.003). No differences occurred in the use of the simplex imperfective between the two language groups (χ^2 (2) = 0.29, n.s.).

Differences in the use of aspect and the underlying semantic shift in the perfective form lead to differences in event construal and hence to different perspectives on the event: while Czech native speakers view situations with a qualified resultant state as completed, under the holistic perspective, Russian native speakers view such situations as ongoing (for more discussion, see below).

(15) *Někdo*	*vy-sypa-l*	*smetí*	*do koše*
somebody	throw	garbage (ACC)	into bucket
	(Perf.past.3.SG)		(GEN)
Somebody	threw	garbage	into a bucket
(16) *Kto-to*	*vy-brasy-va-et*	*musor*	*v jaščik*
somebody	throw	garbage (ACC)	into crate
	(2ndImpf.prs.3.SG)		(ACC)
Somebody	is throwing	garbage	into a dustbin

About one third of all prefixed forms used for this event type in the Czech data are present perfectives, as shown in Example 17.

(17) *Někdo*	*vy-syp-e*	*smetí*	*do koše*
somebody	throw (Perf.prs.3.SG)	garbage (ACC)	into bucket
			(GEN)
Somebody	throws	garbage	into a bucket

According to standard Czech grammars (e.g. Petr, 1987), the present perfective is supposed to refer to completion of a situation in the future, thus denoting future reading. However, the present perfective in Example (17) is anchored in the here-and-now, denoting a present reading. In other words, the perfective aspect in Czech can also have a here-and-now reading. This is not the case in Russian where the present perfective in the here-and-now reading is not grammatical and, additionally, is never used by native speakers (Schmiedtová & Sahonenko, 2008: 66). In other words, the two perfectives are no longer equivalent. This finding strongly suggests a shift and a broadening of the semantic features of the perfective in Czech (cf. Schmiedtová, 2010).

The findings on situation with qualified resultant state are related to the findings on goal-oriented motion in the following way. Verbs of motion form a special group of verbs that do not form the secondary imperfective either in Czech or in Russian. Also, for dynamic situations in which a potential goal is depicted as not reached, speakers of both languages do not use the perfective aspect. Because of these constraints

on motion, speakers of Czech and Russian cannot differ in their choice of aspect – they are both restricted to the use of the simplex imperfective. But they differ in the perspective taken on the motion event: Czech native speakers prefer to construe the goal-oriented motion holistically, using a local adjunct. Russian native speakers show a preference for construing the event as ongoing, using the simplex imperfective, which does not require any additional arguments; it can be complemented by mentioning information other than references to endpoints. These differences in perspective are driven by differences in the underlying aspectual operations, which become visible in other types of events than motion.

3.6.2 Summary of the first language results

All three studies provided evidence for the influence of L1-specific structures on the construal of goal-oriented motion events. MS Arabic, English and Spanish share the same grammatical feature – the progressive and/or the imperfective aspect, which provides the formal means for selecting a subinterval of an event conceptualized for language production, a perspective that we label phasal decomposition. That means that speakers of these languages follow similar principles in structuring information for verbalization, viewing goal-oriented events as ongoing. In contrast, in German and Norwegian, where grammaticalized aspect encoding imperfectivity is absent, speakers follow a different set of principles for structuring information: they view goal-oriented events under a holistic perspective and hence include possible endpoints in their verbalizations.

The findings from the verbal production were corroborated by results from SOT (study 1) and eye-tracking data (study 2). German speakers showed a preference for the holistic perspective, which required them to wait before speaking until the scene as a whole had unfolded. On the other hand, for English and Spanish speakers any phase of a motion event constitutes a reportable event; consequently, they do not have to wait for a possible closure. The eye-tracking results demonstrated that native speakers of German focused on the endpoint before and after starting to speak, while native speakers of English started speaking before looking at the critical region. This finding was interpreted as an indication that in conceptualizing content in order to form a verbal representation of the scene depicted, German speakers direct more attention to specific components of the visual input compared to English speakers (v. Stutterheim & Carroll, 2006).

A special case was presented for Czech and Russian (Schmiedtová & Sahonenko, 2008). It was shown that speakers of Czech encode goal-oriented motion differently from speakers of Russian, although super-

ficially they seem to share the same set of aspectual markers. The Russian group preferred the verbalization of goal-oriented motion events as ongoing, excluding the endpoint from the event description, while the Czech group typically described these events holistically, including the endpoint in the event description. At first glance, the different perspectives on motion events seem not to be related to aspect since speakers of both languages use the simplex imperfective to encode motion. This choice, however, is caused by the constraints on the combinatorial possibilities of verbs of motion and the perfective and the secondary imperfective aspects. To investigate the role of aspect in event construal, events with a qualified resultant state were examined. This event type can be described through all aspects available in the linguistic system of the two languages. It was found that speakers of Czech preferred the perfective aspect and it was used in the past as well as in the present tense. This preference goes hand in hand with the use of the holistic perspective. Speakers of Russian, on the other hand, favored the secondary imperfective and viewed the same type of event as ongoing. What we can see from these results is that speakers from closely related languages that share a similar aspectual system, may show different preferences when it comes to aspect use. But importantly, the differences in aspect use are caused by the change of the semantics of the perfective: unlike the Russian, the Czech perfective is no longer bound to the deictic now, as shown in the present task. Additionally, different event types can also be expected to trigger the use of different verb types. An example of such an interplay are motion events in which Czech speakers had to make use of lexical means in order to view these events from a holistic perspective.

3.6.3 Second language speakers

Given the crosslinguistic differences established in the studies discussed above, we can now ask whether L2 speakers construe goal-oriented motion in accordance with the principles of information organization in the L2.

Study 1 (v. Stutterheim, 2003) investigated two groups of L2 speakers: L1 English speakers of L2 German and L1 German speakers of L2 English. Since the baseline study revealed no crosslinguistic differences for the control items, the analyses focused only on critical items.

The analysis, which also included data from L1 speakers of German and English discussed earlier, revealed significant differences in the number of mentioned endpoints between L1 German and L1 English speakers (χ^2 (1) = 84.06, $p < 0.001$) and between L1 German and L2 German speakers (χ^2 (1) = 57.64, $p < 0.001$). There were no significant differences between L1 English and L2 English speakers (χ^2 (1) = 0.44,

n.s.). Moreover, both learner groups were compared to their monolingual countrymen. There was no significant difference between English speakers of German and native speakers of English (χ^2 (1) = 1.52, n.s.). However, a difference was found between German speakers of English and native speakers of German (χ^2 (1) = 44.5, $p < 0.001$). These findings suggest that L1 German speakers of L2 English have at least partially acquired the target language perspective on goal-oriented motion, whereas L1 English speakers of L2 German still rely on the L1 perspective when talking about events in the L2. These results are illustrated in Figure 3.7.

The analysis of SOT data, illustrated in Figure 3.8, showed that after the beginning of the video clip, L1 German speakers started to speak much later than L1 English speakers ($t1$ (24) = 3.13, $p = 0.04$; $t2$ (27) = 10.71, $p < 0.001$). L2 German speakers displayed the L1-like SOT pattern in the target language by keeping their speech onset time at around 3.8 seconds (F (1, 122) = 0.69, n.s.), while L2 English speakers shortened their speech onset times to 3.4 seconds (F (1, 131) = 13.46, $p < 0.001$). As in the mentioning of endpoints, L2 English speakers seem to have moved toward the target language (v. Stutterheim, 2003: 201). These results support the general pattern found in the linguistic data.[19]
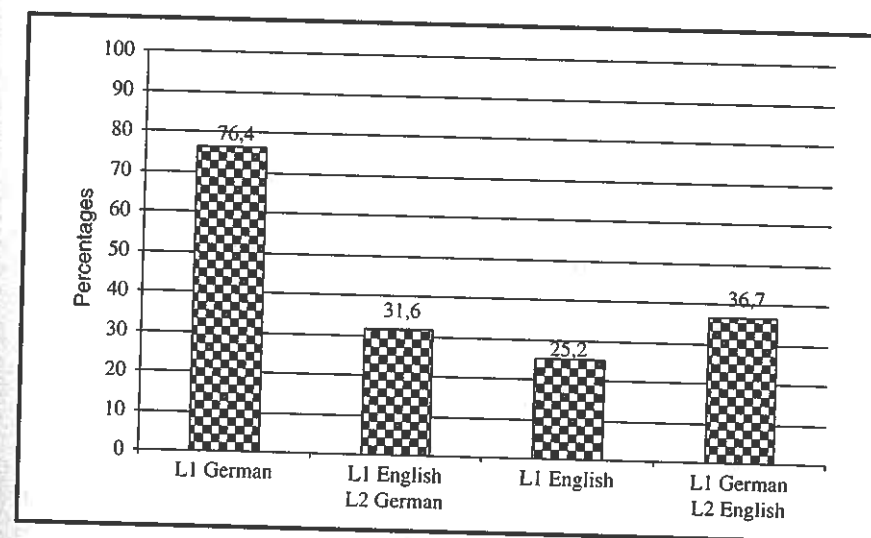
Figure 3.7 Study 1: Percentage of endpoints mentioned in eight critical items by L2 speakers ($n = 20$ participants per group; L1 English: SD = 4.8; L1 German: SD = 5.8; $n = 15$ participants per group; L1 English L2 German: SD = 3.6; L1 German L2 English; SD = 4.1)
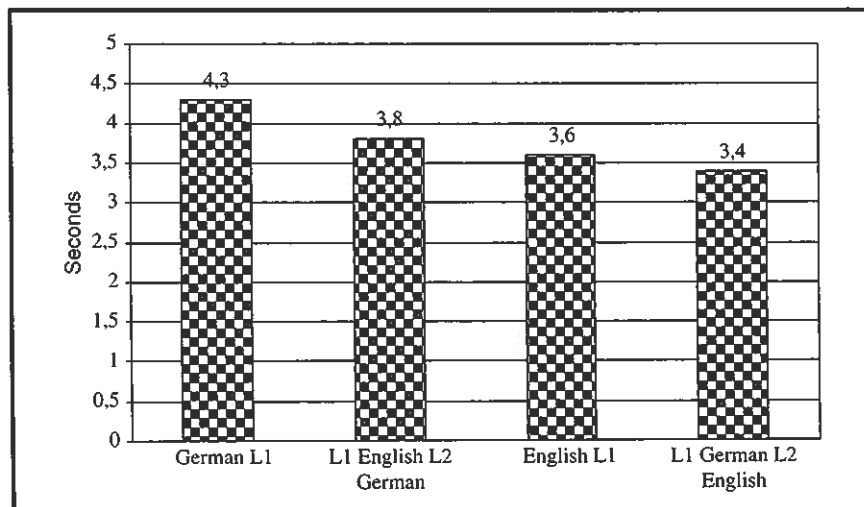
Figure 3.8 Study 1: Speech onset times of L2 speakers in eight critical items ($n = 20$ participants per group – English L1: SD = 0.4; German L1: SD = 0.5; $n = 15$ participants per group – L1 English L2 German: SD = 0.3; L1 German L2 English: SD = 0.5)

Study 2 (v. Stutterheim & Carroll, 2006) investigated two L2 speaker groups.[20] These were L1 German speakers of L2 English and L1 English speakers of L2 German. The analysis revealed that, in this study, speakers of L2 English and L2 German did not construe goal-oriented events in a target-like fashion. Rather significant differences in the number of endpoints mentioned for critical items were found between L1 and L2 English speakers (χ^2 (1) = 14.06, $p < 0.001$) and between L1 and L2 German speakers (χ^2 (1) = 76.16, $p < 0.001$). In addition, both L2 groups were compared with their own L1 groups. The comparison between native speakers of English and L1 English speakers of L2 German was not significant (χ^2 (1) = 0, 26, n.s.). The comparison between native speakers of German and L1 German speakers of L2 English revealed significant differences (χ^2 (1) = 32.72, $p < 0.001$). These results are in line with those reported in study 1. Here, too, L1 German speakers of L2 English encoded significantly fewer endpoints than German monolinguals. Although L1 German speakers of L2 English are still far from construing goal-oriented motion in the pattern typical for the target language, they show divergence from their L1 pattern. This finding could be interpreted as a beginning of restructuring. Figure 3.9 summarizes the results of the study.

In study 3 (Schmiedtová & Sahonenko, 2008), Czech and Russian learners of L2 German were examined. Since the baseline study did not
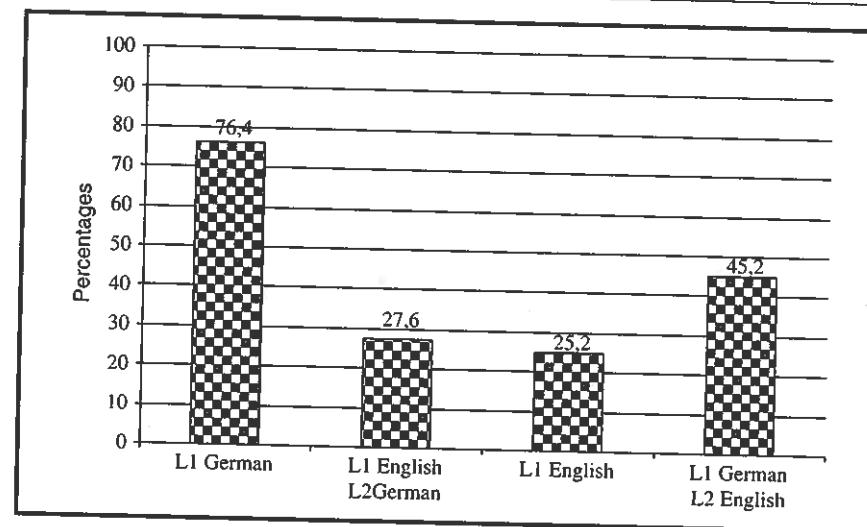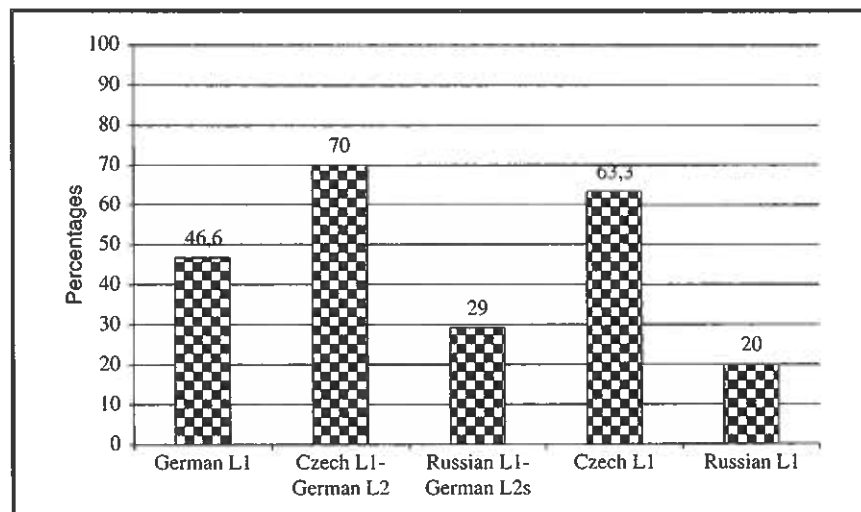
Figure 3.9 Study 2: Percentage of endpoints mentioned in eight critical items by L2 speakers ($n = 20$ participants per group; L1 English: SD = 4.8; L1 German: SD = 5.8; L1 English L2 German: SD = 3.5; L1 German L2 English: SD = 3.5)

reveal any effects for control items, the analyses focused on the endpoint mentioning in the critical items. Figure 3.10 displays the results for critical items, L1 results are repeated for comparison.

The analysis revealed that L1 Czech speakers of L2 German mentioned a significantly higher number of endpoints than L1 German speakers (χ^2 (1) = 18.18, $p < 0.001$), while L1 Russian speakers of L2 German mentioned significantly fewer endpoints than L1 German speakers (χ^2 (1) = 8.74, $p < 0.01$). No difference was found in the comparison between monolingual speakers of Czech and Czech speakers of German (χ^2 (1) = 1.57, n.s.). Similarly, the comparison between monolingual speakers of Russian and L1 Russian speakers of L2 German did not reveal any significant differences (χ^2 (1) = 3.78, n.s.). These results show that L1 Czech and L1 Russian speakers of L2 German both used L1-rooted principles for construing goal-oriented motion in the target language: The Russian group focused on the ongoingness of the situation, whereas the Czech group construed goal-oriented motion events under the holistic perspective. These results are in line with the patterns found for L1 Czech, L1 German and L1 Russian (Schmiedtová & Sahonenko, 2008: 62–63). The following are examples of the L2 speakers' description of the scene discussed previously.

Figure 3.10 Study 3: Percentage of endpoints mentioned in eight critical items by L2 speakers ($n = 30$ participants per group; Czech: SD = 4.0; German: SD = 5.2; Russian: SD = 4.9; $n = 15$ participants per group – L1 Czech L2 German: SD = 3.1; L1 Russian L2 German: SD = 3.7)

(18)	*Zwei Frauen*	*gehen*	*zu einem*	*Kloster*	L1 Czech-
					L2 German
	two women	go (prs.3.PL)	to a (DAT)	monastery	
	Two women	are going	towards a	monastery	
(19)	*Frauen*	*gehen*	*einen Weg*	*entlang*	L1 Russian-
					L2 German
	women	go (prs.3.PL)	a (ACC) path	along	
	Women	are going	along	a path	

As in the L1-baseline data, members of both groups use the same verb *gehen* (to go), but differ systematically in their focus on a possible endpoint in the target language.

3.6.4 Summary of the second language results

To sum up, the evidence provided by the three studies for the linguistic encoding of endpoints by advanced L2 speakers is mixed. Studies 1 and 2 showed that one advanced learner group – L2 German speakers – retained L1-rooted principles in the construal of events, while the other learner group – L2 English speakers – displayed the pattern favored in the target language. Our explanation for these differences involves the transparency of encoding of the new conceptual category: the English progressive is formally encoded and perceptually prominent, the holistic

perspective in German is not. Overall, however, all three studies point to the effects of the L1 system on the conceptualization in the L2.

3.7 General discussion

This chapter reviewed findings from three empirical studies that examined similarities and differences between L1 and L2 speakers in the construction of goal-oriented motion events. The reviewed studies share the assumption that the absence or presence of aspect in a given L1-system plays a decisive role in learning to structure information in an L2. All studies provide substantial crosslinguistic evidence on the extent to which aspect guides the selection of a particular perspective on goal-oriented motion events in L1 production. Study 1 also presented SOT results, which supported the findings from the production data. Study 3 provided new insights on the use of aspect in L1 Czech and L1 Russian. Even though Czech, like Russian, is an aspect-dominant language, Czech speakers behaved differently when construing goal-oriented motion events: they used the holistic perspective and clustered with the speakers of the endpoint-oriented languages. This finding links in with results from other analyses which had shown that the Czech aspectual system has been affected by language contact with German (Schmiedtová, 2010). In particular, a reanalysis of the perfective has led to a verbal form that allows for the integration of endpoints under the perspective of the deictic *now* that is expressed in the combination of a perfective and present tense, under a present tense reading (see Example (17)).

The findings of the three studies are consistent with results of the previous studies on language-specific patterns in event encoding (e.g. Gennari *et al.*, 2002; Papafragou *et al.*, 2002). They also show that effects of language arise when linguistic forms are recruited for conceptualization. The SOT and eye-tracking results from studies 1 and 2, however, challenge Papafragou *et al.*'s (2002) view that allocation of attention during event perception is not affected by the native language of the speaker. The results of studies 1 and 2 provide further support for Slobin's (1996a) Thinking for Speaking hypothesis, expanding its scope to aspect. The results of study 3 show that verbalization is affected not only by the availability of a particular feature, but also by preferences in usage.

Eye-tracking data offer unique evidence of the linkage between aspect, the perspective taken on goal-oriented events and eye fixation (study 2; v. Stutterheim & Carroll, 2006). The researchers found that speakers who adopt a holistic perspective on events fixate on the possible endpoint both before and after speech onset markedly longer than speakers who adopt an ongoing perspective. This finding shows that visual attention prior to and during verbal encoding is influenced by language-specific categories, such as aspect. This suggests, in turn, that the influence of linguistic

categories goes beyond organization of content for verbalization – it also affects the speaker's attention to certain aspects of a given situation. In light of these findings, the proposal was made to extend the Thinking for Speaking hypothesis to the Seeing for Speaking hypothesis (Carroll *et al.*, 2004; v. Stutterheim, 2007; Schmiedtová *et al.*, 2008). As discussed earlier, the Seeing for Speaking hypothesis assumes that when language A codes a certain meaning grammatically and language B codes the same meaning lexically or phrasally, then speakers of language A should attend to the relevant feature of a given visual scene, while speakers of language B may not do so, or at least not to the same extent.

As for L2 speakers, the findings reported in the three studies varied. Study 1 (v. Stutterheim, 2003) showed a conceptual shift from L1 preferences to L2 preferences for one group of L2 speakers: advanced L1 German speakers of L2 English have partially acquired the English-like perspective for the verbalization of goal-oriented motion, visible both in their verbal performance and in their SOTs. The fact that L1 English speakers of L2 German did not demonstrate the same approximation of the L2 patterns could be linked to the lack of transparency in German, i.e. the fact that in German the relevant perspective is not marked grammatically.[21] Thus, results from study 1 are in line with other studies claiming that restructuring in L2 speakers is possible (cf. Athanasopoulos, 2006; Cadierno 2004). In contrast, studies 2 and 3, as well as study 1 for the second group of L2 speakers, found the opposite: the L2 speakers investigated in these studies continued to rely on L1-specific patterns when construing goal-oriented motion in the L2. These results are consistent with those of other studies that found only partial or no evidence of conceptual restructuring in L2 speakers (cf. Carroll & Lambert, 2003; Carroll, 1997; Carroll & v. Stutterheim, 2003; Hendriks *et al.*, 2008; Kellerman & van Hoof, 2003; Schmiedtová, 2004). Consequently, more studies and more triangulated evidence are necessary to have a full picture of the factors that lead to conceptual restructuring in different L2 domains.

3.8 Conclusions

The studies discussed here have relevance both for crosslinguistic research and for research on bilingualism and SLA. With regard to cross-linguistic differences, these studies show that L1 perspectives taken on events are grammatically driven. Such perspectives, in turn, can become the source of further processes of grammaticalization. These findings suggest that languages can be clustered on the basis of preferred patterns of information organization, an approach outlined in Carroll and v. Stutterheim (2003: 395). With regard to bilingualism and SLA, the studies discussed in this chapter demonstrated that L1-specific patterns

of selecting and structuring information in conceptualizing motion events pose a long-lasting challenge for L2 learners and only a few L2 speakers can overcome these challenges. When it comes to goal-oriented motion, the majority of L2 speakers think in the L1 when speaking in the L2.

Notes

1. The term *L2 user* (Cook, 1999) is used synonymously with the terms *L2 learner* and *L2 speaker* in this chapter.
2. The terms *event* and *situation* are used interchangeably in this chapter.
3. To avoid confusion, we use the term *aspect* to refer to grammatical aspect (for more discussion on this topic, see Klein, 1994; Schmiedtová & Flecken, 2008; v. Stutterheim *et al.*, 2009).
4. Both examples are originally from Talmy (2000: 49–50).
5. This, however, only applies when linguistic knowledge is recruited for the given non-linguistic task.
6. These two forms do not denote the same aspectual concept; however, since this otherwise very relevant difference is not vital for the argument of the present chapter, we will not explain this in detail.
7. Importantly, whenever a verb is used, the speaker must decide whether to use the perfective or the imperfective, i.e. every verb has a particular aspect.
8. The reason Russian and Czech use the locative adjunct *through a door* with different cases – the genitive in Czech and the accusative in Russian – is due to the use of different prepositions: in Russian the preposition *v* (in) and in Czech the preposition *do* (in).
9. It is conceivable to use present perfective with no additional arguments in a sequence of a set of events, e.g. *Někdo vejde, vezme si kabát a zase odejde* [Somebody comes in, takes the coat and leaves again]. The same is true for Russian.
10. For more detailed discussion on the function and status of this form in Czech, see Schmiedtová (2004); for the comparison between Czech and Russian, see Schmiedtová and Sahonenko (2008).
11. For an overview and discussion of these forms, see Schmiedtová and Sahonenko (2008).
12. The secondary imperfective is often used in Russian but rarely in Czech for events depicting change of state with a possible resultant state (cf. Schmiedtová & Sahonenko, 2008).
13. To enroll at a German university, all foreign students have to pass the so-called 'Deutsche Sprachprüfung für den Hochschulzugang ausländisch-

Studienbewerber (DSH)', a standardized language test that combines an extensive written test with a spoken language test.

14. All participants were asked to fill out a general questionnaire providing information about their age, educational background, other foreign languages spoken, daily use of L2 German, motivation to learn L2 German, length of residence and length of instruction in the L2. The question asked about their dominant language was: *Welche Sprache sprechen Sie am häufigsten im Alltag?* [What language do you speak on a daily basis most frequently?]

15. The language of instruction for all courses in the German department at the Charles University in Prague is German.

16. The questions were as follows: in MS Arabic *Mādā yaġri?*; in Czech *Co se děje?*; in German *Was passiert?*; in Russian *Čto proischodit?*; in Norwegian, *Hva som skjer?*; and in Spanish *¿Que está pasando?*.

17. SOTs for speakers of MS Arabic were not available at the time of writing this chapter. Because of technical difficulties during the data collection, insufficient Spanish SOT data were recorded, therefore no statistics could be applied to Spanish SOTs. For results on MS Arabic and Spanish SOT data see v. Stutterheim *et al.* (in press).

18. Fixations within the area of interest were calculated using an area-based algorithm where a set of fixations with a maximum deviation of 25 screen pixels (corresponding to a gaze movement of less than roughly 0.5° and approximately 68 cm distance from eye to screen), and a minimum sample count of 6, is recognized as a fixation.

19. Statistical analyses for the SOT data in L2 speakers were taken from v. Stutterheim (2003: 201).

20. No eye-tracking data were available for L2 speakers at the time of writing this study. For eye tracking in Dutch-German bilinguals, see Flecken (in press).

21. For more discussion of the role perceptual saliency may play in achieving native-like proficiency in the L2, see Schmiedtová (2004).

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Appendix

Here are examples of three control and three critical items used in the studies reviewed in the present chapter. Because of possible printing problems, the pictures are presented in black and white; the original clips were in color. Below each picture is a description of what it depicts. Additionally, for critical items, examples of verbalizations are provided that were frequently produced by speakers of the four focus languages discussed in this chapter – English, German, Czech and Russian.

Critical Item 1. A car is riding on a country road; in the background one can see the first houses of a village; the car does not reach the village entrance in the clip.
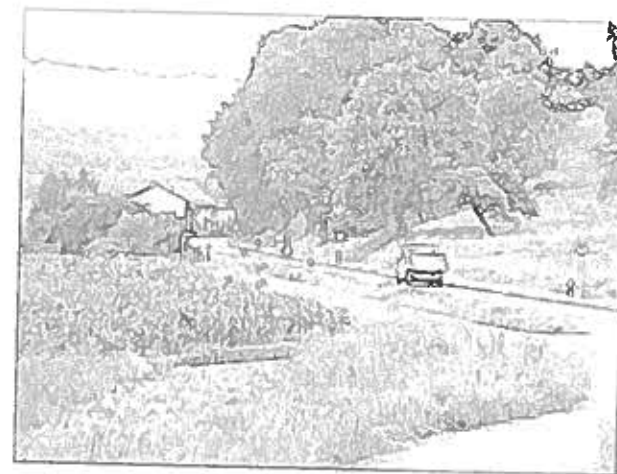

English native speaker: A car driving down the road
German native speaker: *Ein Auto fährt die Strasse entlang in einen Ort* [A car is riding along a road to a place]
Czech native speaker: *Auto vjíždí do vesnice* [A car is riding into a village]
Russian native speaker: *Mašina jedet po doroge* [A car is riding on a road]

Critical Item 2. A man is climbing up a ladder toward a balcony; the man does not reach the balcony in the clip.
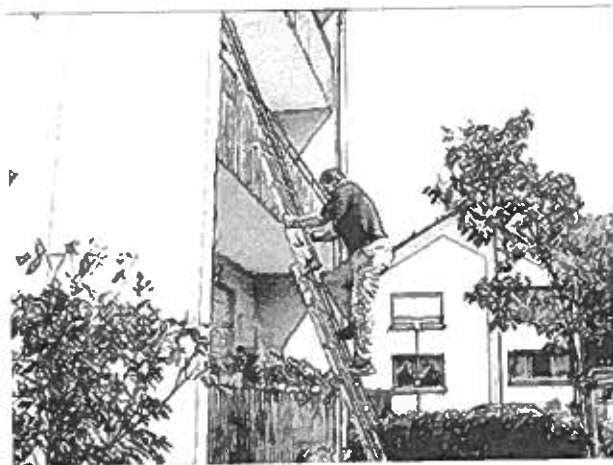
English native speaker:	A man is climbing a ladder
German native speaker:	*Ein Mann steigt die Leiter hinauf zu einem Balkon* [A men is climbing up a ladder onto a balcony]
Czech native speaker:	*Muž leze po žebříku na balkón do prvního patra* [A man is climbing up a ladder to a balcony on the second floor]
Russian native speaker:	*Mužčina lezet po lestnitse* [A man is climbing up a ladder]

Critical Item 3. Two women are walking down the road; at the end of the road there is a big house; the women do not reach the house in the clip.
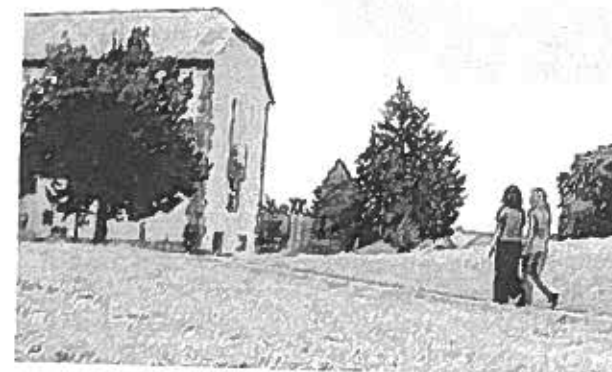
English native speaker:	Two women are walking down a path
German native speaker:	*Zwei Frauen laufen zu einem Haus* [Two women are walking to a house]
Czech native speaker:	*Dvě ženy jdou po cestě k domu* [Two women are walking on a road to a house]
Russian native speaker:	*Dve devushki idut po doroge* [Two girls are walking on a road]

Control Item 1. A car riding into a courtyard of a farm; the car reaches the courtyard in the clip.

Control Item 2. A woman is cycling into a forest; the woman enters the forest in the clip.

Control Item 3. A dog is running into a house; the dog disappears in the house in the clip.