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# Obstacles in Acquiring a Second Language: A Key to the Impact of Typological Differences on Conceptualization in Language Production

**Abstract** The present chapter focuses on the means used in languages to encode concepts via grammaticalized and lexicalized forms and their role in information selection and organization in French, English and German, compared to L2 speakers of these languages. The study is based on descriptions of motion events elicited by video clips in verbal and non-verbal tasks which included retellings based on silent films by L1 speakers of French, English and German and L2 speakers in combinations of the different L1s. The findings based on these descriptions, as well as patterns of visual attention, confirm the role of crosslinguistic differences in the L1s in leading to distinctive differences in event conceptualization as well as in the distribution of attention – from the uptake of visual information to conceptual preparation. Speakers draw on language-specific schemas which guide attention to the relevant features of the stimulus in order to link the relevant linguistic categories with the associated conceptual representations. The studies show the extent to which highly competent L2 speakers draw on L1-based schemas when describing events across a large number of experimental conditions. The results not only demonstrate the degree of entrenchment of language-specific schemas but also provide insights into the factors which may impinge on the acquisition of those of the L2s. The unconscious activation of existing knowledge structures may hinder the identification of how relevant spatial concepts, their linguistic form and associated attentional processes are intertwined. Since information on a change in place with regard to the direction taken can be based on the figure in motion, (*they are heading towards y*) or features of the ground (*they are walking along x to y*),

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the acquisition of the underlying event schemas in learning a second language requires adequate exposure. This will involve access to contextually grounded usage in order to gain the level of knowledge on which native-like competence is based.

**Keywords** L1 speakers; L2 learners; motion event construal; language specificity; allocation of attention; event schemata

## Introduction

This chapter presents an overview of a series of studies which were carried out in a long-term research project at the Heidelberg University on relevant factors in the second language acquisition process. Findings based on L1 crosslinguistic studies highlighted the relationship between language-specific encodings of concepts via grammaticalized and lexicalized means and the organization of information for expression. Based on these findings, focus was placed on the extent to which learners succeed in acquiring the target language-based patterns of information organization. In expressing information on events, for example, speakers map the conceptual representation of the situation onto the linguistic resources and coding patterns of the language in question. In the framework of Levelt's distinction (1989) between the level of *macroplanning* 'what to say' and *microplanning* 'how to say it', we assume that given the speed of execution required in language production, processes underlying decisions at the level of *macroplanning* as well as the level of *microplanning*, will operate in unison so as to fit the requirements of both the linguistic system as well as those of the task. The focus of interest in the study was thus placed on the interaction between cognitive processing and language specific properties (grammatical and lexical) across source and target languages on the basis of preferences in verbalization.

Starting with the early studies on language acquisition (e.g., Levelt, 1989; Slobin, 1996), the case of crosslinguistic differences with respect to the means of expression were based on the following question: When conveying information in a given context, in how far do speakers proceed on a language-specific basis? In the series of studies on the role of selective attention, for example, as elaborated under the *thinking for speaking* hypothesis (Slobin, 1996), it was assumed that the linguistic means in the language in question, both grammaticalized as well lexicalized, will direct the attention of the speaker to the associated concepts expressed in the relevant ontological domains such as *time*, *space*, and *entities.* In other words, language-specific features will be accorded salience in deciding 'what to say'.

Learners of a second language have already acquired knowledge of a system on the basis of their L1 which governs the principles underlying the use of forms, and the associated concepts, in the relevant ontological domains. This factor led to the following questions: To what extent will learners uncover the principles that drive conceptualization and information extraction in the target language? In how far will they rely on the language-specific principles of their L1 in the allocation of attention and information extraction during language production in the L2? The investigation of the task for the learner was therefore based on the crosslinguistic differences in the forms available in the languages studied when encoding information. In Talmy (2000), it was shown how languages differ in terms of the linguistic means used in encoding information on the *path* of motion, the core component of a motion event: Romance languages such as French, Spanish and Italian, are classified as *verb-framed* (V-languages) since information on the *path* of motion is expressed in the verb. This is in contrast with Germanic languages such as English, German and Dutch in which information on the *path* of motion is expressed via adjuncts and are thus referred to as *satellite-framed* (S-languages). In the *thinking for speaking* framework postulated by Slobin (1996), language specific means serve as a filtering function: S-languages, in encoding manner in the main verb, draw attention to manner of motion, while V-languages which encode path in the main verb, draw attention to path. These typological contrasts were described as a particular 'framework for schematizing experience' when *thinking for speaking, S*lobin (1996). Although early stages in language use may be language neutral or not, studies at the level of *microplanning* showed how the linguistic means available to the speaker drive the selection and organization of information.

The crosslinguistic research surveyed below covers investigations on the implications of both grammaticalized as well as lexicalized contrasts at different levels in the production process. The focus of analysis concerns the role of linguistic forms, with their associate concepts, in driving attention to aspects of a situation that are readily encodable when verbalizing an event. Within the large body of research carried out by the Heidelberg group, the present overview includes L1 speakers of French, English and German as well as highly competent L2 learners with these specific L1s and L2s. The objective was to pinpoint the obstacles learners may still face at advanced stages of acquisition with regard to the question of full competence. This requires insight into the nature of the knowledge activated in language processing at the conceptual level. Regarding language acquisition, the findings provide a basis for discussion of the factor of frequency, which is viewed as a driving force in the usage-based approach along with the relevance of 'conceptual transfer', as postulated by Jarvis & Pavlenko (2008).

The following sections are structured as follows: Part 1 describes the underlying theoretical framework and related studies. This is followed in Part 2 with an overview of the studies on motion event construal that combine linguistic analysis and psycholinguistic procedures. In Part 3, a range of specific studies, which were based on the description of single events elicited by video clips, are compared with events verbalized in a narrative context, as in retellings of silent films.

# 1 Theoretical Underpinnings

## 1.1 Language production models

The series of studies outlined below draw on models of language production with an initial level of 'conceptualization', in which content is selected for expression, followed by its 'formulation' in linguistic form and the final process of 'articulation' (cf. Levelt, 1989). The initial stage at the conceptual level covers the stage of 'macroplanning' as related to processes involved in information selection and organization. This is followed by 'microplanning' where the conceptual content selected for expression is brought into perspective and assigned a particular information structure on the basis of language specific requirements. In this framework, the initial stage of macroplanning is viewed as language neutral, while crosslinguistic differences are confined to the microplanning stage only.

On the whole, studies on the encoding processes involving manner and path show that speakers of different languages focus on different components of motion events when *thinking for speaking*. This is viewed as based on the activation of language-specific patterns of attention.

## 1.2 L1 and L2 Acquisition

Empirical research on L1 and L2 acquisition provides insights into the potential interaction between planning processes at macro and micro levels in language production. Slobin (1996) states that in the course of extensive exposure and use of the L1, children develop preferences in the direction of attention to the relevant conceptual domains and associated information when representing situations or events. These 'habits of thought' are acquired in conjunction with the acquisition of the specific formal means over a long-term process of cognitive and linguistic development (Hickmann et al., 1998; von Stutterheim et al., 2012 and overview in Özçalışkan & Emerson, 2016). L2 learners have the 'habits of thought' of their source language, in Slobin's terminology, and the question arises as to how these intervene when

processing input from the target language. The well-established impression shared by native speakers that something may be unconventional in the verbal production of even highly fluent L2 speakers may be attributed to the activation of L1-based attentional patterns when *thinking for speaking*.

With regard to the question of the L2 speaker's abilities, and the conditions which may, or may not, lead to the acquisition of the relevant range of knowledge 'when *thinking for speaking'* in the target language, we now turn to usage-based theories on L2 acquisition (Ellis, 2008; overview in Kartal & Sarigul, 2017). In this context, the extent to which speakers are exposed in everyday language to linguistic expressions and their combinations is rated as a major driving force. Second language learning is viewed as based on implicit cognitive mechanisms such as sensitivity to frequency of occurrence, along with strings of occurrences in the L2, which allow the extraction of statistical regularities and inductive generalizations of collocational dependencies. According to Wulff & Ellis (2018) on the role of the L1, L2 acquisition is viewed as filtered through the lens of the L1 with beneficial effects when features are shared by both the source and target language and negative effects when features differ. In this context two questions arise: Could the level of 'non-nativenesss' in advanced learners' productions arise from difficulties in extracting statistical regularities based on *preferred* usage of linguistic forms in context, in contrast to formal regularities? Could frequency of exposure have a limited impact on deeply entrenched and automatically activated L1 'habits of thought' when *thinking for speaking* in L2? These questions would require the investigation of how selective attention operates on cognition both on a linguistic as well as on a non-linguistic level. The crosslinguistic studies on motion events presented here provide insights that are based on language effects.

## 1.3 Studies on Motion Events

In the theoretical framework initially proposed by Talmy (1975, 2000), motion events involve the following conceptual / semantic categories: *figure*, *motion*, *ground*, and *path* whereby *manner of motion* and *cause* constitute co-events. Given the fact that the *path* traced through space by a *figure* in motion is viewed as the central conceptual component of a motion event, languages can encode information which comprises features of the *ground* traversed by the figure (source, trajectory, goal) as well as the *orientation* of the figure. Languages vary in the means which encode information on the *path* of a motion event: In Romance languages, information on the path of motion is expressed in the verb and are thus termed *verb-framed* ('a man *enters* the building') in contrast to *satellite-framed* in Germanic languages ('a man is walking *into* the building').

Depending on whether information on the path of motion is encoded in verbs versus satellites, different components of the situation will be expressed explicitly, or remain implicit. Crosslinguistic studies on the scale of such differences showed variation, both across typologically related languages as well as within the language groups. In Romance languages, where *path* is typically encoded in the verb, studies showed that speakers also use manner verbs at relatively high frequencies (Stringer, 2005; Cardini, 2008, 2012; Kopecka, 2009; Slobin et al., 2011). This led to distinctions based on the actual salience of the concepts *path* or *manner* across languages (Hickmann & Robert, 2006; Slobin 2004, 2006). Although mainly satellite-framed, English also shows use of path verbs (Carroll et al., 2012). Other studies included additional criteria covering *manner of motion* (Slobin, 2006; Pourcel, 2005; Feist, 2016) with the type of 'figure' in motion *animate/inanimate entity* (Pourcel & Kopecka, 2005). A further level of analysis in the study of events focused on the role of *boundedness* (von Stutterheim et al., 2012; Flecken et al., 2014) as well as *aspectual* categories (events marked as *ongoing*), when expressing information on a change in place (von Stutterheim et al., 2017). The relevant typological differences were compared across a range of typologically diverse languages (Levinson, 1996, 2003; Romance versus Germanic languages: Athanasopoulos et al., 2015; Hickmann et al., 2008; Durst-Anderson et al., 2013; English versus Greek: Papafragou et al., 2010).

The initial focus on the components 'path and manner' was followed by an extension of the analyses to a comprehensive view on events at the overall level of event construal, (von Stutterheim et al., 2012; Bylund & Athanasopoulos, 2013; von Stutterheim et al., 2017; von Stutterheim et al., 2020). A further line of research involved the implications of the different patterns of lexicalization on processes underlying motion cognition which could provide insights on the level at which language specificity plays a role. This was carried out on the basis of verbal tasks which were coupled with non-verbal experiments (triad categorization tasks, similarity judgments, memory tests, verbal interference, eye tracking). On the whole, results concerning verbal description tasks were consistent with previous findings, but non-verbal tasks produced conflicting findings that could be related to task choices, stimuli, instructions etc., (overview in Pavlenko, 2014).

Studies on L1-specific effects at the conceptual level in a second language take at its starting point cognitive differences in monolingual populations in a specific domain. They examine the extent to which language-specific cognition in the same domain shows (partial) L1 influence and (partial) resistance to L2 influence. The findings also are not consistent, however. Studies on learners at early stages conducted by Cadierno (2004), for example, showed that Danish learners of Spanish manifest L1 influence in their description of motion events providing elaborate path information in contrast to L1 Spanish

speakers. L1 effects were also identified in boundary crossing contexts where learners used manner verbs (Cadierno & Ruiz, 2006). A study on the impact of the level of proficiency at early stages (Athanasopoulos et al., 2015) tested English learners of German with different lengths of exposure to the target language. The study was based on the finding according to which speakers of aspect languages are less likely to attend to endpoints (goal) compared to speakers of non-aspect languages. The categorization tasks used motion events with different degrees of goal orientation. Results show L1 behaviour patterns for learners with medium exposure and a shift to L2 behaviour patterns with the highly exposed learners. Other studies on advanced L2 learners, however, showed persistent L1 effects on motion event construal (Flecken et al., 2015; Bylund & Jarvis, 2011; Bylund & Athanasopoulos, 2015; Treffers-Daller & Tidball, 2015; Pavlenko & Volynsky, 2015; von Stutterheim et al., 2013). The same holds in experiments in which verbalizations were coupled with speech onset times (SOTs) and eye tracking procedures. In sum, the crosslinguistic studies show how relevant language-specific contrasts tend to play a significant role at the preverbal phase in language production. The next section provides further descriptions of some of the studies mentioned above which were carried out by the Heidelberg group. Focus is placed on cognitive differences across L1 speakers in examining the extent to which the representation of motion events by advanced users of an L2 is resistant to L2 influence and remains influenced by L1 language-specific processes.

## 2 Processes of conceptualization in L2 production

The empirical studies address the level at which language-specific structural properties influence processes in L2 construal of motion events: which processes (L1 or L2 based) operate at the encoding stage of microplanning as well as at the macro level, and to what extent, as reflected in attention allocation, event segmentation and information selection.

### 2.1 The Impact of Aspectual Categories on the Construal of Motion Events

A series of studies tested the role of ongoing aspect on the selection and organization of event information in grammaticized aspect languages versus non-aspect languages. The relevance of this variable is based on early studies on narrative texts produced by L1 speakers of French and German and French and German learners of English (Carroll & Lambert, 2006). It was shown that while speakers of languages that do not encode aspectual distinctions on a broad scale (German and French) tend to represent events which occur in

sequence as bounded with a possible endpoint, speakers of English, given the presence of aspectual means, may view an event as bounded, or ongoing. In the case of event cognition, speakers of non-aspect languages may be more likely to adopt a holistic perspective in motion events viewed as bounded. In contrast, speakers of aspect languages may, in relevant contexts, decide whether an event is ongoing or completed. Consequently, they may segment an event into phases as it unfolds and attend to the current ongoing phase.

This led to testing this assumption in a more controlled research design. Speakers of different languages (+/- aspectual distinctions) were asked to describe video clips covering a range of everyday motion situations which were distinguished by the presence of an endpoint. The clips included scenes in which the endpoint of the trajectory is reached (control item), while a further set (critical items) featured scenes where the endpoint had to be inferred, and differed in the degree of goal orientation from an intermediate degree (a man driving a car along a road toward a village) to a low degree (two women walking in a park with a bench in the distance). The range of scenes also included situations with distractors showing activities with no inferable endpoint. Participants (20 per group) were asked to answer the question *What is happening?* and their responses were recorded. In addition to analyses of the linguistic data, additional methods (e.g. speech onset times SOTs) were implemented which could provide insight into possible differences during the conceptualization phase in speech production. It was assumed that longer delays in speech onset may reflect the tendency to include an endpoint in languages that do not encode aspectual distinctions (event is ongoing). Eye tracking measurements provided relevant information at the preverbal phase while the event unfolds: fixations patterns were in line with the tendency to encode an endpoint. Variations at this level thus reflect language-specific effects in language production, as shown in a subsequent set of studies. The experimental studies included verbal as well as non-verbal processing (e.g., von Stutterheim & Nüse, 2003; von Stutterheim et al., 2012; Flecken et al., 2014; Flecken et al., 2015); Gerwien & von Stutterheim (2018). For example, speakers of non-aspect languages (German, Norwegian, Swedish, French) tend to represent events under a holistic perspective by mentioning the inferred endpoint. This is not the case with speakers of aspect languages (English, Russian, Arabic and Spanish) in which events are verbalized as 'ongoing'. The frequency with which endpoints are mentioned is significantly lower compared to speakers of non-aspect languages. Findings based on SOT measurements also pinpoint systematic contrasts in time span for participants of non-aspect languages while waiting for a potential goal / endpoint before speaking. In contrast, speakers of aspect languages start speaking as the situation unfolds (von Stutterheim & Carroll, 2006). These differences reflect language-specific effects on processes prior to verbalization.

Given these findings a study carried out by von Stutterheim & Carroll (2006), investigated the impact of aspect on the representation of events by L1 German-L2 English and L1 English-L2 German learners [1]. Options based on comparisons with learners and speakers of the target language for the same tasks reflect significant L1 influence in the verbalizations. Although L1 German-L2 English speakers use the progressive form, they still include endpoints when describing the critical items. This is not typically the case for speakers of English when events are presented as ongoing. An endpoint may or may not be included, depending on its relevance in the given context. Patterns in visual attention, measured by SOTs, may correspond to those which are typical of the learners' source language. This was the case with L1 English - L2 German learners. The patterns for L1 German-L2 English were closer to L1 English, however. This difference may be attributed to the status of the progressive in English ('event is ongoing'), given its frequency. In German, there is no form which explicitly express the concept 'holistic' for events (von Stutterheim, 2003; von Stutterheim et al., 2009). An overt form (the progressive) may make distinctions in event conceptualization more salient for the learner and contribute in identifying the concept and its function.

## 2.2 Conceptual Domains Underlying Key Concepts in Describing the Trajectory

The study conducted by Carroll et al. (2012) investigated the type of concepts encoded in verbs, prepositions, verb particles and adverbs in motion event descriptions of the trajectory with regard to the basic conceptual domains from which they are derived in English, French and German. The relevant contrasts are as follows: in French the concepts which are activated when describing the event are derived from features which relate to the direction taken by the 'figure in motion' as well as the ground, albeit to a lesser extent. This is in contrast to German in which 'contours of the ground' are predominant. The study, which included two groups of advanced learners of English, with French and German as their source languages, compared the acquisition of the relevant concepts when tracing the trajectory through space. The study was based on video clips featuring motion events. One set of scenes showed an entity in motion on the section of the trajectory close to an evident goal (+ Goal) in contrast to a set which focused on the stretch leading to it (+ Ground). The goal was less evident in the latter case. The contrast would indicate the extent to which the spatial concepts used by the learners

1 The participants (20 per group) were all highly competent users of their L2s assessed by tests and length of institutional language studies and eventually studies abroad.

would focus on contours of the ground, since attention to an endpoint is also possible without focusing on information at this level.[2]

The findings, based on statistically validated preferences, provide clear evidence of the relevant language-related contrasts. In the clips showing an evident goal, spatial components are encoded in L1 French on the basis of verbs as follows:

(i) verbs relating to the figure in motion, its trajectory and goal *se diriger vers x* ('to direct oneself toward x'), *s'approcher de x* ('to approach x'),
(ii) verbs that relate to the orientation of the figure in motion *tourner* (to turn).

As indicated above, the relevant contrast in language acquisition is that the concepts encoded in the verb relating to *the figure* in motion are used frequently in French, in contrast to features of *the ground*. In English, by contrast, the dominant forms which conjoin with manner of motion in the verb (e.g., *to run; to walk*) relate to features of the ground (*through, along*, *around, over x*). In the clips showing an extended trajectory and no evident goal, manner of motion is expressed in the verb in French. These verbs typically conjoin with adjuncts which express the location of the figure in motion (*sur la route*, 'on the road'), but not direction. There are few forms in French that relate to specific contours of the ground, such as *le long de,* for example, and overall use is low. This is the main contrast to English. Manner verbs predominate (e.g., *to walk, to drive*) and typically combine with spatial information based on features of the ground (*they are driving along a road around a village).*

The comparison of L1 speakers of French and English showed how the crosslinguistic variation in the means available to the speaker lead to differences with regard to the features of the scene which come under focus in the stimuli. Depending on the prominence of the goal, the following patterns in event construal are activated in French: (i) with a prominent goal and a short trajectory, speakers encode information on both the direction taken with verbs relating to the figure in motion and the goal; (ii) in the absence of a salient goal, the dominant pattern is to refer to manner of motion with mention of the location of the entity in motion (*marcher sur la route*), but not its direction. In English, manner of motion predominates in the information encoded in the verb. This conjoins with spatial concepts that express the path

2 The range of languages in the overall project include Romance languages (French, Italian Spanish), Germanic (English, German, Dutch, Norwegian) and Semitic (Modern Standard Arabic) and learner languages with L1s and L2s in the above cited languages.

taken and are based on contours of the ground (e.g., *along the street, around the corner*, *over the bridge*).

Learners of English with L1 French, for example, acquire use of manner verbs as well as the deictic verbs. But in contrast to L1 speakers of English, the learners do not use the wide range of spatial concepts (e.g., *along, around*) which are derived from contours of the ground and shape the trajectory leading to a goal. When no goal can be detected in the stimuli, the scene is represented by the learners as 'an entity moving in a certain manner located at a place *(une voiture roule sur la route; a car drives on the road),* as in L1 French. They maintain a focus of attention based on their source language along with the relevant spatial concepts and their linguistic form. Depending on the conditions under which the language can be learned (classroom; lack of immersion with native speakers), the knowledge whereby core grammaticized concepts drive the focus of attention in language processing may prove difficult to acquire.

Based on the findings presented above, a follow up study was carried out (Flecken et al., 2015) investigating the level at which language specificity operates on L1 patterns and the possible consequences for L2 learners. The study included L1 French-L2 German learners as well as L1 French and L1 German speakers. Their descriptions of the events were coupled with both eye tracking recordings as well as measurements of speech onset times (SOTs). The analysis was based on the following hypothesis: Given the role of the L1, speakers of French will focus on the direction taken by the entity in motion in relation to a (potential) goal (e.g., *to head toward* x) when this is evident, and on its location when it is not. Speakers of German will relate to features of the ground through which the entity is moving (e.g., *über* [*over*]*, unter* [under] *entlang* [*along*]).

The findings show that based on concepts which indicate the direction taken, as expressed by verbs in L1 French, speakers of French allocate a higher level of attention to the entity in motion, as well as to the possible endpoints, before speech onset. This is not the case for L1 speakers of German who show higher levels of focus on features of ground, compared to the French speakers. The use of forms that indicate direction (e.g., *über* [*over*]*, unter* [under], *entlang* [*along*]) via features of the route is high. Although the use of manner verbs by the L2 speakers of German with L1 French were similar to the speakers of L1 German, this is not the case for the patterns of attention to features of the ground by the L2s, prior to speech onset. These were similar to those of native speakers of their L1 (French), as shown by the eye tracking recordings. The L2 speakers allocate attention to the moving entity to a higher degree, in contrast to the L1 speakers of German. The L2 pattern is thus in line with L1 French.

The findings for this group of L2 speakers show how the process of conceptualisation when 'thinking for speaking' may be mediated by the source

language, as illustrated by the specific components of the scenes which are placed under focus when preparing to speak (entity in motion / specific features of the ground). They confirm the role of attentional processes and associated patterns of conceptualization when processing information for expression. This may affect acquisition of the knowledge underlying event representation in the target language when learning an L2.

## 2.3 Formation of Event Units

Although the empirical study by Gerwien & von Stutterheim (2018) did not include L2 users, it is relevant to L2 acquisition given the investigation of language effects at the earlier stages of event segmentation and provides insights on the degree of entrenchment of L1 patterns of conceptualization. The study compared the extent to which the relevant structural differences between French and German influence the way in which the continuous flow of information is segmented into event units. In French, where motion from one place to another by the entity in motion is predominantly expressed by path verbs, segmentation will correlate with changes in orientation *descendre, tourner.* In German, by contrast, motion from one place to another is typically expressed in terms of manner of motion. Information on the path taken is encoded in forms which may cover a number of path segments (*sie laufen eine Straße entlang und über eine Brücke auf dem Weg nach Hause*; they walk 'along' a street and 'over' a bridge 'on the way' home). Given these basic contrasts that relate (i) to the role of figure in motion and (ii) the ground traversed, speakers of French and German may draw on representations of a motion event at a conceptual level (event schema) which differ in the focus placed on features of the event. The experiments were based on video clips showing a set of situations in which an entity moves along a path with changes in direction (up, down), orientation (left, right) followed by motion to a goal. These were accompanied by control clips which varied (i) in the degree of prominence of these changes in direction along with (ii) clips with no change in direction. In the first experiment, participants were asked to describe the scenes shown in the videos. This was followed by the second experiment, based on the Newtson task (1973), with a second group of participants who were asked to press a button whenever they noticed a change in situation.

In the verbal task, speakers of French tend to describe a motion event with more than one sentence, in accordance with change in direction (new verb). This is in contrast to German speakers who typically describe a motion event based on one sentence only with the relevant nominal phrases. The results for the non-verbal segmentation task are in accordance with those of the verbal task: The speakers of French were more likely to mark an event

boundary at the point where a change in orientation / direction occurred in the stimulus. This pattern was not observed since changes in orientation is expressed by prepositions which can be included in one sentence for the speakers of German.

The findings for both languages show how the activation of processes in both verbal and non-verbal tasks are guided by the conceptual categories that are obligatory and frequently accessed by speakers of a specific language. The impact of language-specific structural properties in the process of segmentation reflects the degree of entrenchment of L1-based effects. This pinpoints the difficulties with which learners have to deal in acquiring the processes in operation at this level.

## 3 Motion Events in a Narrative Context

The following research questions whether the different language specific patterns described above are robust and activated in different types of communicative situations when learning and using a second language. This led, in a first step, to investigate motion events produced in a narrative task (the retellings of a cartoon, Reksio) and see whether L2 learners attend to aspects of motion events that are specific in their target language or remain influenced by their L1 preferences.[3] In order to diversify the type of stimuli, the data further included retellings of an animation film, Quest, as well as episodes of the film Modern Times featuring real persons. The study is based on L1 speakers of English and French as well as highly competent L1 French-L2 English learners (N=20 per group). To test the implication of tasks conditions, motion event descriptions produced in the semi-controlled task (the retellings) were compared to those produced in the description of a selection of video clips used in the Carroll et al. study (see 2.2) which best matched the scenes selected in the films.

The requirements of a narrative task are complex at a superordinate level: Based on mental representations of the perceived unfolding film, motion events are memorized, retrieved, selected and further organized so as to satisfy constraints based on coherence and fit the narrative format. As reflected in the number of occurrences of motion events per scene (see Tables), these constraints lead to individual variation in the information selected for expression in the retellings, both in the L1 and L2 data.

The unpublished study presented here comprises retellings of the cartoon (Reksio, in which a boy with a dog go skating on a lake where the water is only partly frozen and the boy falls in), an animation film (Quest) which

3 Presented at Eurosla 22 conference (2012)

features a sandman searching for water in a series of hostile settings, and an episode from the film 'Modern Times' (Chaplin), in this case with two main protagonists. The films were first shown in their entirety and repeated once more episode by episode in order to support the speaker when re-telling the events. Participants were recorded one by one and the accompanying experimenter interfered only when it was necessary to show encouragement. The retellings were elicited by the question *What happened?* for both the L1 and L2 groups and this elicitation question was repeated for each episode. In order to compare both the retelling tasks and the video description task, the analyses focused only on goal-oriented motion events which differed according to the length of the trajectory to a potential goal. The first category comprised events with a short trajectory and an evident goal *il se dirige vers la source de l'eau* (he heads towards the pool of water) with a second category showing events with a long trajectory and no evident goal (in French: *ensuite une fille marche dans la rue* [a girl walks in the street]) (in English: *walks along the street).* The data comprised ten events (five in each category). The descriptions of video clips which were added to this group included scenes with a prominent goal and a short trajectory (4) as well as scenes with a distant potential goal (5). Examples from scenes with a prominent goal from the database of the retellings are as follows: *a person walking towards a large pool of water*; *a man walking to a shipyard* and from the descriptions of videoclips they include *a woman walking along a stretch of road towards a car; someone walking across the courtyard or square to a phone box*. Examples illustrating scenes with a distant potential goal are *a woman walking down a street; a man walking along a road* from the retellings and *two nuns walking down a lane* and *a person is walking around a corner of a street* from the videoclip descriptions. In line with the coding criteria used in the study by Carroll et al. (2012), information encoded in the verb covers the following categories: manner of motion, direction, the deictic '*come*' and '*go*'. Information coded in adjuncts relate to the goal (*towards*, *to*); the path (*along, over, down*) and in some cases location (*in*). The category 'no adjunct' was also included. Although the initial overall instruction was in the past tense, the retellings were grounded in the present across all the languages. This was also the case for the descriptions of video clips by L1s and L2s from which we draw our selection of scenes. English speakers must decide, when mentioning an event, whether it requires an ongoing perspective (*they are running to the train*), or not (*they run to the train*). Scenes without an evident goal, for example, were generally encoded as ongoing (*-ing*) in L1 English but less so in the scenes where the trajectory was short. L2 learners used the present and the progressive in both scenes but the options did not show any consistency which could be linked to the type of motion event. The numbers in the following tables are based on the sum of motion events expressed in the three retellings for the event types

(+ Goal) and (– Goal). In a first step (Table 1) the frequency of verbs encoding Manner *vs* Direction *vs* Deictic 'go' in the retelling tasks was compared to those based on the video clips. Adjuncts in (Table 2) are coded as follows: no adjunct, adjuncts referring to overall location (Loc): *he is walking in the park il marche dans la forêt*, to contours of the ground *he is walking along the road*, *il marche le long de la route*, to goal direction (To): *they are walking to(wards) a house ils vont vers la maison,* to goal location (At): *il va à la maison*. In a second step, frequencies of the spatial forms used in the retellings by the L2s were compared with the target and source language speakers for the same variables: Verbs (Table 3) and Adjuncts (Table 4).[4]

## 3.1 Comparisons of the L1s across the Tasks

Tables 1 and 2 present the relative frequencies of verb types and adjunct type used by the L1s in the film retellings and in the description of the video clips. Frequencies are based on the total number of occurrences (first column) produced in the retellings per group of narrators (15 participants) in the overall (+ Goal) and (– Goal) scenes.

Table 1. (+) Goal-oriented motion events: Verb form in L1 French and L1 English (retellings and clips)

| **Retellings** | **Manner** | **Direction** | **Deictic** |
|---|---|---|---|
| L1 Fr n=45 | 2.2 % | 60.9 % | 32.6 % |
| L1 Eng n=46 | 34.8 % | 2.1 % | 63.1 % |

| Clips | Manner | Direction | Deictic |
|---|---|---|---|
| L1 Fr n=80 | 3.7 % | 58.1 % | 38.1 % |
| L1 Eng n=91 | 87.7 % | 2.9 % | 9.5 % |

Table 2. (+) Goal-oriented motion events: Adjuncts in L1 French and L1 English (retellings and clips)

| **Retellings** | **No adjunct** | **LOC** | **Contours** | **TO Obj** | **At Obj** |
|---|---|---|---|---|---|
| L1 Fr n=45 | 0 | 0 | 2.0 % | 42.8 % | 55.2 % |
| L1 Eng n=67 | 0 | 0 | 43.3 % | 56.7 % | 0 |

4 See L1-L2 comparisons for video clip descriptions in Carroll et al. (2012).

Table 2. (*continued)*

| **Retellings** | **No adjunct** | **LOC** | **Contours** | **TO Obj** | **At Obj** |
|---|---|---|---|---|---|
| Clips | No adjunct | LOC | Contours | TO Obj | At Obj |
| L1 Fr n=80 | 1.2 % | 27.5 % | 2.5 % | 61.3 % | 7.5 % |
| L1 Eng n=91 | 3.3 % | 6.6 % | 36.3 % | 64.4 % | 2.2 % |

There were no differences in the forms used across the data sets for L1 French (see Carroll et al., 2012): Verbs expressing direction, along with the deictic *va*, predominate, as expected, whereby use of the different prepositions is linked to the type of verb: *se diriger* (to head for) combines with *vers* (toward) while *aller* (go) can combine with forms expressing either direction *vers* (toward) or location *là où*.

Table 3. (–) Goal-oriented motion events: Verb encoding in L1 French and L1 English (retellings and clips)

| **Retellings** | **Manner** | **Direction** | **VA/GO** |
|---|---|---|---|
| L1 Fr n=45 | 78.4 % | 17.6 % | 3.9 % |
| L1 Eng n=46 | 96.1 % | 3.9 % | 0 |

| Clips | Manner | Direction | VA/GO |
|---|---|---|---|
| L1 Fr n=80 | 85.2 % | 0 | 14.8 % |
| L1 Eng n=91 | 96.3 % | 0 | 3.7 % |

Table 4. (–) Goal-oriented motion events: Adjuncts in L1 French and L1 English (retellings and clips)

| **Retellings** | **No adjunct** | **LOC Global** | **Contours** | **TO Obj** |
|---|---|---|---|---|
| L1 Fr n= 62 | 19.4 % | 76.5 % | 1.6 % | 3.2 % |
| L1 Eng n=55 | 14.5 % | 12.7 % | 69.1 % | 1.8 % |

| Clips | No adjunct | LOC Global | Contours | TO Obj |
|---|---|---|---|---|
| L1 Fr n=64 | 15.6 % | 71.9 % | 7.8 % | 4.7 % |
| L1 Eng n=70 | 2.5 % | 20.2 % | 67.1 % | 6.3 % |

In English, the verbs expressing manner of motion, as well as t he deictic *come* and *go,* combine with forms relating to contours of the ground (*along*, *over*, *on, up*, *down*) as well as direction to a goal: *the girl is walking along the street towards the bakery.* In contrast to English, when goals are visible, verbs in French relate to the direction taken based on the orientation of the entity with respect to a goal point. When a goal is hardly visible, manner verbs are used consistently with mention of the location of the entity only. We can conclude that in both tasks, speakers activate conceptual representations of the events which guide the allocation of attention to the relevant conceptual components of the motion event. Significantly, this provides a clear example of the type of knowledge which learners of a second language have to acquire.

## 3.2 Comparison between L1 and L2 Speakers

The following tables based on the retelling tasks provide an overview of the relative frequencies for the types of verbs (Table 5), and adjuncts (Table 6) used in English and French, along with the L1 French-2 English learners.

Table 5. (+) Goal-oriented motion events: Verb encoding in comparison between L1 and L2 speakers (retellings)

| Retellings | Manner | Direction | VA/GO |
|---|---|---|---|
| L1 Fr n=45 | 2.2 % | 60.9 % | 32.6 % |
| L1 Eng n=46 | 34.8 % | 2.1 % | 63.1 % |
| L1 Fr-L2 Eng n= 46 | 21.1 % | 31.6 % | 47.4 % |

Table 6. (+) Goal-oriented motion events: Adjuncts in comparison between L1 and L2 speakers (retellings)

| Retellings | No adjunct | LOC | Contours | To Obj | At Obj |
|---|---|---|---|---|---|
| L1 Fr n=45 | 0 | 0 | 2.0 % | 42.8 % | 55.2 % |
| L1 Eng n=67 | 0 | 0 | 43.3 % | 56.7 % | 0 |
| L1 Fr-L2 Eng n=48 | 4.2 % | 4.2 % | 4.2 % | 81.1 % | 6.2 % |

The use by L2 learners of English of the deictic verb *to go* (47.4 %) may be significant in that it not only has a directional component but is also highly frequent in English (63.1 %). Directional verbs (*to head for x*, *to reach* x) are low in frequency for L1 English (2.1 %) but occurrences for the learners add

up to 31.6 %. In contrast to English, where information on the trajectory is encoded in forms which are based on contours of the ground (*along*, *around*, *over*, *under*), the rate of occurrence of these forms in the learner group is markedly low. Table 7 and table 8 cover the relative frequencies for the set of stimuli which feature a prominent trajectory but no evident goal.

Table 7. (–) Goal-oriented motion events: Verb encoding in comparison between L1 and L2 speakers (retellings)

| Retellings | Manner | Direction | VA/GO |
|---|---|---|---|
| L1 Fr n=51 | 78.4 % | 17.6 % | 3.9 % |
| L1 Eng n=51 | 96.1 % | 3.9 % | 0 |
| L1 Fr-L2 Eng n=51 | 80.4 % | 7.8 % | 3.9 % |

Table 8. (–) Goal-oriented motion events: Adjuncts in comparison between L1 and L2 speakers (retellings)

| Retellings | No adjunct | LOC Global | Contours | TO Obj |
|---|---|---|---|---|
| L1 Fr n=62 | 19.4 % | 76.5 % | 1.6 % | 3.2 % |
| L1 Eng n=55 | 14.5 % | 12.7 % | 69.1 % | 1.8 % |
| L1 Fr-L2 Eng n=42 | 38.1 % | 42.9 % | 11.9 % | 2.3 % |

In the scenes with no evident goal, the use of manner verbs is prominent across all three groups. In the L2 data however, these forms do not conjoin with ground-based concepts, even though contours of the ground are visually prominent. The occurrences of adjuncts, which in L1 English express direction (e.g., *along*, *around*, *over*), is low at 11.9 % for the L2s compared to a rate of occurrence of 69.1 % for L1 English.

We can conclude from these comparisons that the experimental conditions with their variance in cognitive load do not significantly alter the options shown in the descriptions of the motion events. Whether elicited online by a visual stimulus or based on a mental representation stored in memory and reactivated to fit in a narrative format, speakers of English and French show differences in their options which reflect the impact of the structural properties of the respective L1 languages. They remain globally consistent in their options across tasks. In both tasks (see findings in 2.2 above) the event descriptions by the L2 speakers reflect the impact of the structural properties of their L1 which are independent of task conditions. These converging results manifest the degree of entrenchment of the underlying knowledge based on the L1.

## 4 Discussion

Crosslinguistic differences in the patterns of conceptualization observed in the L1 studies on motion events, based on verbal and non-verbal tasks, reflect the impact of language-specific structural properties at the pre-verbal stage of language production. The factors in question relate to visual uptake, event segmentation as well as information selection. As assumed in Lambert et al. (2022), in order to carry out the verbal task of describing a motion event speakers draw on language-specific event schemas. They function as a guide in the allocation of attention to the relevant features of the stimulus when linking linguistic categories with their associated conceptual representations. Speakers of a given language community develop this schematic knowledge by repeated exposure to the way in which attention is focalized on specific conceptual features of events, and the associated ontological domains (*time*, *space*, and *entities*) when using linguistic structures in a verbal task. When describing a change in place, speakers of French focus on spatial concepts which are based on the figure in motion. Speakers of English, in contrast, focus on concepts based on features of the ground. These event schemas relate to the relevant cognitive processes as follows: They serve in integrating the associated constraints at the level of contextual information with regard to the structural means which are adequate for a given task. When activated they provide automatic guidance in the selection of information, along with the means of expression required, with the appropriate speed of execution in speech production. This knowledge is shared by native speakers and forms part of their cognitive-pragmatic knowledge (Gerwien & von Stutterheim, 2022). The obstacles which late learners of an L2 encounter can be located within this framework.

The task for the L2 learners is not confined to the acquisition of the relevant forms with their syntactic properties. They must also learn how a given situation/scene is typically represented at a conceptual level and expressed verbally in the target language. Although the L2 participants in the studies presented here no longer have difficulties with respect to the formal means of expression, the findings, both verbal and non-verbal, pinpoint the level at which obstacles persist. Divergences from the target language speakers can be viewed as located at the pre-verbal stages when preparing a message for expression: Convergences with speakers of their source language at this level point to the activation of processes that guide both the focus of attention as well as information selection. The processes in question are rooted in the pragmatic use of the available means within a language community.

Why should this be the case? As discussed in von Stutterheim & al. (2021), we consider the role of frequency of forms as a key factor in acquisition. L2 speakers have been potentially exposed to highly frequent concepts (*along*, *around*,

*over*) which are derived from features of the ground (e.g., *she is walking down the street; he is walking across the square to the shipyard*). Yet, occurrences of these forms are markedly low in the present L2 data base. In the contexts where ground-based information is typically verbalized in shaping the trajectory in English, the learners combine manner verbs with a specification of the 'location' of the entity, with no mention of its direction, as in French. This shows how frequency of exposure is far from automatic in driving acquisition since combinations that are typical in many contexts also remain unnoticed and resist acquisition. Very low frequencies do not seem to play a role either: In English the verbal means which refer to the direction taken (e.g. *to head for, to approach, to reach*), although relatively infrequent in use, are nevertheless used by the L2 speakers to a significantly higher degree compared to the L1 English speakers (respectively 02,1 *vs.* 31,6).

We can conclude from these findings that the expressions used in describing motion events, with their underlying concepts which are based on the L1 ('figure in motion' versus 'features of the ground'), take precedence over the frequency of occurrence of forms in the target language. The statement in Wulff & Ellis (2018) confirms the non-automaticity of frequency effects: "Since everything is filtered through the lens of the L1, not all of the relevant input is in fact taken advantage of". This statement holds at a level of event construal when formal means no longer pose a problem for the L2 groups observed.

An L1 effect in the allocation of attention was also observed at early stages of conceptualization in the eye tracking data. The L2s prioritize the moving entity in line with the pattern obtained for L1 French. This is in clear contrast to L1 English speakers who prioritize the domain of space.

In summary, given the level of representation at which language-specific schemas in event construal are stored, the present findings indicate the nature of the deep-seated 'obstacles' which the learners face. Given the level of abstraction of the underlying event schemas, as well as the time span over which they develop, the long-standing notion of 'transfer' (Jarvis, 2007) may be inadequate. In order to develop the unconscious attentional processes required, the L2 speakers must derive the relevant schemas from inferences and generalizations which are based on preferred uses in context. Adequate access to this type of knowledge would improve the basis for the development of the language-specific patterns of conceptualization to a large degree at least.

In conclusion, the findings provide noteworthy insights into the implication of language in higher order processes and how processes interact at both the macro and micro level. Concerning L2 learners, it remains clear in the findings documented above that the crosslinguistic divergences can be traced to the continuing impact of structural properties of the L1 since

their verbal responses reflect clear similarities with those of their L1. Overall, the studies documented here provide insight into the nature of the deep-seated obstacles that learners face before they can automatically attend to, and represent, events based on the relevant structures and processes in the target language.

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