Event conceptualization in language production of early bilinguals
Event conceptualization in language production of early bilinguals

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# Table of contents

Acknowledgements ............................................................................................................. 5

Table of contents ................................................................................................................ 7

## Chapter 1: General introduction .................................................................................... 15

1.1. Aim of the study and formulation of research questions ........................................ 15
1.2. Introduction of key terms ......................................................................................... 20
   1.2.1. Language-specificity in event conceptualization: the framework ................... 20
   1.2.2. Defining (progressive) aspect ........................................................................ 27
   1.2.3. Defining bilingualism: characterizing the sample under investigation .......... 30
      1.2.3.1. Defining bilingualism: some relevant issues .............................................. 30
      1.2.3.2. Characterizing the sample under investigation ........................................ 34
   1.2.4. Some psycholinguistic studies on bilingual language production ............... 36
      1.2.4.1. Studies on event structure and narratives ............................................... 37
      1.2.4.2. Organization of bilingual representations and the question of (non-) selective access to conceptual representations in language production .......... 40
      1.2.4.3. The present set of empirical studies ....................................................... 42
1.3. Empirical approaches to event conceptualization ................................................. 43
   1.3.1. Research methods ....................................................................................... 45
   1.3.2. Participants ................................................................................................... 49
1.4. Outline of the thesis ............................................................................................... 51

References ............................................................................................................................... 53

### I. Aspect and event construal in Dutch and German monolingual speakers

## Chapter 2: Aspectual concepts across languages: some considerations for second language learning ............................................................................................................. 63

2.1. Introduction ........................................................................................................... 64
2.2. Aspect terminology .............................................................................................. 65
   2.2.1. Grammatical aspect and lexical aspect (Aktionsart) ...................................... 65
   2.2.2. Telicity vs. perfectivity ................................................................................. 70
   2.2.3. Imperfectivity .............................................................................................. 73
   2.2.4. Perfectivity vs. imperfectivity: conceptual differences ................................... 75
Chapter 4: What native speaker judgements tell us about the grammaticalization of an aspectual marker of 'ongoingness' in Dutch

4.1. Introduction

4.1.1. Progressive aspect

4.1.2. The case of Dutch

4.1.3. Relevant temporal variables applied in the experimental design

4.1.3.1. TT-placement

4.1.3.2. Situation types

4.1.3.3. Duration

4.1.3.4. Age

4.2. Methodology

4.3. Results: all data

4.3.1. Overview of total number of choices made per group

4.3.2. TT-placement

4.3.3. Situation types

4.4. Results: comparison between age groups

4.4.1. TT-Placement

4.4.2. Situation types

4.5. Overall discussion and conclusions

References

Appendix: Acceptability judgement task (Version 1a out of 6 versions)

Chapter 5: Progressive attraction: a comparative, experimental study on the expression of the aspectual distinction 'event is ongoing' in Dutch, Norwegian and German

5.1. Introduction of the experimental framework

5.2. Method

5.2.1. Description of the stimuli

5.2.2. Experimental procedure

5.2.3. Participants

5.3. Results

5.3.1. Coding
5.3.2. Overall frequencies of markers that express aspectual perspective 'event is ongoing'......................................................................................................................... 186
5.3.3. Dutch................................................................................................................. 189
   5.3.3.1. Types of forms used in Dutch............................................................. 189
   5.3.3.2. Frequency of use of the different forms............................................. 191
   5.3.3.4. Constraints on the selection of aspectual perspective with motion events 197
5.3.4. Norwegian........................................................................................................ 197
   5.3.4.1. Types of forms used in Norwegian............................................... 197
   5.3.4.2. Frequency of use of the different forms............................................. 201
5.3.5. German............................................................................................................. 205
   5.3.5.1. Types of forms used in German...................................................... 205
   5.3.5.2. Frequency of use of the different forms............................................. 206
5.4. Summary and conclusions................................................................................. 208
   5.4.1. Results for Dutch...................................................................................... 208
   5.4.2. Results for Norwegian............................................................................ 211
   5.4.3. Overall comparison and conclusions...................................................... 213
References...................................................................................................................... 217

II. Aspect, event construal and information structure in Dutch-German bilingual speakers

Chapter 6: Event conceptualization by early Dutch-German bilinguals: insights from linguistic as well as eye tracking data........................................................................................................... 221
6.1. Background: language-specificity in the construal of events......................... 222
   6.1.1. Background: event conceptualization by advanced L2 users and early bilinguals ................................................................. 224
6.2. General aims of the paper.................................................................................. 227
   6.2.1. Research questions and hypotheses...................................................... 228
6.2.2. The languages at stake: expressing 'ongoingness' in Dutch and German 228
6.3. Method............................................................................................................... 231
   6.3.1. Participants.............................................................................................. 231
   6.3.2. Experimental procedure......................................................................... 233
   6.3.3. Stimuli................................................................................................. 234
Chapter 7: How early bilinguals respond to time constraints in language production tasks: indicators for automaticity in accessing temporal concepts

7.1. Introduction ............................................................................................................. 262
    7.1.1. General framework of the study .................................................................. 262
    7.1.2. Bilingual speakers and event construal in language production ............. 265
            7.1.2.1. Focus of the present study ............................................................. 269
    7.2. Expressing the aspectual distinction 'event is in progression' in Dutch .... 270
    7.3. Time constraints in language production....................................................... 271
            7.3.1. Hypothesis for the task ....................................................................... 272
    7.4. Method .............................................................................................................. 273
            7.4.1. Participants .......................................................................................... 273
            7.4.2. Stimuli ................................................................................................. 275
            7.4.3. Procedure ............................................................................................ 276
    7.5. Results ................................................................................................................. 277
            7.5.1. Frequency of selection of the aspectual perspective: baseline condition 277
            7.5.2. Frequency of selection of the aspectual perspective: time constraint condition ...................................................................................................................... 278
9.3.1.1. Individual variability ..................................................................................... 335

9.3.2. Chapters 6-8: Dutch-German bilingual speakers: aspect, event conceptualization and information structure ............................................................. 336

9.4. Discussion of the findings for the bilingual speakers .................................... 338

9.4.1. Aspect and event conceptualization ............................................................... 338

9.4.1.1. Chapter 6 ........................................................................................................ 339

9.4.1.2. Chapter 7 ........................................................................................................ 341

9.4.2. Information structure .................................................................................... 346

9.4.2.1. Chapter 8 ........................................................................................................ 346

9.5. Some considerations for future research ........................................................ 348

9.6. General conclusions .......................................................................................... 351

References ............................................................................................................... 354

Summary .................................................................................................................. 357

Samenvatting ....................................................................................................... 362

Appendix A: Overview of stimulus sets .............................................................. 368

Appendix B: Overview of bilingual participants ............................................... 374
Chapter 1: General introduction

1.1. Aim of the study and formulation of research questions

This thesis on early bilinguals addresses the question as to what it means to have acquired two languages with different patterns of ‘seeing and thinking for speaking’. ‘Thinking for speaking’ refers to research in the tradition of Slobin (1996). It relates to the empirical analysis of cross-linguistic preferences in encodings of reality that can be traced back to specific features of the particular linguistic system. ‘Seeing for speaking’ is a further step in this psycholinguistic-typological framework and includes comparisons of patterns of visual attention shown by speakers of different languages while preparing to encode information with respect to visual input (see Nüse, Carroll & von Stutterheim, 2004; von Stutterheim & Carroll, 2006).

The set of empirical studies presented looks at speakers of two languages that are closely related typologically, Dutch and German. The domain of analysis concerns an area in which the languages differ markedly (event conceptualization and aspectual distinctions), as well as an area in which the languages differ in subtle terms only (basic principles determining information structure in narrative texts). The focus is placed on how bilingual speakers proceed in these two domains when asked to carry out a series of language production tasks.

In order to gain insight into what it actually means to be a bilingual, empirical analyses pinpoint how bilingual speakers resemble or differ from monolingual speakers when carrying out the same set of production tasks. Monolingual native speakers are therefore taken as a point of reference, given the same set of tasks. In other words, one of the goals of the present thesis is to test empirically how the bilingual system

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1 Throughout the thesis, the term ‘monolingual’ is applied in contrast to ‘early bilingual’; it is thus not used in opposition to ‘L2 user’ (as in for example, Cook, 1999). According to the definition used in this thesis, monolingual speakers are not necessarily only persons with knowledge of no more than one language. Almost all the monolingual native speakers in the present thesis have some (beginning to intermediate) knowledge of a second, or sometimes even a third language. ‘Monolingual’ speakers that indicated having advanced knowledge of an L2, or indicated having lived in an environment where a language other than L1 was spoken for a period longer than 3 months, were excluded from the ‘monolingual’ sample. This methodological decision was taken since Dutch speakers that are truly monolingual in the strict sense are hard to find.
functions given language production tasks, in comparison to monolinguals. The empirical framework chosen sets out to see whether and, if so, how monolingual speakers differ from bilingual speakers in language production, since theoretical accounts suggest that they are unlikely to function as two monolingual speakers in one mind (Grosjean, 1998; 2008).

The aim of the study of event conceptualization is to gain insight into language processing mechanisms and strategies by looking at how bilingual speakers select specific conceptual representations in language production. Research on bilinguals has generally looked at language systems that differ in typological terms. The identification as to whether observed patterns are more ‘monolingual-like’ in the one versus the other language of the bilingual (i.e. performance on tasks involving one aspect of grammar or lexical concepts, e.g. object naming) can therefore be stated in clear-cut terms. The approach taken in the present thesis differs in that the languages chosen are closely related and show similarities in many linguistic domains. This language pair allows us to investigate questions in areas of language production where the languages show partial overlap, compared to areas of analysis where they do not. Since German and Dutch differ in the use of aspectual concepts, as will be shown in detail in the following studies, this domain may provide insights into the challenges that arise in managing control over two closely related, yet partially differing systems for early bilingual speakers of these two languages, of whom a relatively high level of attainment can be expected (see 1.3). Also, considering the fact that the two languages are part of two cultural systems that are relatively similar, this allows control for the possible influence of culture on event conceptualization preferences (see for studies on differences in conceptualizations related to culture, Nisbett, 2003).

One of the areas selected in the analysis, the role of aspect in event construal, relates to a particular temporal perspective on an event. The type of aspect focused on is the progressive aspect, which has the perspectivizing function of decomposing a single event into phases, thereby focusing on the phase that is ongoing at the time of speech. In other words, by means of this aspectual form, a speaker expresses a certain event explicitly as being in progress at the time of speech. Take for example the Dutch and German speakers’ descriptions of a dynamic video clip showing an event in which a woman is knitting a scarf on a sofa (Figure 1):
Figure 1: Screenshot of stimulus ‘124_knitting’.

**German**

(1) 001  *Eine Frau strickt einen Schal*

a woman knits a scarf

‘a woman is knitting a scarf’

(2) 001  *Eine Frau sitzt auf der Couch und strickt einen bunten Schal*

a woman sits on the couch and knits a colourful scarf

‘a woman is sitting on the couch and is knitting a colourful scarf’

(3) 001  *Eine Frau strickt auf dem Sofa einen Schal*

a woman knits on the couch a scarf

‘a woman is knitting a scarf on the couch’

**Dutch**

(4) 001  *Een vrouw die aan het breien is*

a woman who at-the-knit is

‘a woman who is knitting’

(5) 001  *Er zit iemand te breien op een bank*

there sits someone to knit on a couch
Dutch and German speakers differ in the selection of an aspectual distinction that explicitly represents an event as ‘ongoing’ at the time of utterance; selection is frequent in Dutch (for this specific type of situation, as expressed by e.g. *aan het*, *zit te*), but not in German, where it is rarely used. One can also observe differences in clause structure and number and types of specifications with respect to the event between the Dutch and German examples. These differences are relevant since in Dutch the event is grounded in context as a specific case by means of the aspectual distinction (*aan het*), so that use of adjuncts and complements are optional (as in example (4)). The event is conceptualized as ‘ongoing at the time of utterance’ and thus represents a specific case. However, this does not hold in the same way for German if the situation is represented as ‘*eine Frau strickt*’ (a woman knits), since an assertion made in this form can also convey a generic meaning, referring to something which is typical of the referent and which can occur at any point in time. Speakers of German will therefore include adjuncts and complements to avoid a generic reading, where this is relevant (as in the context of giving descriptions of events in an online condition). The examples thus illustrate how encoding options will differ between Dutch and German.

One should bear in mind that the selection of this particular aspectual perspective is *optional* in both Dutch and German and thus results in between-subject variability. However, the contexts in which speakers select an aspectual perspective and view an event as ongoing (as expressed by means such as the *aan het*-construction in Dutch) follow a well defined pattern (see also Carroll, Natale & Starren, 2008, and chapters 2 - 5 of this thesis). It is thus important to emphasize that the focus of the comparison is always on speakers as a group, and that between- and within-sample variability can arise due to the nature of the task, i.e. a complex verbal task, as will be shown throughout the studies in this thesis. The comparison thus looks at whether the bilingual speakers’ patterns in event construal fall within the range of variability observed for the monolingual speakers. The primary question is whether bilinguals
show the same determining factors as the monolingual speakers with respect to contexts in which aspectual distinctions are typically applied, the types of aspectual markers that are used, as well as the selectional constraints that prevent their use.

The studies presented in the first part of the dissertation focus on event conceptualization in Dutch and German monolingual native speakers, with a specific focus on Dutch and the factors that lead to the use of an aspectual perspective (chapters 2-5). The second part of the thesis looks at bilingual speakers and compares their preferences to those of monolingual speakers, given the same tasks (chapters 6-8).

The specific research questions for each part are listed below.

I. Aspect and event construal in Dutch and German monolingual speakers

1) What factors lead to the selection of the aspectual perspective 'event is ongoing' in Dutch and German? How do the available forms for the expression of this aspectual distinction in Dutch and German overlap or differ in function and meaning? (chapters 2,3,4,5)

2) How do language-specific preferences in aspectual perspective taking, with respect to different types of situations, influence direction of visual attention during information intake as well as when preparing information for expression in Dutch and German? (chapters 3,6)

II. Aspect, event construal and information structure in Dutch-German bilingual speakers

4) How do the bilingual speakers compare with, or differ from, monolingual speakers of Dutch in the principles they rely on when selecting an aspectual perspective, for different types of situations? (chapter 6)

5) How do preferences in aspectual perspective taking influence visual attention during information intake and when preparing information for expression? (chapter 6)

6) How stable are the perspective taking preferences in bilingual event construal when compared to monolingual event construal, under a time constraint condition? (chapter 7)
7) How do bilingual speakers manage a complex narrative task, given the fact that they have to deal with two subtly differing patterns in information structure? (chapter 8)

The next section will introduce some of the key notions and terminology that will be used consistently throughout the thesis.

1.2. Introduction of key terms

1.2.1. Language-specificity in event conceptualization: the framework

Many studies to date have provided evidence for the fact that speakers of typologically different languages show different ways of encoding (in linguistic tasks), perceiving or categorizing (in non-linguistic tasks) certain aspects of reality, and a majority of the studies involve basic perceptual categories, e.g. the perception and categorization of colour (Roberson, Davies & Davidoff, 2000; Athanasopoulos, 2009; Thierry, Athanasopoulos, Wiggert, Dering & Kuipers, 2009), spatial frames of reference and orientation (Carroll & von Stutterheim, 1993; Levinson, 1996; Pederson, Danziger, Wilkins, Levinson, Kita & Senft, 1998), spatial relationships of objects (Bowerman & Choi, 2003), or single lexical/verbal items, e.g. object naming and categorization (Malt, Sloman & Gennari, 2003; Ameel, Storms, Malt & Sloman, 2005; Ameel, Malt, Storms & van Assche, 2009), emotion words (Pavlenko, 2005), verbs to describe cutting and breaking events (Majid, Boster & Bowerman, 2008), grammatical number marking (Lucy, 1992), etc. The focus of research within the current framework, and the present thesis, is on language-specificity in the organization and expression of complex linguistic content, looking in particular at how how different groups of speakers conceptualize and report on events in different contexts. A specific interest is placed on the role of the linguistic category of grammatical aspect (see 1.2.2) in event conceptualization. The notion of event is chosen since it allows us to look at the interrelation between cognitive processes and language production in context. An event is defined as a ‘self-contained segment in a conceptual representation of a network of interrelated situations, conceptualized as a time-substance relation’ (von Stutterheim &
The notion of situation is used to characterize things that take place in the external world, and from which information is drawn for verbalization.

Event conceptualization, as discussed in the present dissertation, is investigated in contexts that involve the processing of visual input (stimuli that depict dynamic situations) for ‘transformation’ into language when asked to view the stimuli and tell ‘what is happening?’. In line with Levelt (1989; 1999), the process involves the construction of a ‘pre-verbal message’, on the basis of a conceptual representation of the situation perceived. Habel and Tappe (1999) and von Stutterheim and Nüse (2003) describe the process of event conceptualization in more detail: Conceptualization consists of the segmentation, selection, structuring and linearization of information from the input. Segmentation is the process of decomposing complex situations into smaller events, processes or states—where does an event begin and where does it end? During selection, speakers decide which units they want to verbalize and the conceptual building blocks by which they are to be represented, i.e. entities, times, spaces, etc. These two processes relate to the level of macroplanning (deciding what to say), in Levelt's terms (1989). Structuring means placing the selected units in a structural format in line with possible frames of reference (spatial and temporal), predicate types and information structural demands (topic-focus status), for example. Linearization is the ordering of the individual selected units in such a way that they can be expressed in a linguistic sequence (von Stutterheim & Nüse, 2003). The latter two processes belong to what Levelt (1989) refers to as microplanning (deciding how to say it).

Studies described in von Stutterheim (2003), von Stutterheim and Nüse (2003), Carroll, von Stutterheim and Nüse (2004) provide evidence for cross-linguistic differences in the way in which events are conceptualized, with respect to the level of granularity, the parts of the situation that are selected in representing an event, and the temporal perspective under which the dynamic situation is viewed (Carroll et al., 2004). Considering the speed at which decisions in the conceptualizer have to be carried out, it is assumed that these are made in line with language-specific principles of information organization, stored in long-term memory. We assume that these principles are linked to the specific grammar of a language. These assumptions are in line with Talmy (1988; 2000), who proposes that the grammar of a language represents a set of notions (concepts) that provide the framework for conceptual organization within a language. It
was found that these principles of information organization play a role not only at the level of microplanning (as in Levelt, 1989; 1996), but also in the macroplanning process in conceptualization (see Carroll et al., 2004; van Ierland, 2009).

Empirical studies found cross-linguistic differences in event conceptualization patterns related to the frequency of use and the grammaticalization of aspectual means to express the perspective 'event is ongoing' in different languages (von Stutterheim, 2003; Carroll et al., 2004). If an aspectual structure has become grammaticalized and/or is used systematically and frequently, it means that the underlying concept has become a more automatized option amongst a set of options for perspective taking in processes of conceptualization. This determines the establishment of language-specific preferences for specific types of verbalizations, when speakers are solving complex verbal tasks. The difference between concepts encoded by lexical means and grammaticized concepts (or concepts in the process of becoming grammaticalized) is that the latter type of concepts often need to be conceptually prepared even when the information is irrelevant for what a speaker wants to convey (Levelt, 1989; Roelofs, 2000). The core hypothesis in the present framework is that concepts that have become grammaticalized are deeply rooted and highly automatized in conceptualizations of native speakers when organizing information for expression. This differs from cases in which similar concepts are part of the lexicon and represent merely one of the options out of a set for perspective taking.

Perspective taking or perspectivation in language production relates to choices a speaker makes along different dimensions, such as time, space, communicative intention, discourse mode (i.e. choices involving lexical, structural and contextual features of an utterance, see von Stutterheim & Klein, 2002; see also Levelt, 1996), when constructing a conceptual representation. Speakers for example have to decide on the level of granularity at which events are described, which is (partly) determined by the communicative intention of the speaker (see von Stutterheim, 1997). Speakers also have to take into account social or cultural habits. A strong decisive factor in perspective taking, and one which is systematically and empirically tested in the present

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2 Grammaticalization is defined as the process in which particular structures become part of the core grammar of a language, serving a specific abstract function in a specific context, and use becomes obligatory in the relevant contexts (in line with Bybee et al., 1994; see for more on grammaticalization, ch. 4 & 5).
set of studies, is the influence of the lexical and grammatical properties of the language of the speaker, i.e. the preferences and constraints that come with the specific linguistic system. For example, when conceptualizing events, speakers of different languages differ as to the temporal and/or aspectual perspective they follow, depending on the temporal-aspectual system that the grammar of the language offers. In this sense, a speaker of German must decide for every event whether the event takes place in the present or the past, because of the grammaticalized category ‘tense’. Speakers of MS Arabic, on the other hand, need not do so, but their grammar requires them to make a statement concerning the degree of completion or ‘ongoingness’ of an event (the system has a grammaticalized opposition between a perfective and an imperfective aspect). In the current framework, we proceed on the hypothesis that aspectual concepts relate to core and basic conceptual categories of temporality, i.e. notions of completion and ongoingness, for example. The use of aspectual forms thus render a specific perspective on an event, i.e. an event is represented with a focus on the middle phase (a perspective of ongoingness, by means of progressive aspect) or with a focus on the completion (perfective aspect), the terminative phase, for example. These aspectual categories are thus crucial in the expression of event-time relations, as in event construal.

An example of the psycholinguistic reality of these differences at the conceptual level of perspective taking (during macro-and microplanning) can be provided by studies looking at the construal of goal-oriented motion events (see also chapter 3). When the goal points in a motion event represent options in information selection, i.e. when they are not reached by moving entities, as depicted in short video clips, it was found that the mention of goal areas (‘endpoints’) interrelates with the degree to which aspectual forms to express progressive/imperfective aspect are used. This occurs when speakers are asked to view video clips online, to respond to the question what is happening?, and to begin when they recognize what is going on. Speakers of languages who systematically select an aspectual perspective to describe the events (e.g. English, Russian, Arabic, Spanish) tend to take a ‘phasal’ perspective on the motion event. This is driven by the fact that speakers are required to decide what can be asserted as being ‘now’ the case, since an aspectual perspective (imperfective, progressive) focuses what is ‘ongoing at the time of utterance’. In the video clips used
in the study on motion events, this holds for the intermediate phase of the event (a car is driving along the road), since this is the part of the scene depicted in the clip. Significantly, the scene does not show that a possible goal is being reached by the entity in motion, so the goal point of the event will not be viewed as included in the deictic interval ‘now’, but will typically belong to a future point in time. Speakers of languages that do not use aspect when talking about motion events (e.g. German, Dutch, Norwegian, Swedish, Czech), tend to take a holistic perspective that includes the endpoint of the event (a car is driving (along the road) to a petrol station). In contrast to speakers of aspect languages, they are not constrained in their assertions by the deictic ‘what is now the case’ (von Stutterheim, 2003; von Stutterheim & Carroll, 2006; Schmiedtová & Sahonenko, 2008; Bylund, 2009; chapter 3). It is important to bear in mind that in all languages the mentioning of endpoints is a possibility in event construal, i.e. we are dealing with preferences in information selection of a group of speakers as a whole.

The above studies are based on a set of studies looking at narrative retellings (retellings of a short, silent film) of speakers of different languages. It was found that systematic and global differences in information structure (e.g. reference management, information selection) could also be linked to cross-linguistic differences in the domain of grammatical aspect (Carroll & Lambert, 2003; 2006; von Stutterheim & Lambert, 2005; Carroll, Rossdeutscher, Lambert & von Stutterheim, 2008; van Ierland, 2009; van Ierland & Starren, under review). For example, when comparing German and English native speakers when re-narrating a short silent film, it was found that the global macro-planning structure differs as to the status accorded to the degree of ‘completion’ or ‘boundedness’ of events. German speakers showed a preference to re-narrate the story in line with the principle of ‘temporal shift’, thereby segmenting more complex situations into a sequence of completed events. For each event, the topic time (cf. Klein, 1994) is linked to the preceding time of situation, which is bounded (i.e. the previous event has to be completed). English speakers, on the other hand, centre the advancement of the storyline around a deictic point of reference and relate to ‘what is now the case’ for each part of the story. The window on the unfolding events in the story is ‘now you see how...’). This means that a larger number of events are represented as occurring within the same time span; the reference point is provided by a deictic
‘now’, so events do not have to be presented as completed before a new event can be introduced (see in detail Carroll & von Stutterheim, 2003; Carroll et al., 2004; von Stutterheim & Lambert, 2005). Again, the differences can be related to the above mentioned differences between German and English in the aspectual domain. These different patterns in global information structure result in different types and numbers of events that are mentioned. We again find differences in information selection at the level of macroplanning in the conceptualizer - this time in an even more complex task, that also requires the creation of coherence at a global level for a narrative text.

Findings within the present framework thus are in line with Slobin’s ‘thinking for speaking’ hypothesis (1996), which states that the preparation of content for speaking is ‘shaped’ by the specific linguistic categories that the language offers. Studies in the present framework extend this hypothesis, by providing evidence that structural features of a language may also focus speakers’ visual attention to certain parts/phases/aspects of situations (for example, endpoints), as measured by eye-tracking (‘Seeing for Speaking’, Nüse, Carroll & von Stutterheim, 2004; von Stutterheim & Carroll, 2006; Schmiedtová, von Stutterheim & Carroll, in press; chapter 3). These findings show that, in Levelt’s terms, the conceptualizer generates pre-verbal messages that are in line with the grammatical as well as lexical concepts available in a language. In this sense, Levelt’s model would very much benefit from the addition of an explicit ‘box’ containing language-specific knowledge, that comes into play already during the macroplanning stage in the conceptualizer (see fig. 2, below) (also in van Ierland, 2009).
In addition to studies that focus on ‘seeing and thinking for speaking’ differences in event construal, given differences in the domain of aspect, there is another line of research looking at language-specific features based on language-specificity in verb lexicalization patterns (cf. Talmy 1988, 2000). Talmy differentiates between languages that mainly express the manner of motion in the verb (and path via ‘satellites’) and those that mainly express the ‘path’ of motion in the verb, and manner optionally in e.g. adjuncts in the sentence. Slobin (2006) has later added another group of languages, the ‘equipollent type’, that focus on path and manner of motion equally. Many researchers have looked at the way speakers verbalize motion events and narratives and they have found that speakers do indeed differ as to the attention (as measured in terms of frequencies of mention) that they pay to either path or manner of motion (Slobin 1996; 2003; Gennari, Sloman, Malt & Fitch, 2002, Papafragou, Massey & Gleitman, 2002; Allen, Ozyrek, Kita, Brown, Furman, Ishizuka & Fujii, 2007). These differences are also evident in the course of child L1 acquisition (see studies in Berman & Slobin, 1994; Verhoeven & Stromqvist, 2004). Interesting new methodological advances indicate that these verb lexicalization differences also prevail in patterns of visual attention,
measured by eye tracking. Studies show that language-specific verbalization preferences are also reflected in different patterns of attention distribution to manner and path areas in short video clips (Soroli & Hickmann, 2009; Papafragou, Hubert & Trueswell, 2008). These findings tie in nicely with the eye tracking findings of studies involving language-specific preferences in event conceptualization that arise due to differences in the domain of aspect (von Stutterheim & Carroll, 2006; chapter 3).

The next paragraph will briefly discuss the way in which aspect is defined in the present thesis.

1.2.2. Defining (progressive) aspect

In this dissertation, a differentiation is drawn between the linguistic categories of lexical aspect (or ‘Aktionsart’), that relate to the semantic content of event predicates (i.e. whether they are (a)telic, punctual, bounded etc.) and grammatical aspect, or ‘viewpoint’ aspect (cf Smith, 1997). The linguistic category of ‘lexical aspect’ is mainly concerned with the way the temporal structure of events is reflected lexically in event predicates. For example, phases of an event such as ingressive, intermediate, terminative; temporal qualities such as bounded or unbounded (telic, atelic) etc. (cf. Klein, 1994). Grammatical aspect deals with different types of aspectual operators that can be added to predicates involving verbal morphology or periphrastic constructions and the temporal-aspectual concepts that they encode (see also chapter 2).

The temporal-aspectual framework implemented in the present set of empirical studies is that of Klein (1994) which is a time-relational analysis that extends Reichenbach's analysis of tense and aspect (1947). Klein's framework involves three separate time intervals that are related to one another in different ways by means of tense or aspectual forms. He introduces the notion of “Topic Time”, which resembles Reichenbach's “Reference Time”. Looking at aspect specifically, Klein defines a grammatical aspectual marker as denoting the relation between the Topic Time (TT), the time that is being talked about (i.e. the time for which the assertion holds), and the Time of Situation (Tsit), the infinite or unspecified time period of the event. Progressive aspect, which is the focus of the present set of empirical studies,
relates to a time interval where the Topic Time is fully included within the Time of Situation. The function of progressive aspect is thus to express what is 'in progression' for a particular situation at a given TT interval. In principle, any Time of Situation can be marked by means of the progressive aspect, providing the lexical content allows for a so-called “Topic Time contrast” (i.e. a time interval preceding or following a specific TSit: the TSit should inherently imply some kind of change in state, as with 'to eat an apple' versus 'to know something', e.g. **‘I am knowing this’ is not acceptable for this reason** (see for more detail, chapter 4).

In the literature on aspect, concepts such as progressive, imperfective and (a)telic/(un)bounded are often used without a clear definition (see the detailed discussion in Sasse, 2002), and are used interchangeably to describe either the category of grammatical (viewpoint) aspect or lexical aspect (Aktionsart). As mentioned above, the focus of the studies in the present dissertation is on the category of progressive aspect, as expressed by verbal morphology or verbal periphrasis. The meaning of the progressive aspect is somewhat simplified, when defined as expressing an event as 'ongoing' (which is mentioned as the core function of progressive aspect throughout all the studies in this thesis). An important part of the function and meaning of the progressive aspect, which has been empirically identified (see chapter 5), and the means that express it, is their inherent compatibility with events that involve a 'change in state' (see Carroll, Natale & Starren, 2008; von Stutterheim, Carroll & Klein, 2009; Natale, 2009). Change in state situations that lead to the existence of an effected object (e.g. building a house) provide a so-called 'measure' for progression, since there is a clear contrast between the actual changes in state leading up to the final state, and the point at which the entire process is completed (the result with an effected object such as a house). Situation types of this kind were used in cross-linguistic experiments in order to test the meaning expressed by different types of aspectual markers, looking at whether they are compatible with situations of this kind or not. Patterns of use across situations with and without progression show whether aspectual constructions, in their core function, simply express the concept 'event is ongoing' without any progressive component, or can be treated as having a 'progressive' meaning (see chapter 5; Carroll, Natale & Starren, 2008; Natale, 2009).
Studies in the present thesis deal with languages in which explicit markers to express aspect are available, although they are not always used to the same extent by native speakers of the languages, as mentioned above. In this sense, in the languages under investigation (Dutch, German, and to some extent Norwegian), the unmarked counterparts, i.e. the simple verb forms without aspectual operators, are equally appropriate as an answer to the question “What are you doing right now?”. In Dutch the response could either be an utterance with a simple verb form, or one that is marked by means of the progressive aan het- construction (see (7) below).

(7) a. *Ik schrijf*
   I write

b. *Ik ben aan het schrijven*
   I am at-the-write

Use of the distinction between progressive and non-progressive is optional in specific contexts in Dutch. However, the unmarked forms do not share the same conceptual representation as the explicit progressive forms, as discussed above. The Dutch aan het-construction, by virtue of its explicit verbal (as well as grammaticalizing, see chapter 4) nature, encodes the temporal feature ‘event is in progression at the time of utterance’ in explicit terms. The unmarked counterparts do not focus this component and do not entail whether such a feature is present or absent (cf. Comrie, 1976). The core hypothesis in the present framework is that concepts that have become grammaticalized, or are in the process of becoming grammaticalized, gain a high level of automaticity in event conceptualizations of native speakers of a given language in relevant contexts.

See chapters 2, 4 and 5 for a more indepth discussion and analysis of progressive aspect in Dutch.
1.2.3. Defining bilingualism: characterizing the sample under investigation

1.2.3.1. Defining bilingualism: some relevant issues

One of the problems given with this term is linked to the fact that it is not only used in different contexts in the literature, but it is frequently left undefined, giving rise to numerous problems at a methodological level. Furthermore, samples investigated in empirical studies are not always clearly described, which also impairs comparisons of results of different studies (cf. Green, 1998a; Birdsong, 2006). Some researchers refer to bilinguals as speakers who have “some knowledge of a second language” (cf. Weinreich, 1953, ctd. in Edwards, 2004). This definition is of limited use, however, since it can be applied to almost any individual on the planet. In narrower definitions, only L2 users who have an almost native-like command of both languages are called ‘bilinguals’. Other researchers distinguish between two types of bilinguals based on a developmental perspective which takes into account the age of acquisition of the L2: if the L2 is acquired before the age of 4, these speakers are called early bilinguals. If the L2 is acquired at a later age, they are labeled late bilinguals. Within the group of early bilinguals, a distinction is drawn between simultaneous (acquisition of two languages since birth) and sequential (onset of acquisition of one of the two languages is slightly later than the other one) bilinguals (definitions as in Genesee, Hamers, Lambert, Mononen, Seitz & Starck, 1978; ctd. in Butler & Hakuta, 2004). It is assumed that the earlier the second language is acquired, the more ‘hard-wired’ the L2 knowledge will be in the mind of the speaker, and use will become more automatized and require less effort. These assumptions are drawn from the so-called “critical period hypothesis”, the hypothesis that there is a period in life in which it is possible to learn languages effortlessly and completely, but after which acquisition is more difficult and also less successful (the original reference stems from Lenneberg, 1967). To date, some studies have proven the validity of a critical period for the acquisition of language. Many researchers now argue that this period is progressive (and not abrupt or sudden) and ends somewhere in puberty, having to do with the general plasticity of the human brain which is not specific to learning linguistic skills (see Bialystok & Hakuta, 1999; Hyltenstam & Abrahamsson, 2000; Birdsong & Molis, 2001; Birdsong, 2005). There is
also acknowledged, however, of the fact that adult learners are in general very
different from children learning languages, and that it is thus difficult to compare
learning processes as well as outcomes (Hyltenstam & Abrahamsson, 2000). There are
of course cases of people acquiring an L2 at adult age who achieve nearly native-like
competence and this has been attributed to factors such as motivation, input and
exposure, working memory capacity, talent/aptitude, etc. (e.g. White & Genesee, 1996;
Birdsong, 2005). It was also found that certain linguistic skills are easier to learn at a
later age than others (e.g. the lexicon of a language, as opposed to grammatical features
involving morpho-syntactic means for the expression of spatial relations, gender, and
phonology (e.g. space: Becker & Carroll, 1997; phonology: Flege & Mackay, 2004)). In
defining bilinguals on the basis of age of acquisition, there is an ongoing debate as to
where to draw the line between ‘early bilingualism’ and ‘child L2 acquisition’ or ‘late
bilingualism’. The latter term is mainly used to characterize adult L2 learners, but not so
much child L2 learners. Child L2 acquisition is a relatively new field of research and has
as such been separately defined and investigated. In this context, the age of 4 is usually
taken as a boundary, after which acquisition of a second language is labelled ‘child L2
acquisition’ (see, for example, Unsworth, 2005). By that age it is assumed that certain
core aspects of the L1 grammar will have been established (e.g. Meisel, 2004).

Several empirical studies have, however, demonstrated that age of acquisition
is not always a decisive factor for the way in which language is represented and
processed. Researchers have investigated the issue by means of neuroscientific methods
in their search for means to determine whether there are age of acquisition-related
differences in patterns of brain activation. Perani et al. (1998; 2003) have compared the
roles of age of acquisition and proficiency level on the cortical representation of the
second language. It was found that a high level of proficiency is a key determinant,
rather than an early age of acquisition (also in Abutalebi & Green, 2007). In other
words, high levels of proficiency do not necessarily correlate with age of acquisition.
Also other studies on non-linguistic object categorization tasks show that proficiency
level is key in determining the extent to which L2 preferences are acquired in a target-
like fashion (e.g. Athanasopoulos 2006; 2007; Athanasopoulos & Kasai, 2008).

Another variable that is used to characterize a specific bilingual sample is
language ‘balance’ or ‘dominance’. In this sense, bilinguals are defined as balanced or
dominant in one language on the basis of assessing the relative relationship of their proficiency levels in both languages. However, there are several problems with this definition: first of all, it is very hard to find proficiency measures that can actually be compared across 2 languages in terms of equal validity and reliability (Butler & Hakuta, 2004) (for example, with basic measures such as MLU, it is nearly impossible to compare two languages, since they often differ in average word length) (see also Birdsong, 2006; Daller, in press). The other question is whether dominance or balance should actually relate to proficiency, and not to other variables such as exposure to or use of the languages. Birdsong (2006) argues for a definition of dominance in terms of processing rather than proficiency or other variables that actually determine dominance, such as exposure, age of acquisition. With regard to proficiency, problems also arise as to the context selected and whether proficiency is measured in terms of reading skills, listening, writing or speaking skills: Is proficiency measured in a more academic context, or is one looking at interpersonal communicative skills (in Edwards, 2004). Bilinguals always have to deal with the so-called 'complementarity principle' (cf. Grosjean, 2008). All of these issues reveal the difficulty in using a phrase such as language dominance/balance.

Besides the debate on and the relative inconsistency in defining bilingual/L2 samples in empirical studies, an interesting focus within the field of bilingualism is to look at the systems and mechanisms of language processing. Researchers have for example looked at bilinguals’ ability to switch between languages and the ability to control (by means of inhibition and activation) two linguistic systems (as in, for example, neuroimaging studies, e.g. Abutalebi & Green, 2007; 2008). Findings in this domain show that the practice of language control (as a bilingual speaker) may enhance skills in (general) selective attention (Bialystok, 1999), and may lead to the ability to ignore interfering stimuli and focus only on a task-relevant stimulus, also in non-linguistic tasks (e.g. Costa, Hernandez & Sebastian-Galles, 2008). Latest findings of neuroimaging studies have identified specific subcortical structures that are responsible for language control, selection and switch in bilinguals, and the manner in which this neural network operates seems to be dependent on level of proficiency, i.e. highly proficient bilinguals have shifted to more automatized linguistic processing and thus show a decreased level of activation in this specific area (see for an overview Abutalebi
These studies pinpoint the relevance of including bilinguals’ language history (i.e. age of acquisition, level of proficiency) in both languages in experimental studies.

In studies dealing with bilinguals, another important methodological aspect is not always included, that is the level of proficiency in the first language, or in the case of early simultaneous bilinguals, the level of proficiency in both languages. Considering the findings of studies looking at the effect of having acquired an L2 on one’s proficiency, fluency and adherence to preferences in the L1 (e.g. recently studies on L1 attrition, Bylund, 2009), it is important to look at both performance in L2 and performance in L1 when dealing with bilingual speakers and when attempting to sketch a complete picture of bilingual competence. Bilinguals are individuals with a repertoire of language skills used in particular domains for specific purposes, meaning that the level of attainment of different types of skills (for example reading, listening, writing, speaking skills in specific contexts, e.g. academic vs. personal) can differ between the two languages of a bilingual (Grosjean, 2008).

Since the present thesis does not take a developmental perspective, but rather focuses on ultimate attainment of early bilinguals in complex tasks of language production, with the aim of showing what it means to be bilingual, some factors influencing the ‘endstate’ of bilingual acquisition and which are important to address when describing a bilingual sample will now be mentioned. There are factors that can be classified as linguistic (or cognitive), and others can be labelled socio-linguistic or socio-psychological variables. The former group entails for example the amount of input and exposure that the bilingual has experienced in both the languages during the course of acquisition, and experiences in daily life. In bilingual acquisition, it is a logical fact that learners receive less input in and exposure to both languages, in quantitative terms, when compared to children acquiring only one language. Considering the crucial and central role of input for learning, at least in theories of language acquisition from a cognitive point of view (see theories of usage based grammar in L1 as well as L2 acquisition, e.g. Tomasello, 2003; Goldberg & Casenhiser, 2008), it would therefore in principle be plausible that bilingual acquisition takes place at a slower rate than the acquisition of one language. Studies, however, show that this is not (necessarily) the case (see e.g. Paradis & Genesee, 1996). With respect to the ultimate attainment of
bilinguals, the ideal situation would be represented by cases in which speakers are brought up on the ‘one parent-one language’ principle, providing a systematic, and relatively balanced amount and length of input in both languages. Other linguistic factors that have to be taken into account when addressing questions of attainment in bilinguals is the context of experimental testing, or ‘language mode’ (the relative activation of the two languages at a particular point in time, cf. Grosjean, 1998; 2000). Socio-linguistic factors influencing the endstate of language acquisition include for example motivation of the learner, learning context ((un)tutored), etc. (see e.g. Klein, 2000). In a similar vein, Wei (2007) uses 4 aspects that should be taken into account when describing and defining a bilingual sample; the age of acquisition of the two languages, the level of proficiency in both languages, the specific contexts and domains in which the two languages are used and the attitude and the identity of the speaker. For the purposes of the present study, in which the socio-psychological factors are difficult to control for and to test empirically, the variables included in the description of the sample investigated involve the former set of factors, the more linguistic and cognitive aspects of defining bilingualism, i.e. age of acquisition and level of proficiency in both languages (see next section).

Throughout the thesis a distinction will be made between the term ‘(early) bilingual’ (referring to early or simultaneous bilinguals) and ‘L2 user’ or ‘late bilingual’.

1.2.3.2. Characterizing the sample under investigation

The early Dutch-German bilingual speakers in the sample investigated in the present dissertation were selected according to the criteria ‘age of acquisition’ as well as ‘daily use of both languages’: all bilinguals started acquiring their two languages before the age of four. Within the sample, there are both simultaneous as well as early sequential bilinguals - a further distinction between these two types of speakers is not made in the studies. This decision is based on the hypothesis that the attainment of L1 and L2 proficiency is not likely to vary linearly with age of acquisition given these very early years of exposure. Furthermore, experimental studies comparing early simultaneous with early sequential bilinguals have found that even in the case of bilinguals exposed to
two languages since birth, differences in processing of the two languages arise because of differences in dominance. In other words, it was found that in the most ideal case in terms of age of acquisition, differences in processing can be attributed to differences in language use and exposure in later life (Sebastian-Galles, Echeverria & Bosch, 2005; also in Genesee et al., 1978). Therefore, the common denominator for the sample investigated in the present thesis concerns the daily active use of both languages, in both academic as well as personal contexts. It is hypothesized that the criterion ‘daily use’ outweighs ‘age of acquisition’ with regard to a sample in which onset of acquisition varies between 0 and 4 years of age.\footnote{The relatively small sample investigated in the experiments in this thesis would also not allow for testing statistically any possible group differences between early sequential and simultaneous bilinguals.}

With respect to the situation of input, most speakers were brought up on the one-parent one-language principle (10 out of a total of 18 early bilinguals, taking part in the different studies). For bilinguals for whom this is not the case, the input of one language is usually provided by the environment (e.g. Dutch-German bilinguals with two Dutch parents, having grown up and residing in Germany). In all cases, most of the bilinguals are engaged in both languages both in a personal as well as an academic/work-related setting on a daily basis. Though it is the case that the majority of the sample (12 out of 18 speakers) resides in the Netherlands, and a smaller number of speakers actually reside in Germany, all speakers are exposed to the two languages on a daily basis. It is therefore plausible to assume that there may be differences in language dominance due to differences in the relative exposure as well as input in the two languages, or differences in dominance due to, for example, the manner of acquisition of the two languages (through communication with father or mother). Nevertheless, considering the difficulty in determining language dominance, the group of speakers is taken as one sample that have an early age of acquisition and daily use of both languages in common. With respect to the level of attainment of the bilinguals in both languages, the comparison of performance on a complex narrative task in both languages, as carried out in the present study, provides a finer measure (see chapter 8).

In all experiments reported on in this thesis an effort was made to control for the language mode (cf. Grosjean, 1998) of the speaker at the time of testing.
communication before and during testing between the experimenter and the bilingual participant took place in the language of the experiment.

As for the domains and contexts of language use, extensive questionnaires were used in order to pinpoint these factors (such as the dominant language of the media, reading, counting, etc.). The identified preferences in contexts of language use/exposure (production as well as perception) seemed to be mainly concordant with the language used in the country of residence (see for details, Appendix B).

1.2.4. Some psycholinguistic studies on bilingual language production

Though there is a vast amount of literature on language production in (intermediate to advanced) late bilinguals, there are not so many studies looking at their performance on more complex tasks, such as event construal. Particularly few studies attempt at gaining insights into the level of conceptualization in speech planning and attempt to analyze the conceptual representations on which speakers’ choices in event or narrative construal are based, and the global planning principles that play a role at text level. The other facet that the present approach to bilingualism includes is a focus on language-specificity in conceptualization. Questions addressed involve the degree of adherence to conceptualization preferences by monolingual speakers of the two languages. The number of studies dealing specifically with early bilinguals in this domain is even less extensive.

Pavlenko (2005) and Jarvis and Pavlenko (2008) have reviewed a set of studies on L2 and bilingual performance which focus on language-specific features, looking at whether or not (and in what way) findings show that speakers adhere to target-like conceptualization preferences. They have listed some of the possible outcomes for conceptualization patterns (whether looking at the ‘endstate’ of acquisition, or for characterizing stages during the process of L2 acquisition): speakers can show the coexistence of target-like conceptualization preferences in both languages, transfer of L1 conceptualization patterns, convergence of patterns available in L1 and L2, the internalization of L2 conceptualization preferences, restructuring of the conceptual system, transfer of L2 patterns to L1, or attrition of L1 conceptualization patterns (cf.
Jarvis & Pavlenko, 2008). Factors identified that influence bilingual conceptualization patterns in different tasks were found to be age of acquisition (cf. Hohenstein, Eisenberg & Naigles, 2006-looking at motion event construal), proficiency level in L2 (cf. Athanasopoulos, 2006; 2007; Athanasopoulos & Kasai, 2008), actual language use, etc. This set of possibilities was found to hold for language production studies as well as non-linguistic tasks (e.g. categorization or similarity judgement tasks) and it was applied to samples of different types of bilingual speakers. The research question behind this type of investigation is similar to the one pursued in the present thesis: to find out in what way conceptualization patterns (in this case, when constructing a verbal representation) in bilinguals (or L2 users) relate to monolingual native speakers of the relevant languages. For example, studies investigate in what way L2 users deal with and organize lexical and grammatical concepts that are language-specific for their two languages, such as emotion concepts, colour concepts and number representation (Pavlenko, 2005; Athanasopoulos, 2006; 2007; Athanasopoulos & Kasai, 2008; Athanasopoulos, Damjanovic, Krajcova & Sasaki, in press).

The next section (1.2.4.1) will mention studies on L2 users and bilinguals in tasks of event and narrative construal, and section 1.2.4.2 below will review some of the work being done in a line of (L2/bilingual) language production research that has received considerable amount of attention: the investigation of how bilinguals manage to access and select specific concepts when performing tasks in only one language and in what way these processes are language-selective or to what extent there is always co-activation of the other language.

1.2.4.1. Studies on event structure and narratives

A line of research which has received some attention is research on the conceptualization of motion events by L2 users, in line with Slobin’s ‘thinking for speaking’ framework (1996), following Talmy’s verb lexicalization schema (1988). For example, Cadierno (2008) and Cadierno and Ruiz (2006) look at Italian and Danish learners of Spanish and find that the learners manage very well to follow target-like preferences in conceptualizing motion events. Hohenstein et al. (2006) also find that
Spanish-English (late and early) bilinguals are to a large extent able to incorporate a new ‘thinking for speaking’ pattern, but especially the late bilinguals showed more signs of bidirectional transfer, when compared to the early bilinguals. Hendriks, Hickmann & Demagny (2008) investigated intermediate as well as advanced learners of French, and found L1-like patterns of spatial conceptualization in L2 descriptions of caused motion events. Other studies within this framework also include analyses of co-speech gesture and present evidence of (bi-directional) cross-linguistic influence and transfer of path/manner-related preferences in speech and gesture of the L1 and L2 (e.g. Kellerman & van Hoof, 2003; Stam, 2006; Brown, 2007).

Other studies have looked at the performance of L2 users with respect to the role of relevant grammatical features of the language for information structure when producing complex narrative texts. A series of studies look at the way in which very advanced L2 learners create coherence in information structure in macrostructural terms for narrative as a whole (Carroll, Mureia Serra, Watorek & Bendiscioli, 2000; Carroll & Lambert, 2003; 2006; von Stutterheim & Lambert, 2005; Carroll et al., 2008). In the texts produced by native speakers of different languages, macro-structural planning principles were identified that are driven by grammaticized features of the language (e.g. temporal aspectual concepts; word order constraints). The learner data indicate that the implications of the grammatical means of a language for how information is structured in context is difficult to acquire. Advanced L2 users follow a system with its own structural principles which are only partially target-like and diverge form the target language in systematic respects (Carroll & Lambert, 2003; von Stutterheim & Lambert, 2005). German learners of English, for example, are aware of the fact that in contrast to the word order constraints in German which are relatively free, English has a fairly rigid S-V word order. But they are not aware of the fact that the constraints on the position of the subject of the clause (S) has implications for the types of entities that can be selected for mention when deciding what to say and whether they are for example eligible for mention as the subject of a main clause, or not. In specific contexts, as in narrative tasks, eligibility for mapping as the subject of a main clause is mainly restricted to the protagonist as ‘topic’ component in L1 German texts, but not in English, where the feature ‘agent of an action’ determines informational status and mapping patterns (see in detail Carroll & Lambert, 2003; 2006).
Studies on the construal of single events in event elicitation tasks (by means of dynamic stimuli, video clips) by advanced L2 users show diverging outcomes. Schmiedtová & Sahonenko (2008), for example, look at the way in which L2 users conceptualize goal-oriented motion events and they identified patterns in the L2 production data that differed from the monolingual target-like preferences. Czech and Russian learners of German, who had achieved a very high level of proficiency, did not adhere to the target-language preferences in the encoding of endpoints of motion events; there was evidence of transfer from their L1 preferences. Similarly, von Stutterheim (2003) finds that English learners of German do not make use of the holistic perspective to the same extent as the monolingual German speakers, but that German learners of English do mention fewer endpoints, which would be in line with the target language. Von Stutterheim & Carroll (2006) find that both L2 German speakers (L1 English) and L2 English speakers (L1 German) retain their L1-related preferences in construing motion events, with respect to endpoints. Van Ierland (2009) looks at L1 and L2 speakers of English and Dutch, and finds that the L2 speakers did manage to follow target-like microplanning principles (related to the use of progressive aspect, for example). However, the findings indicate that principles that play a role at the level of macroplanning are difficult to acquire (i.e. the way in which information is structured in clauses, for example). She also finds that English learners of Dutch show deviations from the target language pattern in usage preferences for progressive aspect, while Dutch learners of English apply progressive aspect in a target-like fashion. She proposes that the English pattern is easier to acquire, in that usage of aspect is not subject to specific constraining and attracting principles in the contexts studied, in contrast to Dutch. It is proposed that the ease at which language-specific principles of information structure are acquired depends on factors such as linguistic proximity, level of proficiency and learners’ overall verbal ability (van Ierland, 2009; also in Kousta, Vinson & Vigliocco, 2008). These factors could all play a role in explaining the different outcomes with respect to L2 conceptualization patterns in event construal tasks in the above mentioned studies.

The nature of some of the observed differences between L2 users and speakers of the target-language in the above mentioned studies seems to lie in an incomplete awareness of the implications of certain aspects of the grammar on the
entire macroplanning of texts (whether narrative or event descriptions). In other words, although the L2 users show that they had acquired formal grammatical features of the language (such as German learners of English acquisition of progressive aspect; Carroll & von Stutterheim, 2003; von Stutterheim & Lambert, 2005), they are not always aware of their implications in determining planning principles for the information organization for the text in global macrostructural terms. This suggests that this type of linguistic knowledge, which depends on interfacing syntactic, semantic and pragmatic knowledge, is very difficult to learn. The findings above indicate some of the identified patterns in Jarvis & Pavlenko (2008): transfer of L1 patterns or adherence to L1 patterns (since the studies mentioned do not involve performance in the L1 of speakers, one cannot address the full picture of bilingualism).

1.2.4.2. Organization of bilingual representations and the question of (non-) selective access to conceptual representations in language production

Some studies looking specifically at language production by L2 users or bilinguals mainly address the question whether the language system of an L2 user consists of one common store in which elements of both languages are stored, or whether there are two separate stores (L1, L2) which function independently of one another. This topic has also been the focus of research on bilingual 2L1 acquisition (see e.g. Genesee, 2000). A discussion of findings in this domain would go beyond the scope of the present thesis.

A great deal of research on L2 performance has focused on the domain of the lexicon, and has addressed questions such as whether access to lexical representations is language-selective or non-selective at various processing stages in production (e.g. models of lexical access for production described in Poulisse, 1997; Kroll & Tokowicz, 2005). Researchers in this domain draw conclusions about conceptual organization and conceptual access of the lexicon on the basis of studying single word production. An indepth discussion of how different researchers discuss models of lexical access in bilingual speakers would go beyond the scope of this thesis. In general, many studies seem to agree that there is some degree of non-selective activation of the bilingual's lexicons in the production process and that some type of language cue or language tag
is available in the pre-verbal message (before lemma selection) (e.g. Costa & Caramazza, 1999; see for an overview Costa, 2004). Many researchers find that items in the nonresponse language are co-activated even up to the level of phonology, (e.g. Colomé, 2001), and it was for example proposed that items in the response language achieve a higher level of activation, due to some kind of language cue/tag/node in the preverbal message, ensuring correct lexical selection in the language of the task (as in Poulisse & Bongaerts, 1994; La Heij, 2005; there are, however, other models that include inhibitory processes, e.g. Green, 1998b). Work on hierarchical models of bilingual memory representations (e.g. Kroll & Stewart, 1994; Dufour & Kroll, 1995) hypothesize that links between L1/L2 words stored in the bilingual’s lexicons and the conceptual domain are actually influenced by level of proficiency in the L2 (i.e. a higher level of proficiency leads to direct access and a lower level of proficiency may lead to access mediated by the L1, cf. Dufour & Kroll, 1995). Costa (2004) acknowledges this interpretation and provides this as the source for some non-converging evidence concerning (non)selective lexical access and the mechanisms of lexical selection in production studies: it is very likely that studies diverge in the type of bilingual population tested (also in Abutalebi & Green, 2007).

Other studies also address the question of how bilingual lexical representations are organized and how access and selection mechanisms in language processing work, and they specifically look at early or simultaneous bilinguals. Their performance on different tasks is discussed in light of bilingual processing. For example, Ameel et al. (2005; 2009) focus on object categorization and naming in both languages of early bilinguals (French-Dutch), and they find that the two patterns converge on a common naming pattern, applied in both languages. These patterns are interpreted as evidencing category structures in the bilinguals’ lexicons that are less complex and have dropped language specificities, when compared to monolinguals. Hernandez, Bates and Avila (1994) describe bilingual performance on an online sentence processing task as ‘in between’; the early bilinguals investigated use ‘amalgamated strategies’, i.e. a combination of L1 and L2 monolingual strategies, in a task in which they have to choose which is the agent of a sentence. These strategies are interpreted as being an information processing strategy to reduce the costs of managing two systems with two different manners of form-function mapping-the bilinguals are trying to reduce
disparities in the decision space (p.441). Also, Foursha, Austin and van de Walle (2005) look at language processing in early bilinguals and find that early bilinguals show an effect in processing speed, i.e. a slower reaction time on a particular linguistic task. This effect was found, despite monolingual-like performance on an overt grammaticality judgement task. It was labelled a general consequence of being bilingual, an effect due to having a higher cognitive load when managing two language systems during a task in only one language.

1.2.4.3. The present set of empirical studies

Within all of the above mentioned lines of research, i.e. the construal of complex events involving language-specific features, other studies looking at how L2 users/bilinguals deal with language-specific conceptualizations, language production studies looking at the degree of (non-) selectivity of lexical access and selection, it makes sense to include an investigation of bilinguals who have started acquiring two languages in early childhood and have a daily use of both languages (i.e. early or simultaneous bilinguals). When interpreting the findings above on lexical selection in language production and the findings on the ability to ‘re-structure’ conceptualization preferences, a focus on speakers in which there is no clear distinction between L1 and L2 (with respect to age of acquisition) and for whom both languages are ‘active’ on a daily basis might be beneficial. The same goes for studies looking at event construal. This way, one could cancel out any effect of level of proficiency, since for early bilinguals this is hypothesized to be high in both languages, when compared to late bilinguals. Due to an early age of acquisition and lengthy exposure, one can assume less variability in linguistic competence. These speakers could provide a case in which, in principle, access to lexical as well as grammatical concepts in one language can be direct (i.e. not mediated by the other language) and automatized (see e.g. Genesee et al., 1978; Abutalebi & Green, 2007). For these reasons, it is interesting to look at mechanisms/strategies of language processing, since it is plausible to assume that the languages have both been fully acquired at a formal level.
Also, looking at bilingual performance on complex language production tasks, may help in answering the questions regarding bilingual speakers’ abilities to deal with language-specific encodings of reality and the questions relating to bilingual representation and selectivity of access to the conceptual stores of the bilinguals. These performance patterns may consequently be used as indicators of processing patterns and possibly, at a later stage, be the basis for providing hypotheses concerning the organization of bilingual systems. Also, studies in the present thesis deal with a variety of grammatical domains, i.e. aspect and information structure, that play an important role in establishing native-like patterns of event and narrative construal.

No studies to date (that I am aware of) look closely at early bilinguals and their performance on a variety of complex language production tasks, involving event construal, in which speakers have to deal with accessing conceptual representations that play a role for perspective taking in language production (aspect).

1.3.  Empirical approaches to event conceptualization

When looking at selection patterns of specific aspectual concepts empirically in elicitation experiments (language production tasks), it is important to sketch a clearer picture of the process of event conceptualization when dealing with the specific task of having to give an event description. Three relevant levels can be identified for the empirical approach (see Figure 3 below). The first level is the level of the external world, the stimulus depicting a situation with potentially relevant features (temporal and/or spatial features, the type of entity involved (agent/patient), etc.). The speaker comes to the task with his language-specific knowledge base, and, depending on the concepts available in the language system(s), the speaker will be ‘tuned into’ specific aspects of the stimulus relevant for the planning of speech in the particular language (depending on the nature of the task). At the level of the external world (the stimulus), the aim is thus to identify what situational features (presented in the stimulus) affect selection patterns of specific concepts, given the language-specific sets of concepts that are available on the part of the speaker. In other words, what situational features attract
and what features form a constraint on selection of (in this case, aspectral) concepts, for speakers of different languages?

The second and third level represent the speaker who is dealing with the stimulus (level 1) after setting a task such as ‘view the stimuli and tell what is happening’. The second level, the level of the conceptualizer (in line with Levelt, 1989; 1999), represents the stage at which the speaker forms a conceptual representation of the situation depicted in level 1. This conceptual representation is in line with the task requirements. During this level, the speaker comes to the task with his specific bundle of linguistic knowledge. Information represented in level 1 (the situation) is segmented, selected and consequently structured and linearized according to language-specific requirements. Specifically, during this process, the speaker has to meet with the requirements of the conceptual store of the language involved, and perspective taking for event construal takes place according to the temporal-aspectual system of the language. The third level of the event description task involves the formulation of the verbal representation of the event, the actual form and contents of the linguistic representation. This stage corresponds with the formulator and the articulator in Levelt’s model (1989; 1999). For the verbal representation, the following questions are of interest: Which of the features identified as being relevant (as in attracting and/or constraining the selection of specific concepts by specific groups of speakers) at the level of the situation (level I) and the conceptual representation (level II) are actually realized in the verbal contents (level III), and which of those are less relevant at this level of analysis? In other words, a distinction is made between features present within the situation (level I) (e.g. duration, endpoint, changes in state, homogeneity) and the formal contents of the actual event description (level III) (verb semantics, level of event representation or granularity (macro- or subevent, homo- or heterogenous subevents), argument structure, verb form (progressive or simple form)) (as in Natale, 2009).

In general, it is thus assumed that in the process of language production in the context of events, the point of departure is with the external world, the stimulus and its temporal and spatial features. In task-driven language production (i.e. when asked to give an event description), language-related knowledge comes into play at a relatively early stage in the conceptualizer. There is evidence for selective visual attention patterns
during information intake for as well as during verbalization (the processes taking place during level II and III) (von Stutterheim & Carroll, 2006; see chapters 3 & 6).

For Dutch (and German) monolingual speakers, the level I features that are relevant for aspectual concepts are described in chapter 3, 4 and 5. For the bilingual speakers, level 1 features are discussed in chapter 6 (and 7).

Figure 3: Levels involved in event conceptualization after setting of the task: "give event description"

The next section will provide an overview of the methods used in the experimental studies of this thesis.

1.3.1. Research methods

The present thesis encompasses six empirical studies, based on 4 different types of experiments (see (8) below), that were carried out with Dutch & German monolingual and/or Dutch - German bilingual speakers.
Experimental methods used

1) acceptability judgement task (monolingual Dutch speakers, chapters 2, 4)
2) online event elicitation task, baseline condition (monolingual Dutch &
German (& Norwegian) speakers, chapters 3, 5, 6, 7; bilingual Dutch speakers,
chapters 6-7)
3) online event elicitation task, time constraint condition (monolingual Dutch
speakers, chapter 7; bilingual Dutch speakers, chapter 7)
4) offline narrative retelling task (monolingual Dutch & German speakers,
chapter 8; bilingual Dutch & bilingual German speakers, chapter 8)

The acceptability judgement task relates to the selection of the *aan het*-construction and
concerns monolingual Dutch speakers of different age groups (for an extensive
description of the method see chapter 4). This task provides a tool in which certain
situational variables can be manipulated in order to test their strength as attractors or
constraints for the use of the aspectual *aan het*-construction, as judged by Dutch native
speakers in the given contexts. Although it is unclear to what extent acceptibility
judgement data actually reflect patterns of use, the main findings of the judgement task
do tie in to a large extent with the findings of the event elicitation tasks, and with
assumptions with respect to usage patterns of developing forms for the expression of
progressive aspect (see chapter 4).

The online event elicitation tasks that were conducted are based on sets of
dynamic, live-recorded video clips, presented in a randomized order. The instruction
for all participants in all languages was to simply *tell what is happening* in the video clip,
with a main focus on the event only, and without giving too many details with respect
to the background, colours, interpretations, etc. This way, an attempt was made to elicit
naturalistic though still controlled event descriptions. All participants were also
instructed that they could start to speak as soon as they recognized what was happening.

In the time constraint condition, the same task was maintained, but this time
the time span in between video clips was reduced from 8 to 3 seconds. The participants
were in both cases introduced to the pace of presentation of the video clips in a training
phase, before the start of the actual experiment.
The offline narrative retelling task consisted of a short silent film as a stimulus and elicited a narrative that was re-told in 4 parts (sand world, paper world, rock world, machine world). This division into parts was carried out so as to reduce memory load and to increase comparability between narratives of the different participants and different languages.

The list in (9) below presents a full overview of all the experiments that were conducted and the number of participants that were analyzed. Full lists of all the stimulus sets can be found in Appendix A.

(9) **Overview of experiments and stimulus sets**

a) Datasets with monolingual subjects

Chapter 2: Acceptability judgement task, preliminary pilot data, monolingual Dutch speakers, N = 30

Chapter 3: Event elicitation task, monolingual Dutch speakers, N = 20

- **Stimulus set 1**: 60 randomized video clips (see appendix A), linguistic and eye tracking data, 20 subjects analyzed

Event elicitation task, monolingual German speakers, N = 20

- **Stimulus set 1**: 60 randomized video clips (see appendix A), linguistic and eye tracking data, 20 subjects analyzed

Chapter 4: Acceptability judgement task, monolingual Dutch speakers, N = 113 (3 age groups)

- **Stimulus set 2**: 42 situation descriptions
  (see full list in appendix A, chapter 4)

Chapter 5: Event elicitation task, monolingual Dutch speakers, 2 datasets combined

- **Stimulus set 3**: 66 randomized video clips (see appendix A), linguistic data, 32 subjects analyzed, for situation type "no change in state situations" 26 subjects analyzed

Event elicitation task, monolingual German speakers, 2 datasets combined

- **Stimulus set 3**: 66 randomized video clips (see appendix A), linguistic data, 32 subjects analyzed, for situation type "no change in state situations" 20 subjects analyzed

47
Chapter 6: Event elicitation task, monolingual Dutch speakers, N = 19

- **Stimulus set 4**: 65 randomized video clips (see appendix A), linguistic and eye tracking data, 19 subjects analyzed

Event elicitation task, monolingual German speakers, N = 19

- **Stimulus set 4**: 65 randomized video clips (see appendix A), linguistic and eye tracking data, 19 subjects analyzed

Chapter 7: Event elicitation task, monolingual Dutch speakers, N = 25

- **Stimulus set 4**: only 21 critical items selected, linguistic data, 25 subjects analyzed

- **Stimulus set 5**: 44 randomized video clips, time constraint condition (see appendix A), linguistic data, 25 subjects analyzed

Chapter 8: Narrative retelling task, monolingual Dutch speakers, N = 19

- **Stimulus 6**: offline narrative retelling, silent film 'Quest' (7 minutes in length), linguistic data, 19 subjects analyzed (corpus M. Starren & S. v. Ierland, RU Nijmegen)

Narrative retelling task, monolingual German speakers, N = 19

- **Stimulus 6**: offline narrative retelling, silent film 'Quest' (9 minutes in length), 19 subjects analyzed (corpus university of Heidelberg)

(b) Datasets with bilingual subjects

Chapter 6: Event elicitation task, bilingual Dutch-German speakers, N=12

- **Stimulus set 4**: 65 randomized video clips (see appendix A), linguistic and eye tracking data, Dutch, 12 subjects analyzed (dataset bil1)

Chapter 7: Event elicitation task, bilingual Dutch-German speakers, N =10

- **Stimulus set 4**: only 21 critical items selected, linguistic data, 10 subjects analyzed (dataset bil2)

- **Stimulus set 5**: 44 randomized video clips, time constraint condition (see appendix A), linguistic data, Dutch, 10 subjects analyzed (dataset bil3)
Chapter 8: Narrative retelling task, bilingual Dutch-German speakers, N = 10

- **Stimulus 6**: offline narrative retelling, silent film ‘Quest’ (7 minutes in length), linguistic data, Dutch, 10 subjects analyzed (dataset bil4)

- **Stimulus 6**: offline narrative retelling, silent film ‘Quest’ (7 minutes in length), linguistic data, German, 10 subjects analyzed (dataset bil5)

1.3.2. **Participants**

The monolingual speakers in the different experiments consisted of different groups of speakers in all studies, the only exception being the baseline condition for the event elicitation task in chapter 7: a set of critical items were selected from the data collected with stimulus set 4 (analyzed in chapter 6) for the comparison with the time constraint condition, and a number of extra participants were recorded. All monolingual participants were university students, aged 20-30, except, of course, the two other age groups in the acceptability judgement task. An attempt was made to record an equal number of female and male participants. All speakers had some knowledge of a second language, so no one was monolingual in the strict sense (see section 1.1. above). The participants that took part in the eye tracking experiments had normal to corrected vision.

For the experiments reported on with the bilingual subjects (see 9(b) above), the picture is slightly different. Due to the difficulty in finding appropriate early bilingual subjects, a number of participants took part in the different experiments carried out. However, in all cases there was a time span of at least 3 months in between recording sessions. Table 1 below presents the total list of bilingual participants that took part in the experiments in this thesis. The datasets referred to are listed in 9(b) above.
Table 1: Overview of bilingual participants

<table>
<thead>
<tr>
<th>Subject code</th>
<th>present in datasets:</th>
<th>m/f</th>
<th>age</th>
<th>country of birth</th>
<th>country of residence</th>
<th>acquisition of German</th>
<th>acquisition of Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp00</td>
<td>1,2,3,5</td>
<td>f</td>
<td>19</td>
<td>NL</td>
<td>DE</td>
<td>2yrs</td>
<td>birth</td>
</tr>
<tr>
<td>Vp01</td>
<td>1,2,3,4,5</td>
<td>f</td>
<td>46</td>
<td>DE</td>
<td>NL</td>
<td>birth</td>
<td>2yrs</td>
</tr>
<tr>
<td>Vp1n</td>
<td>1</td>
<td>f</td>
<td>17</td>
<td>Belgium</td>
<td>Belgium</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp02</td>
<td>1,2,3,4,5</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp03</td>
<td>1</td>
<td>f</td>
<td>19</td>
<td>DE</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp04</td>
<td>1</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>1yr</td>
<td>birth</td>
</tr>
<tr>
<td>Vp05</td>
<td>1,4</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp08</td>
<td>5</td>
<td>f</td>
<td>16</td>
<td>DE</td>
<td>DE</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp09</td>
<td>1,5</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>3yrs</td>
</tr>
<tr>
<td>Vp10</td>
<td>1,2,3,4,5</td>
<td>f</td>
<td>16</td>
<td>DE</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp11</td>
<td>1,2,3</td>
<td>f</td>
<td>16</td>
<td>DE</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp12</td>
<td>1,4,5</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp13</td>
<td>1,2,3,4,5</td>
<td>f</td>
<td>16</td>
<td>DE</td>
<td>DE</td>
<td>birth</td>
<td>2yrs</td>
</tr>
<tr>
<td>Vp14</td>
<td>1,2,3,4</td>
<td>m</td>
<td>16</td>
<td>Malaysia</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp15</td>
<td>4</td>
<td>f</td>
<td>16</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp20</td>
<td>2,3,4,5</td>
<td>f</td>
<td>18</td>
<td>NL</td>
<td>DE</td>
<td>1yr</td>
<td>birth</td>
</tr>
<tr>
<td>Vp21</td>
<td>4,5</td>
<td>m</td>
<td>17</td>
<td>NL</td>
<td>DE</td>
<td>1yr</td>
<td>birth</td>
</tr>
<tr>
<td>Vp22</td>
<td>2,3</td>
<td>m</td>
<td>21</td>
<td>NL</td>
<td>NL</td>
<td>birth</td>
<td>birth</td>
</tr>
<tr>
<td>Vp23</td>
<td>2,3</td>
<td>f</td>
<td>21</td>
<td>NL</td>
<td>DE</td>
<td>3.5 yr</td>
<td>birth</td>
</tr>
</tbody>
</table>

The total number of 19 participants represent a fairly heterogeneous group. A total of 11 participants are simultaneous bilinguals and the remaining 8 participants have a slightly later onset of acquisition (<4 years). Furthermore, 13 out of 19 participants were 16 or 17 years old at the time of recording, while 5 were older. Of the sample, 11 speakers were born in the Netherlands and 12 resided in the Netherlands at the time of recording. Nevertheless, all speakers have a frequent and systematic input in the German language.

Due to the nature of the sample and the type of tests involved, there is the question as to the status of the findings presented in the thesis and in how far they may be generalized to other Dutch-German bilinguals, let alone other bilinguals of typologically close languages. The present studies must therefore be viewed as exploratory. Its aim is to trace preferences in event conceptualization for this group of bilingual speakers on a variety of complex language production tasks.
1.4. **Outline of the thesis**

The thesis comprises seven empirical studies and is divided into two sections. Section I looks at the performance of monolingual German and Dutch speakers (with a focus on Dutch) on a variety of tasks covering language production and acceptability judgements, while section II looks at early bilingual performance (production data).

The theoretical framework in chapter 2 deals with the notion of grammatical aspect and introduces some of the core concepts used to describe tense-aspect systems. Also, preliminary data of the acceptibility judgement task for the Dutch progressive *aan het* construction are presented here.

Chapter 3 relates to motion events and compares event conceptualization by Dutch and German monolingual speakers as well as speakers of other languages (Arabic, English, Czech, Russian and Spanish). This study is important in setting the ground for the relevance of the domain of aspect for event conceptualization. It investigates how speakers proceed in two types of situations: those which include an endpoint which is reached by the moving entity, and those in which a possible endpoint is not reached. This study includes linguistic data as well eye tracking and memory performance data.

The results of the acceptibility judgement task are presented in chapter 4. Acceptability judgements of speakers of three different age groups were used as a window on the determinants and constraints on the selection of aspectual distinctions in contemporary Dutch, and serve to complete the production data for the core age group by adding in this dimension. Acceptability judgements may function as a useful pointer in a language in which use of aspect seems to be evolving, but is nevertheless not obligatory, as yet, in any context. Hence, a comparison of judgement and production data is carried out in the present thesis. Speakers were asked in the judgement task to choose between an event description marked by means of the progressive marker, and an event description with an aspectually unmarked predicate, taking different types of situations that were presented verbally to the speaker.

Subsequently, chapter 5 is devoted to the production data and covers event conceptualization in Dutch across six different situation types. The different situations present core temporal features that were manipulated on a systematic basis with respect
to their relevance for the use of aspect. An extensive comparison with German monolingual speakers is included using the same stimuli, so as to provide a clearer picture of the differences and similarities between the two languages with respect to the aspectual systems. Norwegian was also included as a point of reference, using the same framework of analysis, since this language has aspectual markers that are formally similar to Dutch, but differ in function.

Chapter 6 reports on an eye tracking experiment and focuses on monolingual and bilingual Dutch speakers' patterns in event conceptualization with regard to the selection of aspectual concepts. The study provides an analysis of the linguistic data as well as the distribution of speakers' visual attention to relevant aspects of the video clips.

The study in chapter 7 consists of a comparison between monolingual and bilingual speakers of Dutch for the core set of situation types. The study compares event conceptualization under a ‘baseline’ as well as a ‘time constraint’ condition. The baseline condition gives speakers a longer time to verbalize information on the events (8 secs), while this is reduced to 3 seconds with the time constraint. The findings are discussed in the light of monolingual and bilingual patterns in language processing.

The final empirical study, chapter 8, provides a change in focus. The study relates to the performance of the bilingual speakers on a complex narrative retelling task, compared to monolingual speakers of both languages. The focus of the analysis is placed on reference management in information structure, an area which shows subtle but systematic differences between Dutch and German. Global differences between monolingual Dutch and German narratives are identified and used in a systematic comparison with the bilingual speakers, on a quantitative as well as a qualitative basis.

The findings are summarized in chapter 9 and provides an overall discussion of the main findings of the empirical studies with conclusions. The discussion focuses on bilingual processing patterns and strategies that may underlie the different performance patterns observed. Some critical issues are highlighted along with considerations for future research.
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58


Chapter 2: Aspectual concepts across languages: some considerations for second language learning

Abstract

In this paper, we focus on some terminological issues concerning the notion of aspect. We address the notions of grammatical aspect vs. Aktionsart, perfectivity vs. telicity, and imperfectivity vs. progressivity. We observe that these terms are often mixed up in the literature, which leads to some fundamental misconceptions in the theoretical description of different aspectual systems as well as in L1 and L2 acquisition studies. The descriptive approach we follow is strictly empirical and based on spoken production data. For our cross-linguistic comparisons, we draw upon data from native speakers of Czech, English, Dutch, German, and Russian. The theoretical framework of the paper is based on the idea that aspectual markers are not merely grammatical categories with a particular function, but more importantly they denote underlying cognitive concepts. These grammaticalized concepts determine native speakers' preferences in event construal, are language-specific (L1-based), and play a decisive role in second language learning. In order to deal with the difficulties arising in L2 learning, it is crucial to attempt to avoid terminological confusion. We think that this can be achieved by adopting a more conceptual and empirical approach to the analysis of aspect.

2.1. Introduction

In this paper we will attempt to show and discuss some of the complexities in terminology that regularly come up in theoretical analyses of aspect in cross-linguistic research. Examples of terms that are often confused and that we focus on are grammatical aspect vs. Aktionsart, telic vs. perfective, and imperfective vs. progressive. In our view, this terminological confusion often leads to crucial misconceptions with regard to the functional description of aspectual systems, the way in which L2 acquisition of aspect is viewed, and also how it is taught in schools and language courses. Obviously, our research is especially relevant for the first part of pedagogical grammar, which is that of descriptive adequacy (see Ruiz de Mendoza, in this volume), but not for its final part, which is that of providing improved teaching methods. We can merely present a number of relevant linguistic issues and descriptions that we believe should be taken into account by applied linguists writing pedagogical grammars.

Disregarding the discussion on the Critical Period hypothesis, one can state that from a learning point of view it seems nearly impossible for advanced learners to have full command of the aspectual distinctions in the target language (e.g. Schmiedtová, 2004; Slabakova, 2005; von Stutterheim & Carroll, 2006). Equally challenging appears to be the task of learning to express temporal relations in non-aspect languages (for example German) by native speakers of aspect-dominant languages (such as Czech or Russian). This is particularly evident in learners' ways of structuring information in narratives (e.g. Schmiedtová & Sahonenko, 2008; Carroll, Lambert, Natale, Starren & von Stutterheim, in press).

The difficulties that second language learners of all proficiency levels face when dealing with aspectual relations in the L2 arise partly because of the high complexity and prominence of the aspectual systems as such and the differences between the L1 and the L2 systems. But perhaps they also occur because traditional analyses (e.g. Comrie, 1976; Dahl, 1985; Smith, 1997) of the aspectual categories do not provide the necessary guidelines for teachers to formulate instructions that would make the acquisition of aspect more systematic and thus successful. Learners have to gain competence not only in connecting the form and the corresponding meaning(s), but
also in making that connection on the basis of usage principles in discourse. These kinds of competence have to be coherently integrated within the learning process, which is a difficult task for both teachers and learners.

Our approach to investigating aspectual systems and their use in discourse is entirely empirical. We base our claims and conclusions on spoken data produced by native speakers and learners. Our framework reflects actual native speaker preferences for using aspectual markers in a particular language and, in addition, it describes the internal organization of the respective aspectual system. In line with the current trend in cognitive linguistics, we assume that aspectual categories do not merely depict grammatical features, but that they also mirror conceptual structures and hence have psycholinguistic reality. The aim of this paper is to sketch some of the existing problems, increase awareness of them, and stimulate a discussion. We will address several terminological issues by introducing an empirically based approach to the classification of grammatical aspect providing examples from L1 as well as L2 data. Our material includes data from Czech, Dutch, German and Russian native speakers as well as from Russian and Czech learners of German.

The structure of the present paper is as follows: in the next section we will discuss a number of terminological fallacies, then show some empirical data in order to support our claims concerning grammatical aspect, and finally draw our conclusions with a couple of remarks regarding second language learning.

2.2. Aspect terminology

2.2.1. Grammatical aspect and lexical aspect (Aktionsart)

One of the frequently occurring problems in the literature on aspect is the lack of uniformity concerning the theoretical notion of aspect. We distinguish between two categories: grammatical aspect and Aktionsart. The former aspect is a purely grammatical category marked by inflectional morphology (e.g., affixes in Slavic

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4 The term preference refers in our framework to highly automated processes that speakers activate during speech production. The structures involved in these processes consist of concepts that are expressed through grammaticalized (linguistic) means.

5 To avoid confusion, in our terminology we label lexical aspect Aktionsart.
languages, the be V-ing form in English). In our approach, grammatical aspect (i.e. in general the morphosyntactic marking of aspectual categories) denotes grammatically encoded concepts. We agree with Klein (1994: 30) when he says that: ‘... the conventional ways of characterizing [grammatical] aspect, whilst intuitively often appealing, are [apparently] not very satisfactory: they have much more the status of metaphorical descriptions than of precise and clear definitions’. These conventional ways include the terms 'viewpoint', 'viewing a situation from the outside or the inside', 'situation is seen as completed/non-completed'. We do not adhere to the conventional view that grammatical aspect is a way of seeing situations, which involves lexico-semantic as well as grammatical elements, because this view does not provide a suitable theoretical framework for analyzing empirical data in cross-linguistic context.

Aktionsart, by contrast, is a semantic category that expresses temporal characteristics of verb meanings and meanings of verbal predicates (lexical content). Several Aktionsart classifications have been proposed (e.g. Vendler, 1967; Smith, 1997) but none of them are unproblematic. In our framework, we apply Klein’s classification from 1994. It is based on the Topic Time (TT) notion: Topic Time (TT) is the time for which a particular assertion is made. For example, in She was ill, the TT precedes the time of utterance (TT<TU) and thus holds true for a time interval in the past, for which <a person be ill> applies.

According to Klein, Aktionsart expresses lexical contents and hence has no direct connection to the time axis (1994: 99). The linkage to the time axis is established through Topic Time. Depending on the number of Topic Times that are contrasted in a clause, Klein distinguishes three different types of verbs/verbal predicates:

- zero-states (no TT-contrast, e.g. The book is in Russian-no matter what TT this clause is linked to, the assertion will hold true for any other TT);
- one-states (one TT-contrast, e.g. He was in Berlin-this assertion holds true for one contrast between <not be in Berlin> vs. <be in Berlin>);
- two-states (two TT-contrasts, e.g. She opened the window-this assertion holds true for two different contrasts <to be closed> vs. <to open>, <to open> vs. <to be open>).
Despite the fact that Klein’s framework does not make an explicit difference between Vendler’s accomplishment and achievement, we prefer to use Klein’s classification because *Topic Time* is a well-defined and transparent notion, which is applicable to numerous languages other than English. In any case, the notion of Aktionsart is less important for our research since our main focus is on aspect.

Usually, the notion of aspect comprises grammatical aspect as well as Aktionsart (an exception to this trend is Bertinetto & Delfitto 2000). In line with this misconception, some researchers assume that the acquisition of grammatical aspect is always guided by learners’ knowledge of semantic features encoded on the verb (Aktionsart). In other words, it is believed that grammatical aspect is not acquired independently, but must be accompanied or even preceded by knowledge of Aktionsart. Hence, both categories are usually described and analyzed as a whole.

The original proposal goes back to Andersen and Shirai’s *Aspect Hypothesis* (also called *Primacy of Aspect Hypothesis*, *Prototype Hypothesis*, *Aspect before Tense Hypothesis*) from 1994, on the basis of which they accounted for different types of acquisitional data as well asPidgin and Creole languages. Interestingly this hypothesis seems to be tenable for numerous L1 and L2 varieties; it has stimulated a lot of research related to aspect (for example, Li & Shirai, 2000; Stoll, 2005; Johnson & Fey, 2006) and has been useful for stating initial research hypotheses in the study of child language. It is important to realize, however, that the correlation between lexical and grammatical features, be it aspect or tense, as can be observed in first language acquisition, does not necessarily play a role in the description of the underlying linguistic system. Researchers following the *Aspect Hypothesis* have failed to adequately differentiate between lexical and grammatical elements, which has led to a mix-up between semantics and the grammatical categories of aspect and tense. For example early occurrence of accomplishment/achievement verbs with past tense marker *-ed* in L1 English is considered to represent the child’s knowledge of perfectivity. This influential hypothesis does not address the core issue of how to keep the notion of grammatical aspect and Aktionsart apart, nor does it provide a systematic description of these categories. We think that a suitable description of an underlying aspectual system is a necessary prerequisite not only for our general understanding of aspect and its acquisition, but also for developing appropriate teaching methods.
Another shortcoming of the Aspect Hypothesis is that it formulates acquisitional patterns for aspectual notions in contrast (i.e. the order of acquisition of perfective vs. imperfective markers). When concentrating on English, which has only one grammaticalized aspectual marker (the suffix –ing), it may indeed make sense to set up an opposition between a verb marked for ongoingness (i.e. progressivity-I am sleeping) and a verb inflected for past tense (He slept all day yesterday), and label the latter as perfective. This seems to work because the 'perfective meaning' (completion) arises here through the past tense morphology. However, note that simple past in English is an aspectually unmarked form that is open to +/- perfective interpretation. Thus, the verbal form in He slept is not inherently perfective, but receives its 'perfective meaning' (completion) merely by pragmatic knowledge. It could very well be the case that the person who slept yesterday is in fact at the moment of speech still sleeping. This information is simply not part of the temporal semantics of this utterance, and it is also not grammatically encoded (this misconception is present e.g. in Slabakova & Montrul, 2002). In some other cases, the pragmatic information is accompanied by lexical features of the verb as in She broke my arm or of the verbal predicate as in He ate up his sandwich. In these examples, the verbs including their arguments inherently express a change of state, which makes the 'perfective' reading possible (aided by the past tense morphology). But again, the verbs are not marked for perfectivity by means of aspectual inflectional morphology.

Simple forms in English, whether in past or present tense, are with regard to grammatical aspect open (neutral or unspecified). Since these forms lack the ongoing marker altogether they can be called 'non-progressive', but they do not express any aspectual meaning that is contrastive to progressivity. Simple forms in the present tense in English have many different meanings, but most of these meanings arise through the linguistic context (e.g. through the addition of adverbial phrases) or a specific speech act (e.g. an informative act). These meanings are conveyed by lexical and not grammatical features, and therefore the several different meanings that English simple forms can have - habitual, scientific present, etc.-do not represent an aspectual opposition to the progressive aspect. As will be explained below (see Section 2.2.) the most prominent meaning-habituality-arises only in specific contexts and is, as we hypothesize, the result of the grammaticalization process of the progressive marker. By
grammaticalization we mean the process in which grammatical morphemes gradually develop out of lexical constructions and become more and more used as fully-fledged constructions in an ever-expanding range of contexts. These grammatical constructions are becoming part of the core grammar of a language (cf. Bybee, Perkins & Pagliuca, 1994). For English it is true that in certain contexts the simple form can convey a holistic viewpoint, for example in *He reaches the finish*. Note, however, that this meaning, in contrast to the meaning of the –*ing* form, are not grammaticalized and belong to the lexico-semantic and not the grammatical area.

All this is very different from languages that use two grammaticalized aspectual markers whose meanings are truly contrastive. All Slavic languages, for example, can express both meanings-perfective and imperfective-grammatically on the verb. Although these systems do not apply to all verbs and there are some exceptions to the rule, we see a fundamental difference between the Czech/Russian and the English systems. There is an opposition between two different aspectual categories-perfective vs. imperfective-in Slavic languages, neither of which is expressed by past tense marking, whereas no such grammatical opposition exists in English (only the progressive is grammaticalized in English).

We believe that this mix-up has been dominating and partially misguiding the overall discussion about aspect typology and acquisition (see for example, general aspect analysis: Verkuyl, 1993; Smith, 1997; acquisition: Stoll, 1998; Wagner, 2006). An exception to this trend is Slabakova’s review of recent research on the acquisition of aspect (2002). Slabakova (2002: 176) points out that many studies have blended three different temporal contrasts, that is past vs. present tense, perfective vs. imperfective grammatical aspect, and Aktionsart distinctions.

In fact, we would say that fully grammaticalized grammatical notions (e.g. grammatical aspect) only interact (but do not merge) with other temporal categories, such as tense, adverbials, or Aktionsart. To a large extent the English progressive marker –*ing* is the ideal example of such a fully grammaticalized and independent grammatical category. Adopting our view makes it possible to tear apart grammatical aspect, Aktionsart, and tense and it would possibly improve teaching methodologies because teachers would be able to explain these categories in a more systematic and independent way.
2.2.2. Telicity vs. Perfectivity

Another problem we would like to tackle is the confusion between the terms telic and perfective. Similar to the issues discussed above, this problem too is related to an inaccurate differentiation between Aktionsart and grammatical aspect. In our view, the notion of telicity belongs to the domain of lexical features inherent in the verb/verbal predicate while perfectivity is a grammatical category. We define telic verbs or telic verbal predicates as expressing an inherent endpoint, which must not necessarily be realized in a situation (e.g. to fall, to write a paper). It is in principle plausible to assume that all languages have verbs expressing +/- telicity. However, only a number of aspect-prominent languages can convey +/- perfectivity grammatically. In other words, although the two terms are closely related in meaning and can interact with each other at the level of expression, they involve two different layers of linguistic analysis and are hence not synonymous. To illustrate this difference let us consider the following examples from English and Czech.

(1) He ate an apple

In example (1) the verb to eat is a one state verb denoting only one change of state (Klein, 1994) and for the sake of argument we assume that together with the indefinite object an apple it forms a telic predicate. The same utterance in Czech is presented in example (2).

(2) (On) S-něd-l jabliko
     He-Nom Perf-eat-Past-3sg apple-Acc
     ’He ate (an) apple’

In Czech the verb jíst 'to eat' is also a one state verb, but unlike in English, in the example above it occurs as a perfective, marked grammatically by the prefix s-. As in English, we are dealing here with a telic predicate— to eat an apple, but the verb is overtly marked as perfective. So the Czech utterance involves two different features: telicity on the predicate plus the perfective aspect inflected on the verb. Only the first feature is
present in the English example. As discussed briefly above, we can see that telicity and
perfectivity involve two different operations, yet, in these examples they result in a
comparable semantic structure: having reached the right boundary of the situation, i.e.
the endpoint of the situation.

In spite of this parallelism if we change the tense of the English verb from
past to present we observe a shift from (-) aspect to (+) aspect. More precisely, from (-)
progressive to (+) progressive as in example (3).

(3) He is eating an apple

If the aspect is not changed from (-) to (+) progressive, as in (4), the meaning of the
utterance becomes problematic.

(4) He eats an apple

In (4) the tense change makes the utterance ill formed in contexts of ongoing situations
because of the conflict between the presence of an object and the simple present.
Normally this combination renders a habitual reading, but then further temporal
specification (e.g. He eats an apple every day) or a particular context conveying the
habituality (e.g. What does your diabetic friend do when he suffers a hypo?) is required. It is true
that English simple forms often denote habituality, but we strongly believe that this is
merely a consequence of the grammaticalization of the -ing form\(^6\). In itself, the simple
form does not convey habitual meaning grammatically. This can be seen in example (4),
where habitual meaning only arises when specific habitual contexts are provided, i.e.
either lexical devices (temporal adverbials) or context.

Another option for making (4) grammatical is to change the simple verb form
into the progressive: He is eating an apple, as in (3). That means that in English a change
in tense goes hand in hand with a change in aspectual value: The addition of the -ing
suffix (or a temporal adverbial) is obligatory in a context of ongoingness in the present
tense.

\(^6\) Bybee et al. (1994) label this phenomenon grammaticalization of zero (of the unmarked form).
What is relevant here is that despite the change in aspect, the *telicity* of the English predicate remains unaffected. The Czech example in (5) demonstrates that a shift in tense does not influence the aspectual value, nor the telicity of the utterance.

(5)  (On) \textit{S}nì \textit{jablko}
    He-Nom Perf-eat-Present-3sg apple-Acc
    ‘He eats (an) apple (up)’

The interpretation of example (5) is that the situation *to eat an apple* in Czech is presented as inevitably reaching its endpoint in a very near future. This is very unlike the English predicate, which is telic (a semantic category), but by no means perfective (a grammatical category). In other words, by using a perfective prefix a Czech language user conceptualizes and presents the situation depicted in (5) as perfective. In principle, the Czech aspectual system allows the expression of perfectivity in the present tense, which is not possible for English. As shown in (3) and (4), it is compulsory in English to use the progressive in here-and-now contexts. This shows that only the progressive aspect has been grammaticalized in English.

In Czech, on the other hand, verbs must be marked either for perfectivity or imperfectivity in all tenses. This is because both aspects have been grammaticalized. The English aspectual system, by contrast, does not contain a systematic opposition between two different grammatical aspects: the "perfective" interpretation of verbal predicates such as *to eat up* is not brought about grammatically (perfectivity) but it is conveyed lexically by the particle *up* (telicity). In this sense, perfectivity does not equal telicity.

It leads to fundamental problems when the unspecified simple form in the context of telic verbs/verbal predicates is put in opposition to the aspectually marked progressive form. As we will show in more detail below (Section 2.4), Slavic languages have both poles of this aspectual contrast at their disposal and thus represent a completely different system with not only different forms, but also with different

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7 The present perfective in Slavic languages is considered to have a future interpretation (for Czech: Petr, 1987; for Russian: Isačenko, 1982). Recent research, however, has shown that this is not necessarily the case for Czech, where perfectly marked verbs in the present tense can have a present tense (here-and-now) interpretation (Schmiedtová, 2004; 2005).
underlying concepts. With respect to learning, the difficulty arises when teachers draw parallels between a marked perfective and the English simple form: these are basically false friends.

2.2.3. Imperfectivity

The last terms we would like to attend to in Section 2 are the notions of imperfectivity and perfectivity. We will first address the former category. Slavic languages use simplex forms to express imperfectivity (e.g. in Czech *psát*-'to write') to express imperfectivity apart from the marked imperfective, the so-called secondary imperfective. The secondary imperfective is marked by inflectional morphology, that is, in Czech the suffix -(o)va-, and in Russian the suffixes -iva/-yva-, -a/-ja- (e.g. in Czech/Russian *vypísova*-t/*vy-písoyva*-t-'to be in the process of writing out'). There is also a small group of frequently used simplex verbs denoting perfectivity without an explicit morphological marker (e.g. Czech *dát*-'to give'). Because these verbal forms lack any overt grammatical marking of their aspectual value, a question arises. Does their aspectual meaning come from the inherent verbal semantics (Aktionsart) or is it rooted in the grammar (grammatical aspect)? Despite this serious terminological problem, which has not yet been thoroughly investigated, we hypothesize that Slavic simplex forms differ from those in English, German, or Dutch. A possible justification for this line of thinking is the following. Usually, adding a prefix\(^8\) to a Czech simplex imperfective verb results in changing the aspectual features into the perfective, as in example (6).

\[(6) \text{ Prefixation of the simplex imperfective form} \]

\[
\begin{array}{ccc}
\text{Czech} & \text{pít} & \rightarrow \text{VY: pít} \\
\text{IMPF-simplex} & \text{PERFdrink} \\
\end{array}
\]

\(^8\)There are about 20 different prefixes available in Czech that are used to make a verb perfective. Each of them is associated with a cluster of meanings, most of them exhibit polysemny and homonymy, and the realization of a given meaning of a prefix is highly dependent on the context in which the prefix occurs. The same holds for Russian.
English: 'to drink' $\rightarrow$ 'to PERFdrink' $\approx$ 'to drink up'

The situation is different when dealing with simplex perfective verbs (7).

(7) Prefixation of the simplex perfective form

<table>
<thead>
<tr>
<th>Czech</th>
<th>$dáť$ $\rightarrow$ $U$-$dáť$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERF-simplex</td>
<td>PREF-PERFgive</td>
</tr>
</tbody>
</table>

| English | 'to give' $\rightarrow$ 'to report' |

In example (7), the prefix $u$- only changes the meaning of the verb, but not the aspectual value. That is, the verb remains perfective and a new lexical entry is derived. Another relevant point to be mentioned here is that simplex perfective forms, such as $dáť$ 'to give', can only be used in perfective contexts. For generic and imperfective contexts the marked imperfectivised form-$dáť$-$VA-t$-must be employed. This shows that the simplex form has an aspectual value-the perfectivity-on its own.

Because of these observations we theorize that the perfective value is already encoded in the stem of the verb regardless of the lack of overt marker(s). There are no comparable cases in English, German, or Dutch. Therefore, we argue that (a) in contrast to English, simplex forms in Slavic languages have a default grammatical aspect (in addition to their inherent Aktionsart), and (b) that simplex forms in English, German, or Dutch only make use of Aktionsart and are underspecified with respect to grammatical aspect. Turning back to L2 learners of Slavic languages, the dichotomy in the domain of simplex forms must pose a learning challenge since simplex forms are unmarked by default, nevertheless they carry an unambiguous aspectual meaning. Because of this, we are again dealing with a kind of false friend when translating (and teaching) the Czech $dáť$ as English 'to give'.

The next section will focus on some difficulties in characterizing and defining the notions of imperfectivity and perfectivity across languages.
2.2.4. Perfectivity vs. imperfectivity: conceptual differences

This section focuses on the comparison between two binary aspectual systems: the Czech and the Russian systems. Although these two Slavic languages show many typological similarities, our research (e.g. Schmiedtová & Sahonenko, 2008) shows that in the aspectual domain there are crucial differences in native speakers’ preferences, as well as in the distribution of the forms within the system. These differences may pose a real challenge to L2 learners.

As stated above, both languages encode two contrasting grammatical aspectual categories: the perfective and the imperfective. Both languages also use a number of simplex verbs, but in what follows, we will only focus on grammatically marked aspects. In principle, there are two operators that can change the aspectual value of a verb. The first operation is adding a prefix to the verbal stem. These prefixes do not only change the grammatical aspect, but they can also affect the semantics of the verb, i.e. derive a new lexical item. Moreover, with some verbs it is only the lexical meaning that changes. So, the challenge here is that the lexical and the grammatical modification can hardly be separated from one another (Comrie, 1976; Schmiedtová, 2004).

The other operation is adding a suffix. Suffixation leads to secondary imperfectivization of the verb (regardless of the type of verb stem) and the change is mainly grammatical (from perfective to imperfective aspect). These claims hold true for Russian as well as Czech. Let us consider a couple of examples.

(8) Prefixation of the simplex imperfective form

<table>
<thead>
<tr>
<th>Czech: psát (IMPF-simplex)</th>
<th>Russian: писат’ (PREF-writePERF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Czech: VÝ-psa-(-t) (PREF-writePERF)</td>
<td>Russian: VÝ-pisa(-t’)</td>
</tr>
<tr>
<td>English: ‘to write out (all keywords)/ to announce (a job)’</td>
<td></td>
</tr>
</tbody>
</table>

In (8) a simplex imperfective is turned into a perfective by the prefix $vý$, which changes the meaning. Note that one and the same operator affects two linguistic areas: lexicon and grammar.
Suffixation of the simplex perfective form

Czech: dát  
Russian: dat'  
PERF-simplex

Czech: dá-VA(t)  
Russian: da- VA(t')  
PERF-give-2ndaryIMPERF
English: ‘to be giving’

The point of example (9) is to illustrate the change of a simplex perfective to a marked imperfective verb (i.e. change in grammatical aspect only).

Suffixation of a prefixed perfective form

Czech: VY-psat  
Russian: VY-psat'  
PREF-writePERF

Czech: VY-pis-ova(t)  
Russian: VY–pis-YYA(t')  
PREF-2ndaryIMPERF
 English: ‘to be writing out (all keywords)/ to be announcing (a job)’

The same suffix (-o)va/-(y)va can be attached to a prefixed verb denoting perfectivity. As in (9), the suffix in (10) also changes the grammatical aspect.  
The question to ask here is: what are the conceptual consequences of these operations? We do not completely adhere to how perfectivity and imperfectivity are usually described in the literature (for example Langacker, 1987, Bybee (1992: 144)): ‘...perfective, which indicates that the situation is to be viewed as a bounded whole, and imperfective, which in one way or another looks inside the temporal boundaries of the situation ...’.

We want to be more specific and claim that the crucial difference between the perfective and imperfective is the degree of focus on the right boundary of a situation (e.g. in the situation, in which a person is drinking up a glass of water, the right boundary is reached when the glass is empty and the person is in the post state of having finished a glass of water). That is, the function of the perfective in Czech and Russian is to encode that a situation has reached its right boundary and also that an assertion is made about
the possible post state of this situation (speaker's focus is on the right boundary). This is illustrated in Figure (1):

![Diagram of the perfective aspect in Slavic languages](image1.png)

**Figure 1:** Scope of the perfective aspect in Slavic languages

In contrast, the secondary imperfective accesses the time interval prior to the right boundary, but (!) does not ignore the right boundary of the situation altogether, rather the secondary imperfective defocuses it, as in Figure (2):

![Diagram of the secondary imperfective aspect in Slavic languages](image2.png)

**Figure 2:** Scope of the secondary imperfective aspect in Slavic languages

So, in both instances, the perfective as well as the imperfective aspect, the attention centers around the right boundary. This view of the imperfective aspect puts the frequently assumed similarity between the progressive (e.g. in English or Dutch) and the imperfective into question. Even though such a comparison might be linguistically interesting, our analyses show that the two aspectral operations are very different (for more details, see Section 3).

In the next section we will provide empirical evidence for the conceptual differences between the Czech and the Russian aspectral systems, as described above.
2.3. Underlying concepts in cross-linguistic comparison: empirical data

In this section, we will first explain, using production data from Czech, Dutch, and Russian native speakers as well as advanced L2 learners of these languages, that grammatical aspect is not only a matter of grammatical form, but also of conceptualization. This conceptual structure is reflected in the language-specific preferences of native speakers when using different aspectual forms in their L1, as well as reflected in the overall degree of grammaticalization within each system.

We base our analyses and description of aspectual systems on production data elicited from large samples of native speakers as well as learners. The experimental approach consists of an online production task, in which speakers (N=30) are asked to retell short everyday situations in answer to the question What is happening? (translated into all relevant languages), i.e. video clips depicting somebody drinking a glass of water, a dog running into a house, etc. In order to test our hypotheses, we make use of several sets of stimuli that are grouped according to situation type (e.g. causative actions, locomotions with +/- endpoints, etc.). This approach forces speakers to choose a particular aspectual form, which is appropriate or obligatory for a specific situation type. To strengthen our arguments we also use other methods, such as speech onset times and eye-tracking measurements. By adopting this line of empirical research, combining linguistic analyses of production data with psycholinguistic methodology, we believe that we are able to tap into speakers' conceptualization patterns.

The focus of the previous studies (e.g. Carroll & von Stutterheim, 2003; von Stutterheim & Carroll, 2006; Klabunde & von Stutterheim, 1999) was on Semitic, Germanic, and Romance languages. It has been shown that the way events are depicted is highly dependent on the feature +/- grammatical aspect. It has also been found that the underlying principles for event construal are perspective driven and strongly linked to patterns of grammaticalization. Additionally, recent L2 studies have provided evidence that even very advanced learners fall back on conceptualization strategies.

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9 Preliminary results clearly indicate that grammatical features guide speakers' attention patterns: To be more precise, the focus on the right boundary as predicted by our linguistic analyses of Czech and Russian is visible in speakers' eye movements (significant difference in amount of fixations in the critical region) and speech onset times (a significantly later speech onset times for speakers who are right boundary-minded). The patterns that were found in the production data thus have a psycholinguistic reality.
from their L1 when construing temporal events in a L2 (cf. von Stutterheim & Nüse, 2003; Schmiedtová & Sahonenko, 2008). These findings also hold true for learners describing situations that are more complex than single events such as narratives. Carroll and Lambert (2003) have shown that the use of aspectual categories influences the overall information structure in more complex tasks, such as composing written or oral narrative texts. The next sections will deal with conceptual representations that underlie the grammaticalized aspectual categories of Czech, Russian, and Dutch.

2.3.1. Differences between the Czech and the Russian aspectual systems

In the previous section we have discussed the concepts that are encoded by the two aspectual categories: the perfective and the imperfective. In what follows, we will present production data of native speakers of Czech and Russian (for both N=30). We will see that, despite very similar underlying aspectual systems, Czech and Russian native speakers have different aspectual preferences when construing events in their mother tongue. These preferences, as we believe, reflect the way in which these speakers view and conceptualize a situation.

First of all, in both the Czech and Russian native speaker data, there is a pronounced tendency to relate events to the right boundary (for Czech: 87% of all speakers; for Russian 77% of all speakers). This means that speakers mark an evident right boundary or endpoint of a situation as depicted in the stimulus. The stimuli set consisted of two types of scenes: in type one, the right boundary of a situation was visible in the clip and actually reached; in the other type, only a potential right boundary could be inferred but it was not depicted as being reached in the clip. The difference between the ways in which native speakers of Czech and Russian verbalized stimuli of the second type lies in the fact that Czech native speakers mention the endpoint more frequently (for Czech: 65% of all speakers; for Russian 25% of all speakers). In addition, Czech native speakers use the perfective form, independent of the scene type. Russians, on the other hand, showed a clear preference for using the secondary imperfective in all scenes. When they used the perfective form it was exclusively for scenes showing the right boundary being reached.
In other words, speakers of different languages follow different preferential patterns when they encode events. We believe that these preferences which so far have been described from a linguistic point of view (i.e. surface structure) are rooted in differences in conceptualization of events. In one and the same stimulus, Czech native speakers concentrate on the time interval at and after the right boundary whereas Russian native speakers are sensitive to the time interval preceding the right boundary.

At the same time, the data show that the distribution of the aspectual forms within each system differs, too. That is, in Russian the imperfectivizing suffix -(y)va is productive and can be applied to many verbs. In Czech, by contrast, this suffix only combines with a small group of verbs. Additionally, as pointed out by Schmiedtová (2004), the perfective form, when used in the present tense, can have a here-and-now meaning in Czech. This is completely impossible in Russian where the present perfective always refers to the future. We hypothesize that in Czech the increased use of the perfective form goes hand in hand with the prominence of the underlying conceptualization (as depicted in Figure 1). In other words, the extensive use of the perfective aspect in Czech results in a perspective focusing on the right boundary of a situation and/or its post state. The same logic applies to Russian, where the frequent use of the secondary imperfective goes hand in hand with the imperfective perspective (i.e. focus on the time interval preceding the right boundary without excluding it completely). It remains an open question, however, in what direction this influence takes place. The relevant point here is that despite big similarities between the two aspectual systems, Czech and Russian native speakers differ considerably as far as their aspectual preferences are concerned.

In summary, our experimental data show that there is interplay between grammatical categories and conceptual structures. Furthermore, we see that even speakers of typologically related languages display different conceptually driven perspectives (preferential patterns) when selecting information for event construal.

With respect to L2 learning, in Schmiedtová & Sahonenko (2008) we showed that advanced Czech and Russian learners of German adhere to their respective L1 preference. For example, Czech learners use the concept of perfectivity in L2 German although German does not have grammatical aspect at all. The adherence to this concept becomes apparent in more frequent mentioning of endpoints in the form of
local adjuncts (e.g. into the house) when retelling video clips depicting locomotions with ± endpoints. Even though German native speakers are also inclined to mention endpoints frequently (as pointed out in e.g. von Stutterheim & Lambert 2005), the number of endpoints verbalized by L1 Czech speakers of German exceeds the average for German native speakers. This is a relevant finding because it illustrates that patterns found for native speakers for event depiction in their native language still drive the perspectivization in L2 production. This important issue presents a considerable challenge to language teachers, since, for learners, being aware of the meanings of various aspectual categories is a good starting point for achieving native-like competence in a second language.

2.3.2. **Progressive in English and Dutch: grammaticalization and conceptual structure**

This part of the paper is devoted to the Dutch language. This is because in Dutch the progressive marker *aan het + V-INF zijn* is currently being grammaticalized (Flecken, 2006). We are aware that a truly grammaticalized aspectual marker is morphological in nature and that the Dutch marker is still a periphrastic construction. However, we speculate that in the course of the grammaticalization process it will be reduced to a verbal morpheme. This seems to be already noticeable when considering native speakers' shortened pronunciation of this construction.

Because the Dutch grammatical system is in the middle of this process, we envisage that learners are confronted with the hard task of figuring out how the system operates. We will first present some empirical data illustrating the range of applications of this marker. Furthermore, we will show that the range is expanding, following the grammaticalization process described in Bybee et al. (1994), which motivates our focus on verb type. We will briefly discuss some differences between the Dutch construction *aan het + V-INF zijn* and the German construction *am + V-INF sein* and we will draw parallels between the Dutch and the English progressive marker. Finally, we will demonstrate that progressivity and imperfectivity denote two different temporal concepts.
First of all, it is necessary to define our notion of grammaticalization. As mentioned above, grammaticalization means expansion of the range of contexts in which a particular construction is applied. The starting point for grammaticalization is the use of a particular construction in its prototypical lexical environment. This use is inherently linked to a specific meaning of the grammatical feature, which slowly spreads out to less prototypical uses/contexts (Comrie, 1976; Bybee et al., 1994).

Regarding the meaning of the Dutch progressive marker, in our data we observe that modifying a Dutch verb with the *aan het*-construction depicts situations as ongoing, as in example (11).

(11)  *Ik ben aan het lezen*

‘I am reading’

The aspectual marker in (11) defocuses both the initial and the final boundary of the situation and hence the temporal reference applies only to the here-and-now. The meaning of the Dutch *aan het*-construction is, therefore, identical with the meaning of the English *–ing*, which has the same function. Let us take a closer look at the similarities between Dutch and English.

At first sight, the Dutch marker looks like a locative construction because of the locative *aan* (like the English prepositions *at/on*) (Boogaart, 1999). Interestingly, the English progressive marker might have evolved out of a locative construction as well. This original construction looks similar to the contemporary Dutch periphrastic construction (12) (example taken from Bybee et al.: 132).

(12)  *He is on hunting*

‘He is hunting’

Comparing (11) and (12), we can see that the original meaning of both constructions could have been ‘to be in the place of doing something’. This originally locative meaning evokes a very deictic here-and-now context, and we assume that, in a way, this condition was the starting point for the grammaticalization of the *–ing* form (also in Jespersen, 1949; Comrie, 1976). We claim that it is also the starting point in the
grammaticalization process of the *aan het*-construction in current Dutch. In English, we see that this precondition is no longer necessary for application of –ing, as is apparent when looking at examples (13) and (14).

(13)  **Katja is having an affair with Christopher**

(14)  **Doro is practicing law**

The meaning of the –ing form in (13) and (14) is not necessarily restricted to the deictic (locative) here-and-now, but it is extended over a longer period of time (as in (13)), and it can even describe a habitual feature (as in (14)).

In Dutch, this type of application of the *aan het*-construction is not (yet?) possible. The meaning of this construction mostly refers, at this point in time, to agentive subjects who are in the midst of an activity at reference time or in the very deictic past as in (15a) and (15b).

(15a)  **Ik ben aan het werken**

‘I am working’

(15b)  **Gisteren was ik aan het studeren**

‘Yesterday, I was studying’

We presume that in contrast to English –ing, the use of the Dutch construction in true habitual contexts is more constrained10. The traditional view of the *aan het*-construction in Dutch literature is that it is merely ‘a locative construction with a ‘progressive-like’ meaning’ (e.g. Boogaart, 1999: 167). This view, however, does not take into account that the Dutch grammatical system is evolving and hence the progressive marker is becoming part of the core grammar.

In our view, we take the above observations to mean that the Dutch progressive construction is at the onset of a similar grammaticalization process but that, the English

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10 We are currently testing this hypothesis with Dutch native speakers by means of an acceptability judgement task.
progressive marker is in a far more advanced stage within this process. This has been shown empirically: in our data English native speakers, when construing events, use the –ing in all cases whereas the simple form is completely absent. That is, all native speakers of English (N=60) in our sample resort to the progressive marker when asked to tell what is happening or even what happens.

Going back to the Dutch language, in order to sketch a more accurate development of the aan het-construction, we focus on the types of verbs (Aktionsart, in line with Klein, 1994) that take the marker aan het (in line with Bybee’s approach to grammaticalization). The first step of grammaticalization, thus the prototypical context for using progressive markers, is to use it in situations denoting an activity, e.g. *wandelen* (‘to take a walk’), *zwemmen* (‘to swim’), but also *een boek lezen* (‘to read a book’), *de tafel poetsen* (‘to clean the table’). In the prototypical phase, the prerequisite for using the aan het-construction is the possibility of defocusing boundaries. All predicates that inherently refer to one of the boundaries (such as *to fall*) do not combine with the aan het marker at this stage of grammaticalization. The verb type which meets all these conditions is the one state verb, such as *zwemmen* ‘to swim’. In the next grammaticalization phase, the two state verb referring to a rather long time span is included (e.g. *veranderen* ‘to change’) followed by the two state verb denoting a short time interval (e.g. *breken* ‘to break’). The last step is the expansion to zero state verbs, such as *houden van* ‘to love’. Interestingly, in English the grammaticalization process of the –ing suffix has reached this last phase: It is grammatical to say *I am loving it* (in the sense of ‘I am enjoying it’) or *She is having a baby* (although they have two different temporal meanings).

To illustrate this process for Dutch, we present some preliminary results of an acceptability judgment task using a five degree scale ranging from completely acceptable (5) to completely unacceptable (1). We asked 30 Dutch native speakers to make a choice between a simple verb form and a verb marked by an aan het-construction in here-and-now contexts. We differentiated between the four types of verbs described above: one state verbs, two state verbs with long and short duration, zero state verbs. It turned out that one state verbs (e.g. *lezen* ‘to read’, *tekenen* ‘to draw’, *schilderen* ‘to paint’, *knutselen* ‘to tinker’, *pianospel’ ‘to play the piano’) triggered the most frequent use of the aan het-construction. The second best attractor for aan het was the two state verb with a
long duration 11 (as in aannemen ‘to finish’, afdrogen ‘to do the dishes’, veranderen ‘to change’), followed by the two state verbs with a short duration, e.g. vallen ‘to fall’, exploderen ‘to explode’, breken ‘to break’. The zero state verbs did not elicit any choices for the aan het-construction in the here-and-now-context.

As far as acceptability is concerned, this task has allowed us to interpret the values that the participants attached to the form they did not choose. They always had to grade the other form in terms of its acceptability in a given context. The most important finding was that participants rated the simple form as unacceptable in here-and-now contexts for the verbs expressing a game-like activity, examples of which are zwemmen ‘to swim’, tafeltennis ‘to play table tennis’, schilderen ‘to paint’. Moreover, they rated the aan het form as unacceptable in clauses with motion verbs plus a depicted endpoint (as in *Ik ben in het water aan het springen ‘I am jumping into the water’). These results make sense: The latter verb type expresses the shortest possible duration, namely the time interval right before reaching the final boundary, which makes defocusing of boundaries quite impossible.

A further interpretation of these results is that in a number of cases the aan het-construction was considered compulsory by the participants. As pointed out above, this is the case for situations expressing activities taking place in the here-and-now. The simple form in these cases was rated unacceptable because using the simple form renders a habitual meaning in these contexts. For example, following the question Wat ben je aan het doen? ‘What are you doing?’ all Dutch native speakers in our sample choose the aan het form in combination with one-state verbs, e.g. Ik ben aan het werken ‘I am working’. The simple form, Ik werk ‘I work’, is rated as completely unacceptable in such contexts. In summary, when activity verbs and verbal predicates are used in a here-and-now context the aan het marker is obligatory.

Again, this is comparable to English, because the difference between I am dancing and I dance is that the former implies an activity that is taking place at the time of utterance; whereas the latter refers to a habitual activity (a hobby or perhaps even a job).

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11 The duration was brought about through the description of the situation. The verb itself does not reveal the duration of the situation. For example, in the case of veranderen, the situation was described as ‘changing the interior of one’s apartment’, elongated with several adverbials expressing that you have been working on this for a very long time so far and you will not finish this in the near future.
Bybee et al., (1994) label this phenomenon as grammaticalization of zero (i.e. the unmarked form receives a different meaning in certain contexts). Of course we realize that the depiction of the grammaticalization process is rather different from the question of what the actual attractors are for using the *aan het*-construction. It cannot solely depend on the verb type, but will rather be a matter of the entire predicate.

An interesting comparison to draw at this point is between Dutch and German. Though both languages are typologically similar, one important difference is that Dutch is grammaticalizing a marker for ongoingness, whereas in German ongoingness is mainly expressed by lexical means. German has a construction, which is form-wise very similar to the Dutch one. Consider example (16).

(16) GER: *Rieke ist (gerade) am/beim Kochen*
NL: *Rieke is aan het koken*
ENG: *Rieke is cooking*

The German periphrastic construction is merely a regional and stylistic variant of Standard German while in Dutch it is an obligatory marker in such a context, compared to the unmarked simple verb form. Furthermore, the progressive markers in English as well as Dutch are systematically used by native speakers for the expression of other temporal concepts, such as the expression of simultaneity between two events in present tense. The German construction is never produced in such contexts (see Schmiedtová, 2004; Flecken, 2006).

Looking at these similarities from a learner's point of view, we have another occurrence of false friends. Learners have to deal with two very similar forms that do not show a similar distribution across verbs and, in addition, are employed by speakers for different purposes.

The last point to be addressed in this section is the difference between progressive and imperfective aspect. As we have shown in Section 3.1, speakers of Slavic languages do not ignore the right boundary of the depicted situation when using the marked imperfective, but rather include it in their conceptualization and verbalization of situations. In other words, by using this form speakers refer to the time interval anchored in the here-and-now and to the linkage of this time interval to the
right boundary. The Dutch and the English progressive, by contrast, are used to link situations to the deictic here-and-now without any explicit temporal information about the right (or left) boundary. The progressive marker merely expresses ongoingness. This is especially true in Dutch where the grammaticalization process of the *aan het* marker has started out exactly from this context.

To relate this observation to the conceptualization of temporal events, we know from eye-tracking studies that Dutch and English speakers concentrate only on the ongoing process of situations regardless of whether they depict a right boundary (von Stutterheim & Carroll, 2006; Carroll et al., in press). We speculate that Slavic speakers, when using the secondary imperfective to describe ongoing situations of the same type as above, will also pay attention to the right boundary.

To conclude this section, it is important for researchers, teachers and learners to take into consideration the conceptual differences between the imperfective and the progressive aspects.

2.4. Conclusions

The present paper centers around the idea that the analysis of grammatical aspect contains at least the following two different areas: the form and the meaning. Another idea is the usage and applicability of aspectual forms in context that are determined by the preferences of native speakers.

When investigating aspectual forms cross-linguistically many similarities can be observed. The tricky issue is, however, that the mere existence of a form in a system or similar forms across systems does not necessarily entail an equally frequent production. To this end, we have demonstrated on the basis of a comparison between German and Dutch that similar forms with comparable meanings do not show the same distribution in native speakers' production. The same holds true for the language pair Czech and Russian. Despite the similarities between the two aspectual systems, Czech and Russian native speakers show different preferences for applying aspectual forms. These preferential patterns are closely linked to differences in conceptualization,
which only become evident when examining empirical material collected by means of experimental methods.

The second area of analyzing aspectual systems is meaning. We have claimed that categories such as progressive and imperfective aspect, albeit applicable in comparable contexts, encode different temporal concepts. Again the same statement holds for the terms telic and perfective. They too are not interchangeable and, in addition, belong to two different kinds of aspect: lexical (telic) vs. grammatical (perfective).

Note that even when two forms and their temporal meanings are very similar there can still be a difference with respect to the conditions under which these forms can be employed. This is directly connected to the degree of grammaticalization of the respective aspectual form. This has been presented on the basis of the progressive markers in English and Dutch.

Another point to be mentioned here is that many divergences pointed out in this paper do not only occur between typologically distinct languages (such as Russian and German), but also between languages that are typologically closely related (e.g. languages within the Slavic or Germanic group). To summarize the differences between the different languages that we addressed, consider Figure 3.

<table>
<thead>
<tr>
<th>Language</th>
<th>Czech/Russian</th>
<th>English</th>
<th>Dutch</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>suffixes/prefixes</td>
<td>-ing</td>
<td>aan het + V (inf) zijn</td>
<td>am/bei + V (inf) sein</td>
</tr>
<tr>
<td>Temporal</td>
<td>± reaching the right boundary</td>
<td>defocusing boundaries</td>
<td>defocusing boundaries</td>
<td>defocusing boundaries</td>
</tr>
<tr>
<td>Function</td>
<td>imperfective/perfective</td>
<td>progressive</td>
<td>progressive</td>
<td>??</td>
</tr>
<tr>
<td>Term</td>
<td>both aspects fully grammaticalized</td>
<td>fully grammaticalized</td>
<td>in the process of being grammaticalized</td>
<td>not in the process of being grammaticalized</td>
</tr>
</tbody>
</table>

Figure 3: Overview aspectual devices in different languages

These observations are highly relevant for teaching and learning. It is reasonable to assume that to focus on form is the least complex approach to teaching aspect, although we have illustrated that even in this area false friends can be identified. As far as meaning is concerned the issues are equally serious. Several aspectual categories that
we dealt with are used synonymously in the literature, even though they denote semantically and conceptually different entities.

Now, what about L2 learning? It is true that at the onset of acquisition false friends can aid and support the learning process. Looking at advanced learners, on the other hand, provides a considerable piece of evidence that false friends hinder learners in the possibility of achieving nativeness (e.g. English learners of Czech in Schmiedtová, 2004). Note that advanced learners are in perfect command of the aspectual forms and even their meaning (i.e. they do not make any grammatical errors), but they do not successfully (not in a native speaker-like fashion, that is) use the principles that govern the application of the forms. In other words, they do not follow native-like preferences, but rather rely on patterns of use from their respective L1s.

We are not sure whether these preferences can be learned at all (for a discussion of the feasibility of ultimate attainment, see e.g. van Boxtel, 2005). Nevertheless, it is essential to attempt to encourage the learning of aspectual distinctions as a whole. That means that linguists and language teachers have to realize that the debate on aspect is not only a matter of terminology, but that aspect is a conceptual category that requires empirical research. We believe that the approach to view aspect as a conceptual category and to adhere to empirical research when investigating this linguistic domain would be beneficial to teachers as well as learners.
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Chapter 3: How grammaticized concepts shape event conceptualization in the early phases of language production: insights from linguistic analysis, eye tracking data and memory performance*

Abstract

The role of grammatical systems in profiling particular conceptual categories is used as a key in exploring questions concerning language specificity during the conceptualization phase in language production. The study focuses on the extent to which cross-linguistic differences in the concepts profiled by grammatical means in the domain of temporality (grammatical aspect) affect event conceptualization and distribution of attention when talking about motion events. The analysis covers speakers of Standard Arabic, Czech, Dutch, English, German, Russian and Spanish and goes beyond linguistic evidence to include data from eye tracking experiments and memory tests. The findings show that direction of attention to particular parts of motion events varies with the use of grammaticized means to express imperfective/progressive aspect. Speakers of languages that do not have grammaticized aspect are more likely to take a holistic view when talking about motion events and attend to as well as refer to their endpoints, in contrast to speakers of aspect languages.

* This chapter has been submitted for publication (authors: C. von Stutterheim, D. Bastin, M. Carroll, M. Flecken & B. Schmiedtová).
3.1. Introduction

The way in which events are perceived and conceptualized is shaped in part by factors that are task driven and perspective based, as illustrated by studies on phenomena such as inattentional blindness (Mack & Rock, 1998) and change blindness during information intake (Simons & Levin, 1997; Simons, 2000). If a witness at court is asked to provide information on an event, for example, the response given in solving this task will be defined by the setting as well as the nature of the question: ‘what did you actually see at that point?’, or ‘what did the bank robber look like?’ The way information is organized in language production will differ in both cases. Before any statement is made, the speaker will have to activate his knowledge of the event as a whole, select the material he wants to put into words and then decide on the order in which it should be presented. These processes relate to the phase of conceptualization (Levelt, 1999) in language production, i.e., the phase in which speakers prepare information for expression before passing it on to the formulator. Clearly, the nature of the verbal task, as defined by the explicit or implicit question, influences these initial processes. But are they also influenced by the structural properties of the particular language used? In other words, is message preparation at the level of the conceptualizer to some extent language-specific? One form of specificity results from the particular way in which a language has lexicalized concepts, compared to those that have been grammaticized, since both play a role in how events, or parts of events, are described.

An area where this is relevant in the description of events is temporality, in particular the concept of aspect, which relates to the perspective under which particular temporal properties of an event are presented. In English, for example, one and the same situation can be described as ongoing (John was crossing the street) or as completed (John has crossed the street); in fact, aspect is a core grammatical category in English where use is obligatory in specific contexts: Jane is in the basement; what is she up to? She *fixes the shelf. The simple form *fixes is not acceptable since speakers are required to make the aspectual distinction given with she is fixing the shelf, where the ongoingness of the event is made explicit for the relevant time of assertion. In other languages, such as German, for example, the concept of aspect is not grammaticized; if speakers want to
differentiate between various ways of presenting one and the same situation temporally, they must choose other means such as temporal adverbials (Hans überquerte gerade die Straße, lit 'Hans crossed just now the street' Hans just crossed the street) or periphrastic constructions such as Hans war dabei, die Straße zu überqueren (lit. 'Hans was there-at to cross the street' Hans was just crossing the street), but these devices are optional in German. The precise meaning of viewpoint aspect (cf. Smith, 1991) and the degree to which related concepts are grammaticized vary considerably across languages. Thus, the Russian imperfective (on rabotal - he work-IMPERFECTIVE-PAST He was working) is related to, but not identical with the English progressive. Language-specific differences become manifest when the speaker eventually puts the message into words: in the formulator stage of language production, the speaker must use the constructions his language offers. But do they already influence language processing at the conceptualization stage in language production, the phase in language production for which the well-known thinking for speaking hypothesis has been proposed (Slobin, 1996): the preparation of information for verbalization is shaped by specific linguistic categories available in the speaker's linguistic system. The present study investigates whether linguistic categories focus speakers' attention on certain aspects of a given event while preparing to describe it, the seeing for speaking hypothesis: if language A encodes a particular concept grammatically and native speakers of language A relate to this grammaticalized concept frequently and systematically, then speakers of this language are very likely to attend to visual features of a given situation that are linked to this concept. By contrast, if language B codes the same concept lexically or by phrasal means and native speakers of language B do not encode this concept frequently and systematically then they may not attend to relevant features of a given situation, or at least not to the same extent.

We investigate event conceptualization in seven languages (Standard Arabic, Czech, Dutch, English, German and Russian) and show how structural differences in the temporal-aspectual domain affect the early phases of language production, using eye tracking as the main tool in investigating this phase. The data consist of dynamic stimuli showing everyday events. The study builds on a number of earlier cross-linguistic comparisons, which, together with relevant work of other research groups, will be outlined in the following section.
3.2. Earlier research

Initial research in the field of visual attention and language production (eye-tracking studies) focused on relatively simple linguistic tasks such as object naming or the production of single-sentence event descriptions, using pictures as stimuli (cf. Meyer et al., 1998; Griffin & Bock, 2000; Meyer & van der Meulen, 2000). Factors driving attention in the events depicted (agent-action-patient) have been attributed to the degree of agentivity, since speakers direct attention to the participant which is highest on an agentivity scale (proto-agent) and encode it as the first constituent in the clause, if necessary by means of a passive construction: a man is being chased by a dog (Griffin & Bock, 2000). What happens, however, if the grammatical structure of a language does not provide a close relationship between subject role and initial position, in contrast to English? German, for example, does not have this tight grammatical link between syntactic subject and clause-initial position, since it offers the option of placing the direct object or the indirect object in initial position.

Language-specific differences of this kind are potentially relevant when investigating the link between visual attention patterns and language production. Given the rate at which decisions in language planning are executed in language production, concepts that have paved their way into the grammar of a language may serve, on a default basis, in the direction of attention and selection of associated preferences during conceptualization and formulation. We assume that they are highly automatized and facilitate high speed access during language production in relevant contexts (Carroll, von Stutterheim & Nüse, 2004).

Research so far has focused on language-specific differences related to different lexicalization patterns across languages, in particular to the way in which verbs encode information on manner of motion versus information on direction. Research on these preferences was initiated by Talmy (1985) and has revealed a number of remarkable and often very subtle differences in lexicalization (cf. Slobin, 1997a, 1997b). Speakers exhibit language-specific preferences in their linguistic categorization of events which also affect conceptual performance (recognition, memory, similarity judgments) in keeping with the language type spoken, as investigations show.
A further question addressed in this research framework is whether language-specific mapping preferences also affect non-linguistic conceptual performance. The question has been examined by including carefully designed non-linguistic tasks (e.g. categorization, memory, recognition, similarity judgments) in the experimental studies. Some studies have shown systematic linguistic preferences in linguistic tasks (e.g. narrations, picture description), which, however, disappeared in non-linguistic tasks (e.g. Papafragou, Massey & Gleitman, 2002, 2006). However, several other studies have found language-specific differences in non-linguistic tasks that were performed after verbal encoding (e.g. categorization: Naigles & Terrazas, 1998; memory: Marian & Fausey, 2006; Pavlenko, 2003; Slobin, 2005; memory and similarity judgments: Gennari et al., 2002; recognition: Billman & Krych 1998; Billman, Swilley & Krych, 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 found in descriptions of motion events in the same study for each language (Gennari et al., 2002: 74).

The possible role of grammaticized linguistic means in direction of attention in language production was explored in an eye tracking study on motion events which compared how speakers of English and German process the relevant visual input (von Stutterheim & Carroll, 2006). When viewing a series of everyday events (video clips which included a set of motion events) and telling what is happening, speakers of English conceptualize the event as ‘in progression’ and segment the situation into phases (inceptive, intermediate, terminative phase): a car is driving along a country road (intermediate phase); a truck is approaching a village (terminative phase), thereby focusing on the phase that is prominent in the clip. Speakers of German take a holistic view and typically represent the event with an endpoint, i.e. as having a point of completion (ein Auto fährt auf einer Straße zu einem Dorf, a car drives along a road to a village). The linguistic differences were reflected in the degree of visual attention paid to the endpoint as depicted in the video clip: native speakers of English first direct attention to the phase focused in the video clip (intermediate phase). Fixations on a possible endpoint occur after speech onset and information on this phase is generally not mentioned. Speakers of German are more likely to view the event in holistic terms and
direct attention to a possible endpoint from the outset, i.e. before speech onset, in contrast to English speakers. The findings of the eye tracking study on the distribution of attention across motion events by speakers of English and German reveal processing differences with respect to direction of attention during information intake, as well as systematic differences in event conceptualization which are language specific. Events are thus either conceptualized as phasally segmented, as in English, or viewed in holistic terms, as in German, leading to language-specific differences in the focus on endpoints.

A recent eye-tracking study on direction of attention in motion events (Papafragou, Hubert & Trueswell, 2008) also reveals differences in how speakers attend to aspects of motion events that are language specific. It was found that Greek speakers were more likely than English speakers to focus the path-endpoint region, and English speakers were more likely than Greek speakers to attend first to 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. The overall conclusion drawn in this study is that language-specific differences found in event conceptualization when using language do not affect non-linguistic conceptual performance.

To sum up, several studies demonstrated that language-specific categories affect event conceptualization. No consensus so far has been reached 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\(^\text{12}\) (e.g. Naigles & Terrazas, 1998; Gennari et al., 2002). Recent eye-tracking studies of motion events corroborate the view that language specific-categories focus speakers' attention on specific components of the presented event (von Stutterheim & Carroll, 2006; Papafragou et al., 2008).

3.3. The present study

The present study focuses on temporal concepts and shows how speakers of seven languages, which differ in the way aspectual concepts are grammaticized, also differ in

\(^{12}\) This however only applies when linguistic knowledge is recruited for the given non-linguistic task.
the direction of attention to temporal features of events. The languages English, Standard Arabic, Russian, Spanish, Czech, Dutch, and German differ with respect to the use of imperfective/progressive aspect - the temporal viewpoint that explicitly represents an event as ongoing - and the presence of grammaticized imperfective/progressive forms. Figure 1 provides an overview of the relevant differences in the study and classifies the aspectual verb-morphological systems according to standard descriptions found in typological studies on tense and aspect systems (cf. Dahl, 1985).  

<table>
<thead>
<tr>
<th>Temporal categories grammatized</th>
<th>Arabic</th>
<th>English</th>
<th>Russian</th>
<th>Czech</th>
<th>Spanish</th>
<th>Dutch</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tense</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Imperfective</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Progressive</td>
<td>yes</td>
<td>yes</td>
<td>yes secondary imperfect</td>
<td>yes secondary imperfect</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

Figure 1: Tense-Aspect systems

At one end of the continuum there is Standard Arabic, Russian and English with fully grammaticized verbal aspect, where this concept is encoded morphologically on the verb; at the other end there is Dutch and German in which use of this aspectual distinction is not obligatory, and it is not encoded morphologically on the verb. Spanish can be placed in between, so to speak, since progressive aspect, although not (yet) obligatory, is used in the present tense on a productive basis.

On the basis of the results for German and English event descriptions, we formulated the following hypothesis: When verbalizing information on scenes showing goal oriented motion events, i.e., where the figure in motion is underway, but a possible goal point shown in the video clip is not actually reached during the phase of the event shown, speakers of languages that do not use grammaticized imperfective/progressive aspect will both attend to endpoints of the event during information intake as well as refer...

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13 Although use of the terms imperfective/progressive is inconsistent in denoting the viewpoint ‘event is ongoing’ (cf. Dahl, 1985), we draw here on Dahl’s classification as a point of reference since this is the most comprehensive cross-linguistic study on this topic.

14 There is a grammaticized opposition between the imperfective and the perfective in the past tense.
to endpoints in the critical scenes to a significantly higher degree than speakers of languages in which the temporal-aspectual concept ‘event is ongoing’ is grammaticized, since this allows speakers to focus on specific phases of the event. In other words, speakers of languages with grammaticized aspect will be more likely to attend to the phase shown in the video clip, which depicts the intermediate stage of the event, and does not show the entity in motion actually approaching the possible goal, although a possible goal is visible. No difference between the two groups is predicted for the items showing motion events in which the endpoint is reached, since, in these cases, the terminative phase of the motion event (entity in motion approaching a goal) is focused in the clip.

3.3.1. Experiment I: eye tracking in dynamic scenes

3.3.1.1. Participants

Each language group consists of 20 native speakers from comparable socio-cultural backgrounds (students and post graduates), aged between 20 and 35. Numbers were balanced for gender (see questionnaire Appendix B) and the participants had normal or adjusted vision. The same participants took part in the language production experiment (Experiment I) and the subsequent memory task (Experiment II). Data collection was carried out in the language laboratory at the Institute of General and Applied Linguistics, University of Heidelberg.

3.3.1.2. Apparatus

The apparatus used in recording eye movement was the remote system *Eye Follower™* developed by Interactive Minds, Dresden, Germany on the basis of an *LC-Technologies* system. The cameras are attached to the monitor for binocular eye tracking and the eye-gaze system accommodates all natural head movements during normal computer operation. The gaze point sampling rate is 120 Hz, with a highly accurate 0.45 degree gaze-point tracking accuracy throughout the operational head range. The TFT monitor is 20” and participants were seated approximately 50 to 80 cm from the screen.
3.3.1.3. Material

The stimulus material consisted of 60 video clips which were six seconds in length. The blank between the scenes was 8 seconds, allowing participants sufficient time to verbalize relevant information. The clips show every day situations that were filmed and cut by the project group (see below a screen shot of one of the critical items).

Picture 1: A car driving along a road (to a village)

10 critical items were combined with 10 control items and embedded in 40 fillers. The critical items consist of scenes showing a figure in motion (animal, vehicle or person) on its way along a road or track. The scenes finish before reaching an endpoint, but a potential endpoint is visible in all cases (e.g. in the scene showing a car going along a country road, a village can be seen at the end of the road, as in picture 1; similarly, two people can be seen walking along a path towards a house without actually reaching it; a full list of the scenes analyzed is given in Appendix A). In the 10 control items, the figure in motion reaches a goal (e.g. walking into a house, driving into a garage, as shown in Appendix A). The fillers show 10 static scenes (e.g. a candle burning, a person
sun bathing) and 30 dynamic scenes with causative events (e.g. making a necklace; moulding a vase). The 60 clips were presented in pseudo-randomized order (four randomized lists were established and participants within a language group were assigned to these lists on an equal basis), making sure that critical and control items were embedded between at least two filler items. Each recording was preceded by a training session with 6 items covering all categories.

3.3.1.4. Procedure

Each session started with the following instruction which participants were asked to read: You will see a set of 60 video clips showing everyday events which are not in any way connected to each other. Before each clip starts, a blank screen with a white focus point will appear. Please focus on this point, since this allows us to proceed to the next video clip. Your task is to tell 'what is happening', and you may begin as soon as you recognize what is happening in the clip. It is not necessary to describe the video clips in detail (e.g. 'the sky is blue'). Please focus on the event only.

Instructions were translated into all languages by a native speaker; the experimenter was also a native speaker of the language tested, which means that all exchanges took place in the participants' native language in order to ensure that this was fully activated during the experiment. Given the automatic adaptation of the cameras to eye position (automatic eye acquisition), no recalibration was necessary during the production task. Cases in which initial calibration was not fully successful were excluded. Each session lasted approximately 15 minutes with no option of manipulating the presentation pace of the 60 items. Following the eye-tracking experiment, participants spent approximately 5 minutes filling out a questionnaire on their educational and linguistic background. They were then asked to carry out a memory test which took between 2 to 5 minutes. This task was used to test memory performance with respect to the (potential) endpoints shown in the video clips (see Experiment II, section 6). This part of the experiment was not announced at the outset so speakers could not prepare for it during information intake.
3.3.1.5. Data coding and analysis

The transcribed data were coded for verbal forms (temporal/aspectual categories) as well as references to endpoints, and both transcripts and codes were checked by a second researcher. Language production and eye tracking data were evaluated per language and compared cross-linguistically.

For the analyses of the eye tracking data areas of interest (AoI) that included the endpoint area of the motion event were defined for all critical and control items. This area remained fixed in the respective clip while the figure moved along a path. The AoIs differed in size depending on the area at goal. In the clip illustrated in Picture 2, for example, the AoI analyzed (houses at the bend in the road) is framed by a red rectangle.

Picture 2: A car driving along a road (to a village): AoI

The analyses were carried out automatically using the software system NYAN, developed by Interactive Minds, and adapted to the requirements of analyzing eye gaze in relation to a dynamic visual input. In order to quantify patterns of eye movement, the measures adopted in the present analyses are those tested and proven in a large number of studies: overall number of fixations in AoI (total fixation counts), and the probability of speakers having a 1st and 2nd pass in AoI (fixations in AoI: 1st and 2nd pass), where a pass is defined as the period of fixation from the first fixation in the area of interest.
until the first fixation outside the area of interest\textsuperscript{15}. Fixations within the AoI were calculated by NYAN 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. Accordingly, all samples with a greater deviation (i.e. gaze movement) are treated as saccades, i.e., movements that cover more than 0.5° in scene perception (at the average distance and monitor dimensions given).

3.3.1.6. Results\textsuperscript{16}

3.3.1.6.1. Language production data

Taking both the critical and control items, 'endpoint not reached' and 'endpoint reached', the linguistic data produced by speakers of the different languages were analyzed and compared for all language groups. As indicated above, the number of endpoints mentioned was taken as the basis for comparison in both conditions, and the following examples for English and German illustrate the main patterns found in the data:

<table>
<thead>
<tr>
<th>control condition</th>
<th>critical condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>(endpoint reached)</td>
<td>(endpoint not reached)</td>
</tr>
<tr>
<td><strong>English</strong></td>
<td></td>
</tr>
<tr>
<td>a car is driving into a garage</td>
<td>a car is driving along a country road</td>
</tr>
<tr>
<td>(endpoint mentioned)</td>
<td>(endpoint not mentioned)</td>
</tr>
</tbody>
</table>

| **German**                                          |                                                        |
| ein Auto fährt in eine Garage                       | ein Auto fährt auf einer Landstraße zu einem Dorf       |

\textsuperscript{15}The first and second pass are defined as the first or second time after stimulus onset that speakers spent a period fixating points within the AoI.

\textsuperscript{16}Trials with total track loss amounted to approximately 20% and were excluded from the statistical analyses.
A car drives into a garage  A car drives on a country road to a village
(endpoint mentioned)  (endpoint mentioned)

The analysis comparing the language groups for the number of endpoints mentioned showed no significant difference for the control items ($\chi^2(6) = 7.91$, n.s.). This confirmed the hypothesis that, when the phase of the event shown in the stimulus includes reaching the endpoint, no difference across languages should occur. A comparison across all languages of the number of endpoints mentioned in the critical condition shows a significant effect ($\chi^2(6) = 32.87$, $p < .05$). Figure 2 presents the results for speakers of all languages in terms of the percentage of endpoints mentioned in the critical condition:

![Figure 2: Percentage of endpoints mentioned for the critical items](image)

The figure shows that Czech, Dutch and German form one group in which the mentioning of endpoints in the critical condition is frequent. No significant effects were found within this group (German-Czech $\chi^2(1) = 0.04$, n.s.; German-Dutch $\chi^2(1) = 0.27$, n.s.; Czech-Dutch $\chi^2(1) = 0.5$, n.s.).

According to our hypothesis, speakers of languages that use imperfective or progressive aspect in describing the critical scene, and thus view the event as ongoing, will form a group: This applies for Arabic, English, Spanish and Russian. No
significant effects were found within this group (English-Spanish $\chi^2 (1) = 0.21$, n.s.; English-Russian $\chi^2 (1) = 0.09$, n.s.; English-Arabic $\chi^2 (1) = 2.6$, n.s.; Spanish-Russian $\chi^2 (1) = 0.58$, n.s.). Comparing the (+) aspect and (-) aspect group, the number of endpoints mentioned in the critical condition by Russian and Dutch speakers showed a trend ($\chi^2 (1) = 3.02$, $p = .082$). Comparisons between Russian and German and Russian and Czech showed significant effects (Russian-German $\chi^2 (1) = 5.07$, $p < .05$; Russian-Czech $\chi^2 (1) = 5.95$, $p < .05$).

With the exception of Czech (see section 3.1.6.3), the results for the production data confirm the central hypothesis: In scenes in which the endpoint was not reached, speakers of languages that do not use an aspectual viewpoint (non-aspect languages) verbalize more endpoints than speakers of languages that use an aspectual viewpoint ('event is ongoing').

3.3.1.6.2. Eye tracking analysis

The following measures were used to assess and compare the eye tracking results: the total frequency of fixations within the AoI (total fixation counts) and the percentage of speakers with a first and second period of fixation (first and second pass) in the AoI (fixations in AoI: First/second period of fixation).

**Total fixation counts**

An analysis was conducted for all languages for the control condition ('endpoint reached') and critical condition ('endpoint not reached'). For the control condition, no significant effect in the number of fixations in the AoI was found ($\chi^2 (6) = 8.06$, n.s.). Significant differences were found in the critical condition ($\chi^2 (6) = 18.44$, $p < .05$). Figure 3 provides an overview of the average total fixation counts in the AoI in the critical condition:
For the critical condition, a Mann-Whitney test revealed a clear difference for total fixation counts between the highest and lowest end of the spectrum. Effects were found for Arabic vs. Czech (U = 19528, p < .05) and Arabic vs. German (U = 25152.5, p < .05). Russian and Spanish speakers again cluster with Arabic since they too have fewer fixations in the AoI when compared to Czech and German speakers (a trend for Russian-German U = 26057.5, p = .07; Spanish-German U = 23901, p < .05; Russian vs. Czech U = 20243.5, p < .05; Spanish-Czech U = 18688, p < .05). English and Dutch do not belong to the two identified clusters for this domain of analysis but are in between, since there are no significant effects.

**Fixations in the AoI: First period of fixation**

Figure 4 shows the percentage of subjects in each language that had at least one period of fixation (the first pass) in the AoI, in the critical condition.
A two-way ANOVA across participants (F1) and across items (F2) revealed a significant condition effect (F1 (1, 128) = 169, MSE = 0.01, p < .05; F2 (1, 22) = 3.60, MSE = 0.27, p < .05). There was a significantly higher probability of having a period of fixation in the AoI in the critical condition (M = 0.87), compared to the control condition (M = 0.72). There was a trend for language effect across participants (F1 (6, 128) = 1.96, MSE = 0.02, p = .075). A significant language effect was found across items (F (6, 132) = 3.45, MSE = 0.01, p < .05). Also in the two-way interaction there was a trend, but only in F1 (F1 (6, 128) = 1.91, MSE = 0.01, p = .084); in F2 there was no significant interaction (F2 (6, 132) = 1.18, MSE = 0.01, n.s.). T-tests show a significant condition effect for each language (Russian t (19) = 5.71, p < .05, Czech t (19) = 3.01, p < .05, Arabic t (19) = 2.43, p < .05, Spanish t (19) = 4.78, p < .05, German t (19) = 7.61, p < .05, English t (19) = 7, p < .05, Dutch t (19) = 5.75, p < .05).

To investigate the effect of language in more detail, two one-way ANOVAs were conducted. Again a significant language effect was found for the critical condition (F (6,128) = 3.39, MSE = 0.01, p < .05). Additional independent t-tests were calculated to examine the differences between individual languages in this condition. The difference between Russian and German was significant (t (38) = -2.24, p < .05). When
comparing Spanish to Dutch and German, trends were found (Spanish-German \( t (38) = -1.8, p = .08 \); Spanish-Dutch \( t (38) = -1.9, p = .06 \)). This means that the following clustering of languages was found for this analysis: Arabic, Spanish, Russian and English speakers form a cluster and differ from Czech, Dutch and German speakers.

Fixations in the AoI: Second period of fixation

A corresponding analysis was carried out for the probability of having a second period of fixation (second pass) in the AoI across languages. Figure 5 shows the results for the critical condition.

![Figure 5: Percentage of speakers who had a second period of fixation (pass) in the AoI (critical condition)](image)

A two-way ANOVA across participants (F1) and across items (F2) reveals a significant condition effect (F1 (1, 128) = 323.81, MSE = 0.02, \( p < .05 \); F2 (1, 22) = 6.96, MSE = 0.42, \( p < .05 \)). There is a significantly higher probability of having a second pass in the critical condition (M = 0.65) compared to the control condition (M = 0.38).

The analysis across participants shows no significant language effect (F1 (6, 128) = 1.40, MSE = 0.03, n.s.). In the analysis across items a significant language effect was found (F2 (6, 132) = 2.27, MSE = 0.01, \( p < .05 \)). There is also a significant two-
way interaction (F1 (6, 128) = 3.36, MSE = 0.02, p < .05; F2 (6, 132) = 2.60, MSE = 0.01, p < .05). T-tests present a significant condition effect for each language (Russian t (19) = 7.28, p < .05; Czech t (19) = 6.14, p < .05; Arabic t (19) = 5.14, p < .05; Spanish t (19) = 4.22, p < .05; German t (19) = 9.13, p < .05; English t (19) = 8.85, p < .05; Dutch t (19) = 7, p < .05).

To investigate the effect of language in more detail, two one-way ANOVAs were conducted. In the critical condition there is a significant language effect (F (6, 128) = 2.56, MSE = 0.02, p <.05), while there is no significant language effect in the control condition (F (6, 128) = 1.459, MSE = 0.02, n.s.).

Separate t-tests were calculated to investigate the differences between individual languages in the critical condition. The most relevant differences were found between Czech and Spanish (t (38) = 2.07, p < .05) and between English and Dutch (t (38) = -2.27, p < .05).

3.3.1.6.3. Discussion of Experiment I

The results of the language production and eye tracking analyses across the different languages show a systematic pattern along a continuum between highly endpoint oriented, on the one hand, and less endpoint oriented on the other. The distribution of the language-specific results is broadly consistent across the tests, with the exception of Dutch and English on one measure (total number of fixation counts), and Czech for the entire analysis, as mentioned above.

As the findings show, Czech speakers cluster with speakers of the endpoint-oriented languages Dutch and German on all counts. Even though Czech, like Russian, is an aspect language, speakers behave differently when conceptualizing motion events. The findings in this study confirm results from other analyses which show that the Czech aspectual system has been affected by language contact with German. In particular, a re-analysis of the perfective has led to a verbal form which allows for the integration of endpoints under the perspective of the deictic now that is expressed in the combination of a perfective (event marked as complete) and the present tense, under a
present tense reading (cf. Schmiedtová & Sahonenko, 2008, Schmiedtová, 2009). In contrast to descriptions in reference grammars, the observed compatibility of the perfective and the present tense in Czech shows a marked difference from the other Slavic languages with respect to grammaticized aspect. The present findings illustrate the importance of comparing actual usage preferences across languages, in addition to cross-linguistic categorizations based on the linguistic system.

In summary, the findings correspond on the whole to the central hypothesis: if the endpoint of a motion event is not reached in the stimulus, the direction of attention to endpoints, as well as the extent to which they are encoded, varies depending on the use of grammaticized means to express aspeccual distinctions and associated patterns of event conceptualization.

3.3.2. Experiment II: memory tests

3.3.2.1. Participants

Participants were identical with the group in Experiment I.

3.3.2.2. Material

Following the production task, all participants were given a memory test covering 15 scenes, 10 critical and 5 fillers from the stimulus set. They were shown printed colored screen shots in which a particular section was cut out. This was the endpoint area for the critical items (see Picture 3 below), while in the filler items a specific object was cut out. The latter items were included in order to control for general memory performance. The hypothesis predicts that speakers of endpoint-oriented languages would perform better in remembering objects present in the endpoint region, compared to speakers of

---

17 The following example from Czech gives a possible answer to the question *What is happening?* ("Co se děje?"): Holka vy-pije (Present Perfective in here-and-now interpretation) celou sklenici (A girl drinks Present up an entire glas). This is not grammatical in Russian: *Devuska vypet celyj stakan* (only possible in future tense reading). These results are particularly interesting from a methodological point of view. The results of experimental studies are relevant for theoretical studies on the semantics of aspect.
aspect languages which allow phasal decomposition of the motion event to focus on the intermediate phase shown, and are thus not endpoint-oriented in the language production and eye-tracking experiments.

Picture 3: Stimulus memory test (screenshot with the village cut out as potential goal of the motion event)

3.3.2.3. Procedure

About 5 minutes after the production experiments subjects were told that they would be shown 15 screenshots of scenes in which a particular part of the screenshot was cut out. They were asked to write down the object(s) missing in the picture, in one or only a few words. No strict time limitation was given, but speakers were instructed to take a few seconds per item, and not to reconsider their answers.
3.3.2.4. Results

While there is no significant difference between languages for the filler items ($\chi^2 (6) = 5.69$, n.s.), the critical items do show a significant language effect ($\chi^2 (6) = 55.78$, $p < .05$). Figure 6 gives the percentages for the endpoints remembered.

![Figure 6: Percentage of endpoints remembered for the critical items](image)

Chi$^2$ tests between languages reveal significant effects with languages again clustering into different groups. Czech, Dutch and German form one group that differs significantly from the English, Russian and Spanish group (English-Dutch $\chi^2 (1) = 4.07$, $p < .05$). Arabic differs from the other two groups in that memory for endpoints for the critical items is the lowest (Arabic-Spanish $\chi^2 (1) = 6.12$, $p < .05$).

3.3.2.5 Discussion of Experiment II

The results of the memory experiment underline the interrelation between linguistic structure and patterns of attention in visual and cognitive processing. Speakers of languages who look less at endpoints and who talk less about them do not store information on endpoints to the same extent as speakers of languages who are more...
attentive to endpoints at all levels of cognitive processing. This indicates that working memory is not insensitive to language-specific patterns in event conceptualization. The central hypothesis which states that speakers of languages that do not have grammaticized imperfective/progressive aspect are more likely to attend to (eye-tracking and memory task) as well as refer to (linguistic data) endpoints in scenes showing goal-oriented motion events has been confirmed.

In Figure 7 below, the results for the different tasks, language production, eye-tracking, memory, present a coherent picture. Attention to endpoints decreases in relation to the use of imperfective/progressive aspect.

3.4. **General discussion and conclusion**

The aim of the present study was to test the role of language specificity in cognitive processing when talking about events, using experimental methods that go beyond observable linguistic data. The linguistic domain under focus in the experimental design is verbal aspect and its role in event conceptualization, an area not investigated in this context before. The role of this temporal concept in event conceptualization has been documented in an in-depth comparative analysis that covers speakers of seven
languages. Depending on features of the verbal system at their disposal, speakers proceed differently both in the choice of temporal perspective as well as in the distribution of attention when processing the stimuli. This was revealed by eye movement patterns, by the information verbalized with respect to endpoints, as well as performance on memory tests. It is important to note that the differences found in event conceptualization do not cluster with cultural factors but with the typological profile of the languages investigated. Our findings are in keeping with the view in cognitive linguistics whereby concepts that are marked by grammatical means play a fundamental role in structuring information for expression (cf. Talmy, 1988, Bybee, 1994, Slobin 1997; Bowerman & Choi, 2003). Different grammatical systems profile different concepts and we assume that structural features of this kind serve in facilitating planning processes at the level of the conceptualizer in language production. The processing options profiled by the system may support highly automatized routines that serve, on a default basis, in language production. In this sense profiled concepts help deal with the complexity and speed of delivery given in language processing. This is not to say that they cannot be overruled where required by specific conditions of the task. Profiled options and associated perspectives are not insurmountable pathways in decision making in language production but extremely convenient ones. As the present study indicates, systematic studies can shed light on the extent to which language-driven patterns of attention may affect performance when carrying out different tasks. Problem solving, for example, in all its facets, is not necessarily conducted on a non-linguistic basis, and the role of language in task performance and how to deal with it is a fruitful area of research. We need greater awareness of how language works in use and can promote or hinder performance, rather than continue to show how ‘thought’ may also take place without it.
References


Appendices

Appendix A: Stimuli used for analysis

Critical condition: ‘Endpoint not reached’ 10 items

<table>
<thead>
<tr>
<th>Video clip</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a van is driving down a country lane (towards a village / houses)</td>
</tr>
<tr>
<td>2</td>
<td>a woman is walking across the parking lot (towards a car)</td>
</tr>
<tr>
<td>3</td>
<td>a woman is walking down an alley (towards a barrier)</td>
</tr>
<tr>
<td>4</td>
<td>a little boy is walking along a path (towards a playground)</td>
</tr>
<tr>
<td>5</td>
<td>a man is climbing up a ladder (to a balcony)</td>
</tr>
<tr>
<td>6</td>
<td>a man is crossing a street (towards a car)</td>
</tr>
<tr>
<td>7</td>
<td>two girls are walking along a path (towards a house)</td>
</tr>
<tr>
<td>8</td>
<td>a girl on a horse is riding (towards an entrance)</td>
</tr>
<tr>
<td>9</td>
<td>a mother and a child are walking through a park (towards a slide)</td>
</tr>
<tr>
<td>10</td>
<td>a car is driving down a road (towards a gas station)</td>
</tr>
</tbody>
</table>

Control condition: ‘Endpoint reached’ 10 items

<table>
<thead>
<tr>
<th>Video clip</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>a car is driving into a garage</td>
</tr>
<tr>
<td>2</td>
<td>a girl is entering the station</td>
</tr>
<tr>
<td>3</td>
<td>a van is turning into a driveway</td>
</tr>
<tr>
<td>4</td>
<td>a man on a bicycle is turning into a gateway</td>
</tr>
<tr>
<td>5</td>
<td>a woman is entering a supermarket</td>
</tr>
<tr>
<td>6</td>
<td>a dog is running in the door of a building</td>
</tr>
<tr>
<td>7</td>
<td>a cat is walking into the kitchen</td>
</tr>
<tr>
<td>8</td>
<td>a child is going through a gate into a playground</td>
</tr>
<tr>
<td>9</td>
<td>a man is walking into a church</td>
</tr>
<tr>
<td>10</td>
<td>a girl on a horse is riding into a barn/stable</td>
</tr>
</tbody>
</table>
Appendix B: Questionnaire focusing on social and linguistic background

1. Date: _______________
2. Name (first name + first letter of surname: e.g. Anne S.): _______________
3. Age ____________ Male….. Female…..
4. Place of Birth (town, country) ___________________________
5. Where did you attend school? (town, country) ___________________________
6. Further education / (town, country)? ___________________________
7. What language do you speak with your
   Parents________ Brothers/Sisters_______ Partner________
   Children________________________
8. What languages did you learn at school? For what period of time?
   ___________________________________________________
9. Qualifications (please mark with an x)
   High School Diploma / A-levels
   Bachelor……. Masters……. Diploma……. PhD…….
10. University degree in what field? ___________________________
11. If employed in what field? ___________________________
12. In what countries have you been resident? Period of time?
   ___________________________________________________
13. What languages do you speak actively?
   ___________________________________________________
14. Apart from your mother tongue, in what language are you most proficient
   _______________ and how would you rate your level of proficiency? (see table)
   Please mark level with an x.

<table>
<thead>
<tr>
<th></th>
<th>Excellent</th>
<th>Very good</th>
<th>Good</th>
<th>Sufficient</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thanks for your cooperation!
Chapter 4: What native speaker judgements tell us about the grammaticalization of an aspectual marker of 'ongoingness' in Dutch*

Abstract

This paper focuses on the emergent use of a construction in Dutch that functions as a progressive aspectual marker (*aan het X zijn*, referred to as *aan het*-construction). The hypothesis that the construction is in the process of grammaticalization was tested empirically by means of an acceptability judgement task. In addition to testing possible differences in judgement across different age groups, the method covers a range of relevant temporal variables which were identified in earlier studies on the grammaticalization of progressive aspect constructions. The method provides insights into the usage patterns of the *aan het*-construction in contemporary Dutch, with respect to the preferred and non-preferred contexts, as judged by native speakers.

* This chapter has been submitted for publication.
4.1. Introduction

This paper reports on an empirical study on processes of grammaticalization. It focuses on use of a particular construction in Standard Dutch as spoken in the Netherlands (aan het X zijn, referred to as the aan het-construction) which expresses a progressive aspectual meaning. Using an acceptability judgement task, the study investigates under what conditions this construction is judged as appropriate in expressing the aspectual distinction ‘event is ongoing’.

The current study sets out to investigate the assumption that the aan het-construction may be systematically expanding in its range of use and attempts to picture the course taken in the process of grammaticalization. By means of an analysis of speakers' acceptability judgements, the paper provides an overview of both the contexts where use of the aan het-construction is considered most appropriate, as well as those where use of the construction is inappropriate, giving an indication of the factors that drive the expansion of the aan het-construction in contemporary Dutch. Furthermore, the analysis includes differences in judgements between native speakers of different ages as a possible indication of the rate of expansion.

As this paper focuses on the grammaticalization of an aspectual construction, it is, first of all, important to state how grammaticalization is defined. Bybee, Perkins & Pagliuca (1994:4) view grammaticalization as the process by which grammatical morphemes gradually develop out of lexical morphemes, or combinations of lexical elements with grammatical or lexical elements. The meaning and application of these evolving grammatical morphemes is of greater generality than their original lexical meaning, with use expanding to a wider range of contexts. In particular, this expansion occurs from prototypical contexts of use to less prototypical contexts, resulting in a wider applicability of the morpheme (see Section 1.3.1.). The meaning of the grammatical marker becomes more abstract but it is often the case that some of the original lexical meaning remains (Givón, 1973, ctd in Bybee et al., 1994; Hopper & Traugott, 2003). This generalization of meaning goes hand in hand with a reduction in form, in particular phonological reduction.
There are certain common features that can be derived from processes of grammaticalization of aspectual markers cross-linguistically. One example is that progressive constructions often derive from expressions involving locative elements (Comrie, 1976; Heine et al., 1991; Bybee et al., 1994; Bertinetto et al., 2000), as in the case of the English progressive to be + V-ing form (Jespersen, 1954; Vlach, 1981; Bybee et al., 1994). In the first stage of grammaticalization the lexical (spatial) character of the locative preposition was lost. The Dutch aan het-construction also consists of a locative element (preposition aan ‘at/on’), which no longer has a true spatial meaning (Boogaart, 1991; 1999; Ebert, 2000; Lemmens, 2005). Considering these analogies and the functional similarity between the Dutch aan het-construction and the English progressive form, it is hypothesized that the aan het-construction is (becoming) a grammatical marker of progressive aspect. The next section investigates the aspectual category of the progressive in more detail.

4.1.1. Progressive aspect

Starting with core temporal relations, a grammatical aspectual marker denotes the relation between the Topic Time (TT), the time that is being talked about (i.e. the time for which the assertion holds), and the Time of Situation (Tsit), the infinite or unspecified time period of the event (cf. Klein, 1994). Progressive aspect specifically relates to a time interval where the Topic Time is fully included within the Time of Situation (Figure 1).

---

1 It is also claimed that the process is more complicated and the present day –ing progressive evolved out of two separate forms, one being the above mentioned locative construction, the other one being a combination of ‘to be’ and a present participle (ending in –ende). The latter form stems from Old English and merged with the former one in Middle English (see e.g. Elness, 1994).
In other words, in time-relational terms, the time interval (TT) that the speaker refers to is fully incorporated within the Time of Situation (The TSit is the total time of ‘he-read-a book’, which in this case is unspecified). This specifies what is meant by an ‘inside’ view of the situation, which is a much quoted metaphor for the progressive aspect (e.g. Comrie, 1976; Leech, 2004). The function of progressive aspect is thus to express the *ongoingness* of a particular situation at a given TT interval. The TT is not instantaneous since the time interval at issue is extended given this perspective.

As mentioned above, a fully grammaticalized progressive marker is given with the English *to be* + *V-ing* construction. In English, a true opposition in meaning has come about between the unmarked simple verb form and the verb marked with *–ing*. Bybee labels this difference in meaning between the marked and the unmarked form *grammaticalization of zero* (Bybee et al., 1994; Bybee 1994). The functions ascribed to the simple present tense in English are a result of the grammaticalization of the specific meaning of the progressive in particular contexts. Example 1a shows that the predicate marked by *–ing* has the prototypical progressive meaning, that is, it presents a situation as ongoing for the interval at issue. One of the meanings that the simple form may express is habituality (1b). It can also represent a state or characteristic of a person over an *unlimited* period of time (definition similar to Comrie, 1976) (as in example 1c).

1. (1a) He was reading (when they entered the room)
   (1b) He reads the newspaper (every morning)

2 Clearly, the linguistic category of grammatical aspect must be carefully distinguished from lexical means that function to express different temporal perspectives on events, such as adverbials or complex verb constructions (see also Schmiedtová & Flecken, 2008).
Although the relevant time interval is fully within the time of situation, the beginning and end of the overall situation with its pre- and post-time is always implied (1a). If not, there would not be any difference between the time intervals referred to by means of the simple form and those referred to by means of the progressive. For example, no pre- or post-time is implied by the 0-state verb ‘to love’ (cf. Klein, 1994; a "state" in the Vendler (1957) classification) in Figure 2 (I-love-chocolate). It makes no sense in this case to make a claim about a specific Topic Time (TT) on the TSit axis. Regardless of the placement of TT, the meaning of TSit (I-love-chocolate) remains unchanged. In other words, there are no possible TT-contrasts (cf. Klein 1994).

Figure 2: Time-relational structure of 0-state verbs

If the lexical content of a clause allows for a time interval preceding and following the specific Time of Situation (a pre- / post-time), it makes sense to make a claim about a specific Topic Time (time for which the assertion holds) along the TSit axis. If a TSit inherently implies a change in state, for example, through either the temporal semantics of the clause, or world knowledge, it is suited for use of a progressive. This condition is expressed by the notion of a Topic Time contrast (Klein, 1994), and all verbs allow for this contrast, in principle, with the exception of 0-state verbs (cf. Klein 1994), which express unbounded states.

If we now turn to the example in Figure 3, which is a famous advertising slogan, we see that the meaning of the 0-state verb ‘to love’ is changed to allow for TT-contrasts, i.e. in the sense of a 1-state verb (e.g. ‘to enjoy’) and thus gives a limited time interval for which the statement holds: It is assumed that there is a state for which ‘not enjoy’ holds, the pre- and post-time of ‘to love’ is implied.
What the above examples show is that use of the progressive is allowed only in cases with a TT-contrast. The aspectual form will thus encode the ongoingness of a particular Topic Time, linked to a Time of Situation that is bounded. In this sense, sentences such as *cats are mammals* cannot undergo a progressive operation. Apart from the pre-condition of possibilities for TT-contrasts, the English progressive marker is subject to few selectional restrictions. The TT-interval that an expression with *–ing* relates to may be placed anywhere along the TSit axis (*he is finishing up; they are approaching the summit*), due to the high level of grammaticalization of the form. It is hypothesized that markers of progressive aspect that are in earlier stages of grammaticalization are subject to more constraints with respect to temporal variables that are relevant for use of such aspectual forms.

The next section deals with the focus of the paper: the Dutch progressive *aan het*-construction. The aim of the present study is to identify and test the variables that determine acceptability of the Dutch progressive *aan het*-form in its current stage of grammaticalization, as judged by native speakers.

4.1.2. The case of Dutch

Dutch has several constructions that are used to express that a situation is ongoing in explicit terms. In addition to the *aan het*-construction, which is the focus of the present paper, the other options are constructions that include the posture verbs *zitten/liggen/staan* te plus an infinitive, the motion verb *lopen* te plus an infinitive or the adjectival construction *bezig* te plus infinitive. Use of the Dutch posture verb constructions (vs. *aan het*) is discussed, for example, in Lemmens (2005) and Ebert
(2000) (corpus studies) and they conclude that use of the posture verb constructions is constrained by the lexical meaning of the three basic locational verbs involved. Empirical studies (Behrens et al., under review; von Stutterheim et al., 2009) which elicit event descriptions of short ongoing situations (presented in video clips) have found that the *aan het*-construction is used much more frequently than the posture verb constructions to express ongoingness (4.7% *zitten/staan te* vs. 26% *aan het* of a total of 911 utterances (von Stutterheim et al., 2009)), presumably because of the semantically constrained use of the posture verb constructions. The data show that, although the meaning conveyed by both types of constructions is interchangeable in many cases, speakers have preferences for using one rather than the other type of aspectual form in given contexts, with more constraints on use of postural verbs (Behrens et al., under review). This indicates that the *aan het*-construction is ahead in grammaticalization and functions independent of its inherent lexical (locative) meaning, as opposed to the posture verb constructions. For this reason the focus of the current study is placed on speakers’ judgements of the *aan het*-construction versus the unmarked simple verb form only.

The Dutch progressive marker under investigation is a periphrastic construction and it consists of the locative preposition *aan* (‘at’/ ‘on’), the definite article *het* (‘the’) plus a nominalized infinitival form of the verb (see e.g. Boogaart, 1991; König & van der Auwera, 1994; Lemmens, 2005) (example in (2)).

(2) *Ik ben aan het fietsen*

*I am at-the-cycle*

‘I am cycling’

As mentioned above, this aspectual marker expresses ongoingness, but there are constraints with respect to placement of the TT on the time axis, as well as the verb types and verbal-predicate (temporal) semantics that allow use of the *aan het*-construction. The current study aims at identifying the temporal properties of situations that allow use of this progressive, in contrast to those that do not. The following paragraph gives a brief review of some of the literature on the *aan het*-construction.
In typological terms, the Dutch language is viewed as a non-aspect language. Studies dealing with the *aan het*-construction (e.g. Boogaart, 1991; 1999) state that this is a locative construction with a progressive-like meaning (1999: 167) but with a limited range of applications. Booij (2008) considers the *aan het*-construction as a constructional idiom that has the function of expressing progressive aspect. However, the form is described as a lexical unit, an idiom expressing a ‘durational event’ (p. 9). The present study investigates the question of the type and range of selectional restrictions and the extent to which the *aan het*-construction may be on its way to becoming a full-fledged grammatical element in the Dutch system - a path that may perhaps lead to an even more phonologically and perhaps orthographically reduced form with a more abstract meaning and an increasing loss of restrictions.

Several experimental studies have been carried out, looking at temporal factors determining use of the progressive in a range of languages, some of which included Dutch (e.g. von Stutterheim & Carroll, 2006; Carroll et al., 2008; von Stutterheim et al., 2009). These studies show, first of all, that use of the *aan het*-construction is relatively frequent for specific types of situations, but its use is still very much dependent on a restricted set of temporal properties. Cross-linguistically, it was found that situations that involve a change in place of a person or object from one place to another (motion events), represent an interesting case with regard to the use of progressive aspect. Speakers of languages that do not have grammaticalized progressive aspect tend to take a holistic viewpoint and mention the endpoint of the motion event (von Stutterheim & Carroll, 2006). However, when motion events are viewed as in progression, they are typically segmented into an inceptive, intermediate and terminative phase in languages in which progressive aspect is grammaticalized, and any of these phases constitutes a reportable event. Speakers select an interval within the time of situation, as discussed above (Section 1.1). When presented with a motion event that focuses on the intermediate stage of the event, as in the video clips used in the study (scene shows a car going along a country road with a possible goal (a village) in the distance), speakers of e.g. English or Standard Arabic tend to select this phase (*a car is travelling along a road*).

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The studies were carried out in a joint research project with Marianne Starren at the Radboud University, Nijmegen, in close cooperation with the group of Christiane von Stutterheim and Mary Carroll at the University of Heidelberg.
and do not typically go on to relate to a possible terminal phase or endpoint (going to a village). Preliminary results show that Dutch speakers may segment motion events into phases and use the progressive to relate to the intermediate phase of the event (though this is not frequent); however, they do not use the aspectual construction when the terminative phase is in focus (as in the vehicle is approaching the traffic lights). Use is more likely to occur with motion events that focus the intermediate phase (and are not goal-directed) as well as manner of motion (e.g. wandelen 'taking a walk') (Carroll et al., 2008; von Stutterheim et al., 2009). These findings shed light on the nature of the intervals that are selected (within TSit) when using progressive aspect in a particular language. This variable is also empirically tested in the acceptability judgement task in relation to motion events.

4.1.3 Relevant temporal variables applied in the experimental design

In the current study, several temporal variables relevant for use of forms expressing ongoingness are identified based on previous studies. These variables are systematically manipulated across and within six versions of the acceptability judgement task. This section will discuss each variable and show how it is controlled for within the experimental design. Table 1 below provides an overview of the variables tested with the sections in which they are treated in the study below.

<table>
<thead>
<tr>
<th>TT-placement</th>
<th>TT-contrast</th>
<th>Paragraph 1.3.1: Temporal contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situation types:</td>
<td></td>
<td>Paragraph 1.3.2:</td>
</tr>
<tr>
<td>No qualitative change of an entity</td>
<td>+ qualitative change of an entity</td>
<td>(to swim)</td>
</tr>
<tr>
<td>Change in place +/- endpoint</td>
<td>TT- contrast</td>
<td>- Type A situations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Type B situations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Motion events +/- endpoint</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- 0-state verbs</td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td>Paragraph 1.3.2: Motion verbs plus endpoint</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>Paragraph 1.3.3</td>
</tr>
</tbody>
</table>
4.1.3.1. TT-placement

Studies on the grammaticalization of the progressive aspect in English (*be* + *V-ing*) claim that, in the early stages, use was limited to situations taking place in the here-and-now, in the narrow sense of *right now*. Bybee et al. claim that the here-and-now is the prototypical context for using forms expressing ongoingness, when in the early stages of grammaticalization (1994: 137). It is hypothesized that, during the course of grammaticalization, use expands from situations in which the time of assertion (TT) overlaps with the time of utterance (TU) (*what one is doing right now*, TT includes TU) to situations occurring in the past, where TT is placed before TU). The possibilities for placement of the Topic Time on the time axis are thus expanded. In English for example, placement of TT before TU is not a constraint on use of the progressive form.

In the current study on Dutch, the first research question that will be empirically addressed and the first variable that will be tested by means of the acceptability judgement task is as follows:

Do situations that are anchored in the here-and-now (the Topic Time includes the Time of Utterance), in the narrow sense outlined above, still present the only (or the best) context of use for the *aan het*-construction? Can the Dutch form apply to situations that extend beyond the here-and-now in the narrow sense, as in *Caspar was reading a book* or *Katja is practising law*?

In order to investigate this question within the present study, this variable was manipulated within the acceptability judgement task so as to cover three different temporal contexts. The participants in the study are asked to judge the suitability of the *aan het*-construction combined with a variety of situation types (see 1.3.2.) in these three temporal contexts.

The here-and-now temporal context places the Time of Utterance within the Topic Time, rendering a here-and-now reading. The past tense temporal context places the Time of Utterance after the Topic Time, rendering a reference to a situation in the past. The habitual temporal context involves situations where the Topic Time referred to covers several occurrences of the time of situation (TSit) (see Table 2).
Table 2: Temporal contexts

<table>
<thead>
<tr>
<th>'Here-and-now-context'</th>
<th>'Past tense context'</th>
<th>'Habitual context'</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONGOING EVENT-</td>
<td>ONGOING EVENT-</td>
<td>HABITUAL EVENT-</td>
</tr>
<tr>
<td>RIGHT NOW</td>
<td>IN THE PAST</td>
<td>ONGOING AT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REPEATED</td>
</tr>
<tr>
<td>Present tense, event</td>
<td>Past tense, event</td>
<td>Generic habitual</td>
</tr>
<tr>
<td>temporally anchored in</td>
<td>temporally anchored</td>
<td>event</td>
</tr>
<tr>
<td>the here-and-now</td>
<td>in the past</td>
<td>TS is placed</td>
</tr>
<tr>
<td>( \rightarrow ) TT includes TU</td>
<td>( \rightarrow ) TT is placed before TU</td>
<td>at several places on the time axis, TT covers all occurrences. TU irrelevant</td>
</tr>
</tbody>
</table>

See Figure 4

See Figure 5

See Figure 6

Figure 4: Here-and-now temporal context: Ongoing-right now
The examples (3-5) below illustrate how the three temporal contexts are brought about in the acceptability judgement task (the examples show an item of situation type A-pianospelen ‘to play the piano’; see 1.3.2 for an overview of the different situation types). The words or phrases in bold lead to the temporal interpretation ‘here-and-now’ versus ‘past’ versus ‘habitual’. The question posed to the subject (aan het-form versus simple form: Wat ben je aan het doen?/Wat doe je?) is varied for each item between subjects.

(3) Here-and-now context:

a) Ik speel piano
b) Ik ben piano aan het spelen

'Imagine: **Today** you have to practice for a piano performance. It sounds quite nice and you are totally absorbed in it. At a given time the phone rings. A friend asks: 'What are you doing **right now**?'
a) I play the piano
b) I am piano at-the-play'

(4) Past tense context:

**Stel:** Vorig jaar heb je een keer opgetreden in de schouwburg en nu vertel je een vriend erover. Hij/zij vraagt: "Wat deed je **vorig jaar** dan in de schouwburg?/Wat was je **vorig jaar** dan aan het doen in de schouwburg?". Je antwoordt:

a) Ik speelde piano/Ik heb piano gespeeld
b) Ik was piano aan het spelen

'Imagine: **Last year** you performed in the Music hall and now you are telling a friend about this. He/she asks: 'What did you do in the Music hall **last year**?'. You answer:
a) I played the piano
b) I was piano at-the-play'

(5) Habitual context:

**Stel:** Je bent pianist van beroep en je speelt in een band. Jullie oefenen **dagelijks** en treden vaak op in het weekend. Je wordt op een dag gebeld door een telemarketeer die je allerlei vragen stelt. Hij wil onder andere weten welk beroep je uitoefent. Hij hoort ondertussen het geluid van de band die gewoon door repeteert, en vraagt: "Wat doet u **in het dagelijks leven**?/Wat bent u **in het dagelijks leven** aan het doen?". Je antwoordt:
Imagine: You are a professional pianist and you play in a band. You practice daily and you usually have performances during weekends. One day you receive a phonecall of a telemarketer who starts asking all kinds of questions. He would like to know about your profession, for example. In the background he can hear the sounds of the band, who is rehearsing, and he asks: ‘What do you do in daily life?’ You answer:

a) I play the piano

b) I am piano-at-the-play’

The temporal reference frame ‘here-and-now’ versus ‘past’ versus ‘habitual’ is established through a manipulation of the whole situation description, by means of adverbial phrases, adjectives and through contextual knowledge.

The overview of temporal contexts (Figure 2) presents a hypothetical order of strength in attracting use of an evolving progressive marker. The here-and-now context is claimed to be the prototypical context (cf. Bybee et al., 1994), whereas situations that do not give the possibility of a topic time contrast (TT-contrast) should pose a fundamental barrier.

4.1.3.2. Situation types

Within the acceptability judgement task, a variety of different types of situations are described to the subject and he/she is asked to judge acceptability of the aan het-form versus the simple form for different items within the different groups of situation types. The distinction between the situation types described below is based on a number of experimental elicitation studies in which specific temporal features of situations were manipulated on a systematic basis in order to test their relevance for ongoingness marking in different languages (see for a description of the methodology Carroll et al., 2004; von Stutterheim et al., 2009). Within this framework, situation types are
A large-scale study on the use of progressive aspect in Italian, Dutch, French, and Standard Arabic (Carroll et al., 2008; Natale, 2009; Bouhaous, in prep.) led to the identification of situation types that are relevant for use in these languages since this aspectual perspective is not obligatory in Italian, French, or Dutch in any context. The study investigates the relevance of the situation type ‘activities’ for use of the progressive in these different languages. The term ‘activity’ Vendler (1957) is used for verbs that do not express a change in state/boundary of the event (e.g., to run, to write). It was claimed that these verb types (the label was originally used to cover the time schemata of verbs) are prototypical contexts for inflection with progressive aspect (Comrie, 1976; Bybee et al., 1994) and represent the starting point for a possible process of grammaticalization (Bybee et al., 1994). In the study on Italian, French, and Dutch (Carroll et al., 2008; Natale, 2009), the broad category covered by the term ‘activities’ was taken apart and a distinction was drawn between dynamic situations that show an inherent qualitative change leading to an effected entity (someone knitting something, sewing, painting, or moulding something) where the post time of the situation shows a resultant state (e.g., a moulded vase). This contrasts with situations involving someone swimming, surfing, singing etc. in which the post time of the situation involves no more than the cessation of the event (x stops swimming). The cross-linguistic comparison on factors that drive use of progressive aspect was based on situations of this kind presented in the form of video clips.

In the classification below, situation type A covers the latter set. They involve only 1 temporal interval (1-state situations, cf. Klein, 1994) and no change in state is entailed. Type B situations involve agents acting on specific objects, thereby bringing about a salient qualitative change of the object involved, as indicated above. Situations that are typically expressed with ‘activity’ verbs in English were thus divided into those that show changes in state leading to a resultant state (Type B), in contrast to those (Type A) that lead, when finished, to cessation only (stop surfing; stop swimming). Type B situations were divided into two subtypes: In addition to the first group listed above, the second group of Type B situations do not involve the creation, but rather the transformation of an object. Examples of those are painting a bottle, tidying up a room.
and breaking a cup, with the bottle, room and cup as affected objects. Situations within type B express an inherent qualitative change and involve 2-states (cf. Klein, 1994) (see Table 3).

Table 3: Situation types based on Natale (2009)

<table>
<thead>
<tr>
<th>Situation types</th>
<th>Type A: No qualitative change with respect to an entity/1-state situation</th>
<th>Type B: Process leading to a qualitative change of an entity/2-state situation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>e.g. to swim, to play ball, to play billiards</td>
<td>- creation of an object, e.g. to knit a scarf (scarf as the affected object)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- transformation of an existing object, e.g. to wipe a table, to paint a bottle (table and bottle as affected objects)</td>
</tr>
</tbody>
</table>

As mentioned above, use of aspectual distinctions that encode an event as ongoing is not obligatory in any context in Italian, French or Dutch. The results of the study show that speakers of Italian and French have a clear preference to use the progressive form when describing stimuli (video clips) presenting situations listed under Type B, in contrast to type A situations, where use is less frequent in both languages (Carroll et al., 2008). These findings are interpreted as follows: a process leading to the creation of a specific object (a resultant state) gives a measure for ‘progression’, given the contrast between the evolving states and the envisaged post state. This analysis provides empirical evidence showing that the aspectual means used in Italian and French have a clear progressive component in the present phase of grammaticalization.

Besides the two types of situations listed in Table 3, the acceptability judgement task also includes a group of items that involve 0-state verbs (cf. Klein, 1994; ‘states’ cf. Vendler, 1957. Examples: weten, houden van ‘to know’, ‘to love’). This group of items is included to test the relevance of the variable TT-contrast for judgements of the aan het-construction: In 1.1 it was exemplified for English that a lack of TT-contrasts is a logical constraint on the use of progressive aspect, and the acceptability judgement task sets out to test the strength of this variable for the Dutch aan het-construction.

Two types of motion event descriptions are also included in the task-those that include reference to a specific endpoint, and those that do not-in order to investigate the use of an aan het-construction with a situation that involves a change in
place and the relevance of a holistic viewpoint ('endpoint') for acceptability judgements (as described in 1.2).

Figure 7 below shows a hypothetical order for the different situation types for the acceptability of the *aan het*-construction. This order is based on previous findings discussed above with respect to the relevance of TT-contrasts, inherent changes in state and endpoints of motion events. Examples (6-11) exemplify how one specific item representing each situation type (in the here-and-now context) was described in the judgement task.

<table>
<thead>
<tr>
<th>0-state verbs</th>
<th>Motion events: entity underway, endpoint explicitly mentioned</th>
<th>Motion events: entity underway, endpoint not mentioned</th>
<th>Predicates expressing activities, no progress toward a qualitative change</th>
<th>Predicates expressing progress toward a qualitative change</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-like predicates</td>
<td>Motion events plus endpoint</td>
<td>Motion events, endpoint not evident</td>
<td>Type A sit.</td>
<td>Type B sit.</td>
</tr>
</tbody>
</table>

**least prototypical situation type (low attractor effect)**

**most prototypical situation type (high attractor effect)**

Figure 7: Situation types in a hypothetical order for use of the Dutch *aan het*-construction

(6) 0- state verbs (here-and-now context):

*Stel: Je zit nu in de klas, en de lerares vraagt of iemand iets van honden weet. Uitvoerig begin je je buurvrouw over je hond te vertellen. De lerares komt niet meer boven het lawaai uit, en vraagt je dus: ‘Hee, wat ben jij nu aan het doen?’/‘Wat doe jij nu?’ Je probeert haar duidelijk te maken dat het erg belangrijk is wat je te vertellen hebt:*

  a) *Ja maar, ik ben een hond aan het hebben!*

  b) *Ja maar, ik heb een hond!*
Imagine: You are in class right now and the teacher asks if anyone has any knowledge about dogs. You start an elaborate conversation with your neighbour about your dog. The teacher is bothered by the noise and asks: 'What are you doing right now?'. You try to explain to her that you have important things to say:

a) Yes, but I am a dog at-the-have!
b) Yes, but I have a dog!

(7) Motion events with entity underway (here-and-now context) plus endpoint (possible arrival at interval in the future):

- Long duration:

  Stel: Je gaat voor een week op vakantie naar Frankrijk. Het is vandaag zaterdag, je zit in de auto en hebt nog een lange reis voor de boeg. Om de rit wat aangenamer te maken, ga je telefoneren. De persoon aan de andere kant van de lijn vraagt: 'Wat ben je nu aan het doen?/Wat doe je nu?'. Je zegt:

  a) Ik rijd naar Frankrijk
  b) Ik ben naar Frankrijk aan het rijden

-I Imagine: You are going to France for a week's holiday. It is Saturday, you are in the car and you have a long journey ahead of you. To make the trip more comfortable, you start making phone calls. The person at the other end asks: 'What are you doing right now?'. You say:

  a) I drive to France
  b) I am to France at-the-drive'

- Short duration:

  Stel: Je bent vandaag met vrienden in een zwembad. Je staat op de rand van het bad, klaar om te springen, terwijl een vriend net onder die rand doorzwemt. Hij kijkt omhoog en vraagt: 'Wat ben jij nu aan het doen?/Wat doe je nu?'. Terwijl je je afzet, roep je:
a) Kijk uit! Ik spring in het water!
b) Kijk uit! Ik ben in het water aan het springen!

‘Imagine: You are in a pool with friends. You are standing on the edge of the pool, ready to jump, while a friend is swimming right beneath you. He looks up and asks: ‘What are you doing now?’. As you jump, you shout:

a) Watch out! I jump in the water
b) Watch out! I am in the water at-the-jump’

(8) Motion events minus endpoint (here-and-now context):

Stel: Het is vandaag lekker weer en je fietst een stukje over de dijk. Tijdens het fietsten gaat je telefoon en de persoon aan de andere kant van de lijn vraagt: ‘Wat ben jij nu aan het doen? Wat doe je nu?’:

a) Ik ben aan het fietsten
b) Ik fiets

‘Imagine: The weather is nice and you are cycling along the dyke. While cycling, your phone rings and the person at the other end asks: ‘What are you doing right now?’:

a) I am at-the-cycle
b) I cycle’

(9) Type A situations (here-and-now context):


a) Ik speel piano
b) Ik ben piano aan het spelen
Imagine: Today you have to practice for a piano performance. It sounds quite nice and you are totally absorbed in it. At a given time the phone rings. A friend asks: 'What are you doing right now?'

a) I play the piano
b) I am piano at-the-play

(10) Type B situations-effected object (here-and-now context):


   a) Ik brei een sjaal
   b) Ik ben een sjaal aan het breien

Imagine: This afternoon you are at home, knitting a scarf. You have been working on the scarf, which is a gift for your grandfather, for a while now. At a given time the phone rings. A friend asks: 'Do you feel like going to the cinema? Or what are you doing right now?'

a) I knit a scarf
b) I am a scarf at-the-knit

(11) Type B situations-affected object (here-and-now context):

Stel: Je bent bezig met de afwas, maar er glipt iets uit je handen. Je probeert het nog op te vangen, maar het is te laat. Ondertussen heeft je vriend(in) je gestuntel opgemerkt en hij/zij vraagt: 'Wat doe je nu?/Wat ben je nu aan het doen?'. Je zegt:

   a) Ik breuk een bord

* Within the Type B situations with an affected object there are items that express a relatively long and those that express a relatively short duration. This variable was currently left out of the analyses. Future studies will include the variable duration and control for it more systematically across the variety of situation types.
b) Ik ben een bord aan het breken

'Imagine: You are busy doing the dishes but suddenly something slips through your hands. You try to catch it, but it is too late. Meanwhile your friend has noticed what is going on and asks: 'What are you doing right now?'

a) I break a plate

b) I am a plate at-the-break'

The questions with respect to the situation types for Dutch are, first of all, in which of the situation types is the aan het-construction chosen most frequently (with a particular focus on Type A versus Type B situations (cf. Carroll et al., 2008))? Secondly, do speakers of Dutch when making judgements show similar preferences to those found in speech production with respect to motion events (see 1.2: cf. von Stutterheim et al., 2009)? Thirdly, are Dutch speakers, in the judgement task, reluctant to apply the progressive when situations do not allow for a TT-contrast (situations described with 0-state verbs)? These and other questions constitute the motivation behind the division into situation types depicted in Figure (7).

4.1.3.3. Duration

As example (7) above shows, another variable manipulated within the task concerns duration, which is coupled with the time interval factor ‘what is now the case’. In motion events in the present context this entails the presence of a long rather than a short trajectory on the journey to a possible goal (‘driving to France’ versus ‘jumping in the water’ for example) where reaching the endpoint in the latter situation type holds for the interval ‘what is now the case’ but not in the former one. The role of duration was tested through the addition of adverbial phrases in investigating as to whether a long duration may elicit a higher acceptability of the aan het-construction in combination with motion events\(^5\).

\(^5\) Even though situations typically expressed by 0-state verbs (states) constitute the least prototypical situation type to be combined with an aan het-construction, it makes no sense to extend the duration of 0-states such as to know for they inherently imply unbounded duration.
4.1.3.4 Age

An external variable that is taken into account in this study is age in order to gain a more complete picture of preferred and non-preferred contexts of use of the *aan het*-construction in contemporary Dutch. Differences in judgements between native speakers of different generations may reflect an expansion of the range of contexts in which the form is considered acceptable. However, this needs to be tested further by an inclusion of a wider range of age groups and other means, e.g. elicitation experiments.

Within all age groups, the number of males and females is counterbalanced, in an attempt to control for a possible gender effect.

4.2 Methodology

The acceptability judgement task was administered to 113 participants in three age groups (14-18 year-olds: 44 participants, 20-30 year-olds: 36 subjects, 50 year-olds and above (eldest participant is 79 years-old): 33 participants). The participants are asked to choose between a sentence with a simple form and one including an *aan het*-construction in different contexts and for different situation types. As with all judgement tasks, the core assumption is that there is no objective right or wrong answer: Acceptability judgements depend solely on native speaker’s linguistic intuitions and their preferred choice out of a variety of options.

Besides making a choice for one of the two constructions, participants were also asked to ascribe a value between 1 and 5 (1 = completely unacceptable, 5 = completely acceptable) to the answer that was not chosen. Thus, this value gauges the answer NOT CHOSEN for acceptability in the specific context.

In total there are 40 items per judgement task (plus 2 practice items) (for a full list of items see Table 4 and an example judgement task in the Appendix). Each item

---

6 The choice always involves a binary opposition between a predicate with the simple verb form and a predicate marked with an *aan het* form. Although in Dutch there are other possibilities to explicitly express the ongoingness of a situation, an elicitation study (von Stutterheim et al., 2009, see 1.2) has shown that, in Dutch, the *aan het*-construction is the clearly preferred means amongst the variety of options.

7 The data for the acceptability judgements made for the form not chosen will not be part of the focus of the paper.
consists of a brief description of a situation (around 2-4 sentences) and the instruction to imagine being in this situation. The question that follows is a direct question involving the simple form or the progressive form asking: What are you doing? (In Dutch: Wat doe je? vs. Wat ben je aan het doen?) (example 12). In the past tense context the question was in the past tense.

(12) Kies het beste antwoord uit (door de letter a of b) te omcirkelen) en geef aan hoe acceptabel je DE ANDERE OPTIE vindt (dus de optie die je niet gekozen hebt), op een schaal van 1 tot 5*, door ook het geschikte cijfer te omcirkelen.

* 1 = onacceptabel
  2 = een beetje onacceptabel
  3 = acceptabel, noch onacceptabel
  4 = beetje acceptabel
  5 = acceptabel

1) Stel: Op een herfstachtige dag loop je even lekker door het bos. Na een tijdje lopen gaat je telefoon en iemand vraagt: ‘Wat ben je nu aan het doen?’ Je zegt:

   a) Ik wandel
   b) Ik ben aan het wandelen
1-2-3-4-5

‘Choose the best answer (by circling letter a or b). Also indicate how acceptable you find THE OTHER OPTION (so the option you did not choose), on a scale from 1 to 5*, by also circling the appropriate number.

*1 = unacceptable
  2 = a bit unacceptable
  3 = neither acceptable, nor unacceptable (neutral)
  4 = a bit acceptable
Imagine: On a rainy day, you are walking through the forest. After a while, your phone rings and somebody asks you: 'What are you doing right now?'.

You answer:

a) I walk
b) I am walking

1-2-3-4-5’

The variables manipulated across and within six versions of the judgement task are as follows: the order of the items, the order of the answer-options (that is simple form-option or aan het-form option listed first), use of the simple form or aan het-form in the question put to the participant (this was manipulated for each item across versions). Furthermore, across versions the temporal context (as described above in 1.3., the here-and-now context, past tense context and habitual context) is changed for each item. This means that each subject was presented with all of the identified situation types in all three temporal contexts (both temporal context and situation type are within-subject variables) (see Table 4 for an overview of the items for the different situation types).

Table 4: Situation types presented in verbal form in the acceptability judgement task

<table>
<thead>
<tr>
<th>Type A situations</th>
<th>5 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>voetballen</td>
<td>‘to play football’</td>
</tr>
<tr>
<td>pianospelten</td>
<td>‘to play piano’</td>
</tr>
<tr>
<td>biljarten</td>
<td>‘to play billiards’</td>
</tr>
<tr>
<td>surfen</td>
<td>‘to surf’</td>
</tr>
<tr>
<td>lezen</td>
<td>‘to read’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type B situations, effected object</th>
<th>9 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(een poppetje) tekenen</td>
<td>‘to draw a puppet’</td>
</tr>
<tr>
<td>(een boerderij) schilderen</td>
<td>‘to paint a farm’</td>
</tr>
<tr>
<td>(een surprize) knutselen</td>
<td>‘to tinker a surprise’</td>
</tr>
<tr>
<td>(een sjaal) breien</td>
<td>‘to knit a scarf’</td>
</tr>
<tr>
<td>(een werkstuk) maken</td>
<td>‘to make an assignment’</td>
</tr>
<tr>
<td>(een boek) schrijven</td>
<td>‘to write a book’</td>
</tr>
<tr>
<td>(een beeld) boetsieren</td>
<td>‘to mould a statue’</td>
</tr>
<tr>
<td>(een vliegtui) vouwen</td>
<td>‘to fold a paper airplane’</td>
</tr>
<tr>
<td>(een kaartenhuis) bouwen</td>
<td>‘to build a house of cards’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type B situations, affected object</th>
<th>10 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(rommel) opruimen</td>
<td>‘to tidy up a mess’</td>
</tr>
<tr>
<td>Motion events, minus endpoint</td>
<td>5 items</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>wandelen</td>
<td>'to stroll'</td>
</tr>
<tr>
<td>varen</td>
<td>'to sail'</td>
</tr>
<tr>
<td>fietsten</td>
<td>'to cycle'</td>
</tr>
<tr>
<td>klimmen</td>
<td>'to climb'</td>
</tr>
<tr>
<td>zwemmen</td>
<td>'to swim'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motion events, plus endpoint</th>
<th>6 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(naar Amsterdam) brengen</td>
<td>'to bring X to Amsterdam'</td>
</tr>
<tr>
<td>(naar Frankrijk) rijden</td>
<td>'to drive to France'</td>
</tr>
<tr>
<td>(naar de finish) kruipen</td>
<td>'to crawl to the finish line'</td>
</tr>
<tr>
<td>(in het water) springen</td>
<td>'to jump in the water'</td>
</tr>
<tr>
<td>(een winkel in) lopen</td>
<td>'to enter a store'</td>
</tr>
<tr>
<td>(X)(naar de auto) dragen</td>
<td>'to carry X to the car'</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0-state events</th>
<th>5 items</th>
</tr>
</thead>
<tbody>
<tr>
<td>(een hond) hebben</td>
<td>'to have a dog'</td>
</tr>
<tr>
<td>(het antwoord/de oplossing) weten</td>
<td>'to know the answer/solution'</td>
</tr>
<tr>
<td>van poetsen houden</td>
<td>'to love cleaning'</td>
</tr>
<tr>
<td>hopen dat ...</td>
<td>'to hope that X'</td>
</tr>
<tr>
<td>(in Utrecht) wonen</td>
<td>'to live in Utrecht'</td>
</tr>
</tbody>
</table>

| Total no. of items:          | 40      |

Besides this division into situation types and the manipulation of the temporal contexts, the variable duration (long vs. short duration) is controlled for within the group of motion verbs plus an endpoint (see 1.3.3).

Finally, as mentioned above, age also represents a factor considered in the analyses and three age groups were covered in the study (with gender balanced within the groups).

The form of the two answer options is kept simple: The predicate consists of a subject (*ik 'I') plus a finite lexical verb or a finite form of *to be* plus the *aan het*-form and the relevant lexical verb. The answer options for Type B situations always include a direct object (since this is hypothesized to be the relevant crucial feature of the predicate), and the predicates with motion verbs plus endpoint always include an
adjunct (expressing the endpoint). This variation raises a question with respect to the status of predicates with or without adjuncts in combination with the simple form or the aan het-form. In the current design, predicates without adjuncts were used for Type A situations (e.g. Ik lees/Ik ben aan het lezen ’I am reading’) and motion verbs minus endpoint (e.g. Ik fiets/Ik ben aan het fietsen ’I am cycling’). It is assumed that these predicates do not require an (spatial or temporal) adjunct to hold as a reportable event.

Predicates describing Type B situations always include a direct object (e.g. Ik brei een sjaal/Ik ben een sjaal aan het breien ’I am knitting a scarf’). Elicitation studies (Behrens et al., under review) show that speakers who use the aan het-form to describe Type B situations (as presented in video clips) have no clear preference when it comes to mentioning the specific object or not (distribution of object mentioned-object not mentioned is about 50/50, and this is similar to the distribution found when the simple form is used). Mention of a direct object in a predicate with aan het is not a syntactic constraint on use of the form and for this reason it was not considered a confounding variable in speakers’ judgements of Type B situations.

4.3. Results: all data

4.3.1. Overview of total number of choices made per group

In total, 4704 answer-choices are made by 113 subjects (60 male, 53 female). An overview of data points (42 answer-choices per subject, including two practice items) is depicted in Table (5) below.

---

8 In some cases, the predicate requires a specification in the form of a verbal complement as in Ik woon in Utrecht/Ik ben in Utrecht aan het wonen (’I live in Utrecht) or Ik heb een hond/Ik ben een hond aan het hebben (’I have a dog). Leaving this out, would make both options unacceptable.

9 There were no gender-related differences in the number of choices for aan het versus the simple form throughout the task.

10 The total number of answers chosen (and acceptability judgements made) does not amount to exactly 42 answers per subject: Cases of incompletely filled in judgement tasks were treated as 'missing data' in the statistical analyses.
Table 5: Overview of all data

<table>
<thead>
<tr>
<th>Group 1: 14-18 year-olds</th>
<th>Group 2: 20-30 year-olds</th>
<th>Group 3: 50+ year-olds</th>
</tr>
</thead>
<tbody>
<tr>
<td>44 subjects:</td>
<td>36 subjects:</td>
<td>33 subjects:</td>
</tr>
<tr>
<td>19 male, 25 female</td>
<td>21 male, 15 female</td>
<td>20 male, 13 female</td>
</tr>
<tr>
<td>1833 answers chosen →</td>
<td>1510 answers chosen →</td>
<td>1361 answers chosen →</td>
</tr>
<tr>
<td>645 answers (35%) = aan het</td>
<td>551 answers (37%) = aan het</td>
<td>396 answers (30%) = aan het</td>
</tr>
</tbody>
</table>

In order to compare the number of choices for the *aan het*-construction between groups, z-tests for comparing proportions between independent samples are conducted\(^{11}\). No significant difference was found between groups 1 and 2 ($z = 0.78$, n.s.). The comparison between group 1 and group 3, however, shows a significant difference ($z = 3.63$, $p < 0.05$). Similarly, a significant difference exists between group 2 and 3 ($z = 4.21$, $p < 0.05$). It seems that the older participant group is less likely to choose the *aan het*-construction across all contexts and variables, compared to the two younger participant groups who group together in their choices for the *aan het*-construction.

An analysis of the responses to each question type (question with simple form versus question with *aan het*-form) per temporal context shows that there is a higher number of *aan het* choices in response to an *aan het* question in the past tense context only ($\chi^2(1) = 14.08$, $p < 0.05$) (other contexts: n.s.). Within this context it is thus a less straightforward issue to choose one of the two answer options since speakers are tempted to follow the grammatical form put to them in the question. It reflects the context's status as being 'in the middle', so to speak, between the prototypical context for *aan het* (here-and-now context) and an unlikely context of use (habitual context). Both other contexts show no influence of question type.

4.3.2. *TT*-placement

When comparing the choices for the *aan het*-construction versus the simple form within the three temporal contexts, a chi square test gives a significant difference ($\chi^2(2) = 635.50$, $p <.05$): Inspection of the standardized residuals show a larger number of

\(^{11}\) In the current study, two-tailed z-tests were used to compare proportions between independent samples. Within-group comparisons (e.g. a comparison of the number of choices for *aan het* between situation types or temporal contexts) were done by means of chi square tests.
choices for *aan het* when compared to the simple form in the here-and-now context and more choices for the simple form than for *aan het* in the past tense as well as the habitual context.

When comparing the frequency of choices for the *aan het*-construction directly between the three contexts, a chi square test shows that *aan het* is chosen most frequently in the here-and-now context ($\chi^2 (2) = 485.73$, $p<.05$) (see Table 6).

Table (6): Number of choices for the *aan het*-construction in the three temporal contexts (across all situation types and age groups)

<table>
<thead>
<tr>
<th></th>
<th>Here-and-now context</th>
<th>Past tense context</th>
<th>Habitual context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choices for <em>aan het</em></td>
<td>926 (1639 = 56.5%)</td>
<td>441 (1567 = 28.1%)</td>
<td>225 (1498 = 15%)</td>
</tr>
</tbody>
</table>

4.3.3. *Situation types*

Table (7) gives the number of choices for the *aan het*-construction for the relevant situation types in percentages, across the three age groups.

Table (7): Total % of choices for *aan het* within specific situation types, across all groups and contexts

<table>
<thead>
<tr>
<th>Situation type</th>
<th>Proportion of <em>aan het</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A (e.g. <em>to play the piano</em>)</td>
<td>49% (276/565)</td>
</tr>
<tr>
<td>Type B, effected object (e.g. <em>to knit a scarf</em>)</td>
<td>44% (446/1017)</td>
</tr>
<tr>
<td>Type B, affected object (e.g. <em>to open a can</em>)</td>
<td>44% (496/1130)</td>
</tr>
<tr>
<td>Motion verbs-EP (e.g. <em>to cycle</em>)</td>
<td>38% (217/565)</td>
</tr>
<tr>
<td>Motion verbs + EP (e.g. <em>to drive to France</em>)</td>
<td>16% (109/678)</td>
</tr>
<tr>
<td>0 - state verbs (e.g. <em>to know the answer</em>)</td>
<td>4.1% (23/565)</td>
</tr>
</tbody>
</table>
The first comparison focuses on the choices for *aan het* when dealing with Type A (no inherent qualitative change, e.g. *to surf*) versus Type B situations (inherent qualitative change of an object, *to knit a scarf/to saw logs*) and no significant difference is found ($\chi^2(1) = 0.551$, n.s.).

In order to measure the effect of an explicit endpoint in the verbal predicate on choices for *aan het*, a comparison is made between predicates describing motion events *plus* an endpoint versus those *minus* an endpoint. A chi-square test shows that the number of choices for the *aan het*-construction in the ‘minus endpoint’ condition is greater than the number of choices in the condition ‘plus endpoint’ ($\chi^2(1) = 79.04$, $p<0.05$). A further comparison also includes a differentiation between motion events plus an endpoint described as having a long trajectory (longer duration) and those described as having a short trajectory (shorter duration), in order to test for the factor duration in this context. A chi-square test shows a significantly higher number of choices for the *aan het*-construction in the group of motion events plus endpoint given a long trajectory (duration) and less choices for *aan het* in the short duration condition ($\chi^2(1) = 3.11$, $p<0.05$).

### 4.4. Results: comparison between age groups

#### 4.4.1. TT-Placement

The proportion of choices for the *aan het*-construction for situations in the here-and-now context differs significantly between the 14-18 year-olds (group 1) and the 50+ year-olds (group 3) ($z = 2.51$, $p<0.05$) and the 20-30 year olds (group 2) and the eldest participant group ($z = 3.92$, $p<0.05$) (see Figure 8).
The older participants’ proportion of choices for *aan het* is significantly below the proportion of choices of the younger speaker groups in the here-and-now context.

Turning now to the past tense context: again the 14-18 year-olds and the 20-30 year-olds do not differ in their choices for the *aan het*-construction (*z* = 0.10, n.s.). As with the here-and-now context, the results also show that both group 1 and 2 differ significantly from the 50+ year-old group (group 1 vs. group 3: *z* = 3.38, *p*<0.05, group 2 vs. group 3: *z* = 3.16, *p*<0.05), since they tend to choose the *aan het*-construction a greater number of times (Figure 9).

---

12 The asterisks in the figures indicate statistically significant differences between specific groups.
The habitual context reveals a rather different picture: The three groups do not differ in the number of choices for the *aan het*-construction (group 1 vs. group 2: $z = 0.22$, n.s., group 1 vs. group 3: $z = 1.04$, n.s., group 2 vs. group 3: $z = 0.79$, n.s.) (Figure 10).

4.4.2. Situation types

For Type A situations there are no significant differences between the three groups: Participants of all ages choose the *aan het*-construction a similar amount of times (see Figure 13).
For Type B situations with an effected object group 1 chooses the *aan het*-construction more often than group 3 ($z = 1.72, p<0.05$), but there is no difference between group 1 and 2 ($z = 0.95$, n.s.), nor between group 2 and 3 ($z = 0.77$, n.s.) (Figure 12).

![Figure 12: choices for *aan het*-Type B situations, effected object](image)

Within the group of Type B situations with an affected object, the proportion of choices for *aan het* is slightly higher in group 2 than in group 1, but this is merely a trend ($z = 1.55$, n.s.). There is a significant difference between group 2 and 3 ($z = 2.09$, $p<0.05$) (Figure 13).

![Figure 13: choices for *aan het*-Type B situations, affected object](image)

The motion event items minus an endpoint do not show significant differences in the choices made for *aan het* across the groups (Figure 14).
There are differences between all age groups for motion events plus a mentioned endpoint (Group 1 vs. group 2: z = 1.92, p<0.05, group 1 vs. group 3: z = 6.03, p<0.05, group 2 vs. group 3: z = 4.51, p<0.05). The results are clearly graded along the variable age: The youngest participants are the most tolerant in choosing the *aan het*-construction in this context, whereas the eldest participants are the most conservative (Figure 15).

Looking at the group of 0-state verbs, we see that the oldest participant group is most conservative when judging use of the *aan het*-construction, and the results differ significantly from both younger groups (group 1 vs. group 3: z = 2.47, p<0.05, group 2 vs. group 3: z = 2.75, p<0.05) (Figure 16).
4.5. **Overall discussion and conclusions**

The analysis of speakers' judgements on contexts of use for the *aan het*-construction with respect to the selected set of the variables—'here-and-now', Topic Time contrast, situation types and duration—showed significant results. First of all, choices for the *aan het*-construction in the three different temporal contexts revealed that Topic Times that are anchored in the here-and-now represent the main temporal variable when anchoring the Dutch progressive. The expression of ongoingness in the here-and-now may constitute a core function of a developing progressive marker: The *aan het*-construction is chosen in 56% of all cases. By contrast, situations where the Topic Time (TT) refers to multiple or recurrent Situation Times (habitual situations) were judged as the least suitable type of TT-placement for use of the *aan het*-construction. The expression of habitual meaning is not judged as possible with the Dutch progressive form. As in English, the Dutch progressive conforms with the requirement of a limitation on the Time of Situation and requires a predicate that allows for TT-contrasts. Although use of the *aan het*-construction within the past tense context is relatively frequent (the *aan het*-construction was chosen in 28% of all cases), showing that preferences can extend beyond the posited prototypical attractor-variable for progressives, i.e. an event anchored in the here-and-now, the context's relatively instable status as a suitable environment for *aan het* is demonstrated by the fact that
there was an effect of question type on the type of answer chosen (more responses with the *aan het*-form in reply to *aan het* questions).

With respect to situation types, that is, situations showing a qualitative change of an entity (Type B: someone moulding a vase), compared to those that do not (Type A: someone swimming), the findings for acceptability judgements of the *aan het*-construction indicate no real preference in choosing the form more frequently when dealing with Type A rather than Type B situations. However, in an elicitation study that also distinguishes between Type A and Type B situations (as shown in video clips), Dutch speakers show a preference for using the *aan het*-construction more frequently when describing Type B situations that show homogeneous subevents, rather than Type A situations: Use of *aan het* Type A situations 43.71% vs. Type B situations with homogeneous subevents 63.16% (Carroll et al., 2008; von Stutterheim et al., 2009). In speech production, use of *aan het* is more likely to occur when describing situations showing progression towards a qualitative change of an entity (Type B situations), with homogeneous subevents, rather than situations that show no progression (Type A, swim, surf, etc). This finding is significant since it indicates that the *aan het*-construction in Dutch shows sensitivity to situations with a progressive component: This is given with the contrast between the states leading up to the completion of the object (as shown in the video clips when building a model airplane, for example) and the resultant state, when completed. Contrasts of this kind give a measure for progression. The relevance of the variable progression, as given with qualitative contrasts, was not observed in the judgement task, however. This difference between the language production and judgement tasks may be attributable to the fact that the specific stimuli used for the elicitation experiment (video clips) are more suited to reflect the relevant temporal

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13 An example of a Type B situation with homogeneous subevents is *knitting a scarf*: the action shown in the video clip focuses on the repetitive, homogeneous movement of the hands. An example of a heterogeneous Type B situation is a video clip showing the *folding of a paper airplane*, in which the agent performs different subevents (folding parts of the paper, straightening the wings, etc.) (see von Stutterheim et al., 2009).

14 A similar sensitivity was found for means to express the aspectual perspective ‘event is ongoing’ in Italian and French, for example, but not for German or Norwegian, where means to express an aspectual perspective are used infrequently and mainly confined to Type A situations (e.g. swimming) (Behrens et al., under review).
variables of the situation, as for example progression, duration, and homogeneity, rather than a linguistic description of a situation, as in the judgement task.

Overall, a marked decrease can be observed in choices for *aan het* with motion events minus endpoint, on the one hand, and motion events plus endpoint and 0-state verbs on the other hand. The latter two situation types constitute a clear constraint on choices for the Dutch progressive. Looking more closely at motion events, there is a marked decrease in choices for *aan het* with judgements for motion event descriptions that involve motion toward an endpoint, as opposed to those without an endpoint, as was also observed in speech production studies (see 1.2). Interestingly, for the identification of relevant variables, use of the *aan het*-construction with motion events that include an explicit endpoint is more likely to occur if the trajectory extends in space and thus has duration. This underlines the role of this variable for developing markers of progressive aspect. The findings for motion events tie in with speech production studies that focus on the use of forms expressing ongoingness when describing different situation types. In overall terms, motion events with an explicit endpoint show a low attractor effect in the use of forms expressing ongoingness in Dutch, Italian and French (Carroll et al., 2008), Norwegian and German (Behrens et al., under review).

The comparisons between speakers of different age groups show that for the older participants there are clearer restrictions on the contexts where use of the *aan het*-construction is considered appropriate, compared to the two younger groups. For the older participants, the *aan het*-construction does not relate to any kind of situation that is anchored in the here-and-now: the *aan het*-construction is judged most appropriate when the means of expression used represent an 'activity' (a Type A situation). This finding indicates that the variable 'age' may be a relevant factor in an evolving system, for situation types showing the variable 'progression' at least.

All in all, the current study has sketched the range of application and preferred contexts of use of the *aan het*-construction in Dutch by specifying the relevant selectional restrictions found for the different age groups studied. The results show that the younger speakers in the sample were (in some cases) less constrained by specific temporal variables manipulated within the task, compared to the older speakers (i.e. duration of the interval at issue, events in progression with an inherent qualitative
change or those without a qualitative change, the here-and-now anchor (present vs. past) and TT-contrast-potential. It has also been shown that acceptability judgements tap into processes related to language production to a large degree, since the current results converge in most respects with the event elicitation studies. The findings bring into focus the set of variables underlying the meaning and the function of the aan het-construction in Dutch.

References


Appendix: Acceptability judgement task (Version 1a out of 6 versions)

V1a, Subnr: __________ M/V __________ !!! Leeftijd/ Age: __________ !!!

Kies het beste antwoord uit (door de letter a) of b) te omcirkelen) en geef aan hoe acceptabel je
DE ANDERE OPTIE vindt (dus de optie die je niet gekozen hebt), op een schaal van 1 tot 5*,
door ook het geschikte cijfer te omcirkelen.

Bedankt!

* 1 = onacceptabel
  2 = een beetje onacceptabel
  3 = acceptabel, noch onacceptabel
  4 = beetje acceptabel
  5 = acceptabel

‘Choose the best answer (by circling letter a or b). Also indicate how acceptable you
find THE OTHER OPTION (so the option you did not choose), on a scale from 1 to
5*, by also circling the appropriate number.

* 1 = unacceptable
  2 = a bit unacceptable
  3 = neither acceptable, nor unacceptable (neutral)
  4 = a bit acceptable
  5 = acceptable

OEFENITEMS (de experiment-leider geeft je feedback)

‘Practice items (the experimenter will give feedback’

a) Stel: Je woning is een enorme bende, en vandaag besluit je er echt iets aan te gaan doen. Je haalt de
stofzuiger en de dweil tevoorschijn en gaat aan de slag. Op een gegeven moment gaat je telefoon. Iemand
vraagt: ‘Wat ben je nu aan het doen?’ Je antwoordt:

  a) Ik poets
  b) Ik ben aan het poetsen

1-2-3-4-5

‘Imagine: Your appartment is a mess and today you decide to do something about it. 
You bring out the hoover and a mop and you start working. At a given time, your
phone rings. Somebody asks: ‘What are you doing right now?’: You answer:

a) I clean
b) I am at-the-clean’
b) Stel: Je hebt vorige maand een spannende film gezien. Er vond een enorme explosie plaats, dus dat lawaai galunde een hele tijd door de huiskamer. Nu kom je een huisgenoot tegen die vraagt: "Hee, wat deed jij vorige maand toch?". Je vertelt:

   a) Er explodeerde een vliegtuig in de film
   b) Er was een vliegtuig aan het exploderen in de film

1-2-3-4-5

'Imagine: Last month you watched a very exciting film. There was an enormous explosion, which produced an awful lot of noise throughout the house. Now you run into a housemate who asks: 'What did you do last month?'. You tell him/her:

a) There exploded an airplane in the film
b) There was an airplane at-the-explode in the film'

--- HEB JE NOG VRAGEN?---

'Any questions?'

TESTITEMS

1) Stel: Op een herfstachtige dag loop je even lekker door het bos. Na een tijdje lopen gaat je telefoon en iemand vraagt: 'Wat ben je nu aan het doen?'. Je zegt:

   a) Ik wandel
   b) Ik ben aan het wandelen

1-2-3-4-5

'Imagine: On a rainy day, you are walking through the forest. After a while, your phone rings and somebody asks you: 'What are you doing right now?'. You answer:

a) I walk
b) I am at-the-walk'

2) Stel: Je werkt bij een timmerbedrijf en bent verantwoordelijk voor het maken van kozijnen. Hier ben je dus elke dag mee bezig. Op een dag belt een oude bekende en hij vraagt naar je baan: 'Wat ben je tegenwoordig aan het doen?'. Je antwoordt:

   a) Ik ben planken aan het doorzagen
   b) Ik zaag planken door

1-2-3-4-5

'Imagine: You are employed at a carpenter's and you are responsible for the construction of window frames. This is what you do every day. One day, an old friend calls and asks you about your job: 'What are you doing nowadays?'. You answer:

a) I am logs at-the-saw
b) I saw logs'
3) Stel: Je werkt bij een postorderbedrijf. Tijdens een lange rit op de snelweg om een pakket af te leveren word je gebeld door een bekende die vraagt: 'Wat ben je nu aan het doen?'. Je antwoordt:

   a) Ik ben een pakket naar Amsterdam aan het brengen
   b) Ik breng een pakket naar Amsterdam

   1-2-3-4-5

'Imagine: You work for a mail order service. During a long trip on the motorway to deliver packages, you receive a phonecall of a friend who asks: 'What are you doing right now?'. You answer:

a) I am a package to Amsterdam at-the-bring
b) I bring a package to Amsterdam'

4) Stel: Het is deze zomer heel mooi weer en samen met een groep vrienden besluiten jullie om voortaan elke dag buiten iets sportiefs te gaan ondernemen. Samen met een vriend fiets je elke middag naar een veld bij jullie in de buurt om een potje voetbal te gaan spelen. Je vader vraagt telkens als je weggaat: 'Wat doe je toch steeds 's middags?'. Je zegt:

   a) Ik ben aan het voetballen
   b) Ik voetbal

   1-2-3-4-5

'Imagine: This summer the weather is lovely and together with a group of friends you decide to do something sporty outdoors each day. Every afternoon you cycle to a lawn nearby, to play a game of football. Everytime you leave your father asks you: 'What do you do every afternoon?'. You say:

a) I am at-the-football play
b) I play football '

5) Stel: Je liep vorige week mee met de Vierdaagse mee. Je loopt nu dus een beetje mank en je voeten zijn echt kapot. Iemand vraagt je wat er met je aan de hand is en of het zwaar voor je was. Je trekt een zuur gezicht en vertelt dat het echt een marteling was. Hij/zij vraagt dus: 'Hoezo? Wat deed je vorige week dan?'. Je vertelt:

   a) Ik was elke dag bijna naar de finish aan het kruipen
   b) Ik kroop elke dag bijna naar de finish/Ik ben elke dag bijna naar de finish gekropen

   1-2-3-4-5

'Imagine: Last week you joined the Four days' marches. Now, your muscles are sore and your feet are hurt. Somebody asks you what is the matter and whether last week's event was difficult for you. You look disturbed and you tell the other person that it was a true torture. He/she asks: 'Why?What did you do last week?'. You tell him/her:

a) I was each day almost to the finishline at-the-crawl
b) I almost crawled to the finishline each day'

6) Stel: Het is bijna Sinterklaas en je hebt net een kadootje gekocht voor degene wiens lootje je hebt getrokken. Nu moet je nog beginnen aan een surprise. Je haalt de eierdozen en de melkpakken
tevoorschijn die je verzameld hebt en gaat ijverig aan de slag. Ondertussen gaat je telefoon. 'Wat doe je nu?' vraagt de persoon aan de andere kant van de lijn. Je antwoordt:

a) Ik knutsel een surprise voor Sinterklaas
b) Ik ben een surprise aan het knutselen voor Sinterklaas

'Imagine: It is almost Sinterklaas and you have just bought a present for the person whose lot you drew. You start working on the surprise-wrapping. You bring out the milk cartons that you collected and you start working industriously. Meanwhile, the phone rings. 'What do you do now?' the person at the other end asks. You answer:

a) I tinker a surprise for Sinterklaas
b) I am a surprise at-the-tinker for Sinterklaas'

7) Stel: Je zit nu in de klas, en de leerares vraagt of iemand iets van honden weet. Uitvoerig begin je je buurvrouw over je hond te vertellen. De leerares komt niet meer boven het lawaai uit, en vraagt je dus: 'Hee, wat ben jij nu aan het doen?'. Je probeert haar duidelijk te maken dat het erg belangrijk is wat je te vertellen hebt:

a) Ja maar, ik ben een hond aan het hebben!
b) Ja maar, ik heb een hond!

'Imagine: You are in class right now and the teacher asks if anyone has any knowledge about dogs. You start an elaborate conversation with your neighbour about your dog. The teacher is bothered by the noise and asks: 'What are you doing now?'. You try to explain to her that you have important things to say:

a) Yes, but I am a dog at-the-have!
b) Yes, but I have a dog'

8) Stel: Vorige maand was je een weekje op vakantie in Frankrijk. Vandaag is het precies een maand geleden dat je naar Frankrijk bent gereden. Je bent met iemand aan de telefoon en deze persoon vraagt: 'Wat deed je vorige maand?'. Je zegt:

a) Ik reed naar Frankrijk/Ik ben naar Frankrijk gereden
b) Ik was naar Frankrijk aan het rijden

'Imagine: Last month you were on a holiday in France. Exactly a month ago today, you were driving to France. You are talking on the phone and the person on the other end asks: 'What did you do last month?'. You say:

a) I drove to France
b) I was to France at-the-drive'

9) Stel: Je bent twee maanden geleden aangenomen bij een software bedrijf. Je taak is het herstructureren van de boekhouding. Helaas was je voorganger niet zo zorgvuldig, dus de komende tijd is je taak het opruimen van de rommel van je voorganger. Vandaag, terwijl je druk bezig bent, klopt een collega aan en hij vraagt: 'Wat ben je nu aan het doen?'. Hij vertelt:
1) Ik ben de rommel van mijn voorganger aan het opruimen
b) Ik ruim de rommel van mijn voorganger op

'Imagine: Two months ago you were hired at a software company. It is your job to restructure the company's bookkeeping. Unfortunately, your predecessor was sloppy, so your main job in the time ahead is to clean up your predecessor's mess. Today, while you are busy working, a colleague drops by and asks: 'What are you doing right now?'.

You tell him:
a) I am the mess of my predecessor at-the-tidy up
b) I tidy up the mess of my predecessor'

10) Stel: Je bent vandaag met vrienden in een zwembad. Je staat op de rand van het bad, klaar om te springen, terwijl een vriend net onder die rand doorzwemt. Hij kijkt ernaar en vraagt: 'Wat doe je nu?'. Terwijl je je afzet, roep je:

a) Kijk uit! Ik spring in het water!
b) Kijk uit! Ik ben in het water aan het springen!

'Imagine: You are in a pool with friends. You are standing on the edge of the pool, ready to jump, while a friend is swimming right beneath you. He looks up and asks: 'What do you do now?'. As you jump, you shout:
a) Watch out! I jump in the water
b) Watch out! I am in the water at-the-jump'

11) Vorig jaar was je met een vriend(in) op vakantie, een weekje uitrusten op het strand. Je hebt eigenlijk vooral gelezen en geslapen... Nu vraagt een collega je: 'Wat deed je vorig jaar op vakantie?':

a) Ik las/Ik heb gelezen
b) Ik was aan het lezen

'Imagine: Last year you were on holidays with a friend; A wek of relaxation on the beach. Your main activities were reading and sleeping. Now a colleague asks: 'What did you do on holidays last year?':
a) I read
b) I was at-the-read'

12) Stel: Vorig jaar in de zomervakantie was het prachtig weer in Nederland. Je was met vrienden een paar dagen op een zeilboot in Zeeland. Je moeder vraagt nu naar je vakantieplannen voor dit jaar. Je vertelt haar dat, als het goed weer is, je hetzelfde wilt doen als vorig jaar. Ze vraagt: 'Wat deed je vorig jaar dan?'. Je vertelt haar:

a) Ik was aan het varen
b) Ik voer/Ik heb gevaren

'Imagine: Last year in the summer holidays was the weather in Nederland beautiful. You were with friends a few days on a sailboat in Zeeland. Your mother asks you about your plans for this year. You tell her that, if the weather is good, you want to do the same as last year. She asks: 'What did you do last year then?'
'Imagine: Last year during the summer holidays the weather in Holland was wonderful. You were on a sailing boat in Zeeland for a few days, with a group of friends. Your mother is now asking about your plans for this year's holidays. You tell her that, providing the weather is good, you would like to do the same as last year. She asks: 'What did you do last year?'. You tell her:

a) I was at-the-sail
b) I sailed'

13) Stel: Je wilt boodschappen gaan doen. Je staat op het punt de winkel in te lopen, maar je ziet dat iemand de winkel instopt en dat er ondertussen een bord naar beneden op zijn hoofd valt. Je schrikt je kapot, want dat is jou ook al een keer gebeurd! Je vertelt iemand dat je vorige maand ook een bord op je hoofd hebt gekregen. Hij/zij vraagt: 'Wat was je vorige maand dan aan het doen?'.

a) Ik was vorige maand ook deze winkel in aan het lopen!
b) Ik liep vorige maand ook deze winkel in! Ik ben vorige maand ook deze winkel in gelopen!

14) Stel: Je bent bezig met de afwas, maar er glipt iets uit je handen. Je probeert het nog op te vangen, maar het is te laat. Ondertussen heeft je vriend(in) je gestuntel opgemerkt en hij/zij vraagt: 'Wat doe je nu?' Je zegt:

a) Ik brek een bord
b) Ik ben een bord aan het breken

15) Stel: Je bent schrijver/schrijfster van beroep en je huidige meerjarige project is het schrijven van een autobiografie. Nu ben je op een reünie van je oude middelbare school. Je komt een oude vriend(in) tegen die vraagt naar je beroep. 'Wat doe je tegenwoordig?' Je antwoordt:

a) Ik ben een boek aan het schrijven
b) Ik schrijf een boek

'Imagine: You want to do the grocery shopping. You are about to enter the store, but you notice that while someone who is walking into the store, a sign falls down on his head. You are shocked, because the same thing happened to you once also! You tell someone that last month, also a sign fell on your head. He/she asks: 'What were you doing last month?'.

a) I was last month also this stop at-the-enter!
b) Last month I also entered this shop!'
run in to an old friend who asks about your profession: 'What do you do nowadays?'. You answer:
a) I am a book at-the-write
b) I write a book'

16) Stel: Het is vandaag lekker weer en je fietst even een stukje over de dijk. Tijdens het fietsten gaat je telefoon en de persoon aan de andere kant van de lijn vraagt: 'Wat ben jij nu aan het doen?':
   a) Ik ben aan het fietsten
   b) Ik fiets
   1-2-3-4-5

'Imagine: Today, the weather is nice and you are cycling along the dyke. While cycling, your phone rings and the person at the other end asks: 'What are you doing right now?':
a) I am at-the-cycle
b) I cycle'

17) Stel: Je vertelt een vriendin een grappig verhaal over wat je vorige maand hebt meegemaakt. Een vriend van je klungelde enorm met het repareren van zijn fiets, maar hij was te koppig om je om hulp te vragen. Je begint spontaan weer te lachen, dus je vriendin wordt nieuwsgierig en ze vraagt: 'Waarom lach je? Wat deed jij vorige maand?'. Lausbend vertel je haar:
   a) Ik wist hoe het moest!
   b) Ik was aan het weten hoe het moest!
   1-2-3-4-5

'Imagine: You are telling a friend a funny story about something you experienced last month. A friend of yours was having problems repairing his bike, but he was too stubborn to ask for your help. Spontaneously, you start laughing again, so your friend gets curious and asks: 'Why are you laughing? What did you do last month?'. You tell her:
a) I knew how to do it!
b) I was at-the-know how to do it'

18) Stel: Je bent vandaag thuis en je speelt een tijdje met het zoontje van een vriend. Hij haalt een pak kaarten tevoorschijn en begint ze een voor een op elkaar te stapelen. Op een gegeven moment gaat je telefoon. Iemand vraagt: 'Wat ben je nu aan het doen?'. Je antwoordt:
   a) Ik bouw een kaartenhuis
   b) Ik ben een kaartenhuis aan het bouwen
   1-2-3-4-5

'Imagine: You are at home playing with your friend's child for a while. He brings out a deck of cards and starts stacking them one on top of the other. At a given time, your phone rings. Somebody asks: 'What are you doing right now?'. You answer:
a) I build a card house
b) I am a card house at-the-build'
19) Stel: Je bent een professionele biljarter. Iemand wil weten wat je beroep is en hij vraagt: 'Wat doe je in het dagelijks leven?'. Je vertelt hem:

a) Ik ben aan het biljarten  
b) Ik biljart  
1-2-3-4-5

'Imagine: You are a professional billiards player. Somebody would like to know what you do for a living and he asks: 'What do you do in daily life?'. You tell him:

a) I am at-the-billiards play  
b) I play billiards'

20) Stel: Je werkt bij de gemeente in de plantsoendienst. Jullie moeten elke week wel ergens een boom omzagen. Je wordt op een dag opgebeld door een oude bekende die vraagt: 'Wat ben jij aan het doen tegenwoordig?'. Je vertelt hem/haar:

a) Ik zaag bomen om  
b) Ik ben bomen aan het omzagen  
1-2-3-4-5

'Imagine: You work at parkkeeping. Every week it is your job to cut down trees somewhere. One day an old friend calls and asks: 'What are you doing nowadays?'. You tell him/her:

a) I cut down trees  
b) I am trees at-the-cut down'

21) Stel: Vorig jaar in de herfst werkte je bij een tuiniersbedrijf. Vooral in oktober was het vies weer en jullie moesten kilo’s bladeren opruimen in alle parken in de stad. Je vriend(in) vraagt: "Wat deed je vorig jaar oktober?". Je vertelt:

a) Ik veegde bladeren /Ik heb bladeren geveegd  
b) Ik was bladeren aan het vegen  
1-2-3-4-5

'Imagine: Last year in the fall you worked for a gardening company. In october, the weather was bad and you had to clean up kilos of leaves in all the parks throughout town. A friend asks: 'What did you do last october?'. You tell him:

a) I swept leaves  
b) I was leaves at-the-sweep'

22) Stel: Omdat je broer op vakantie is, ga je vandaag zijn huis even flink onder handen nemen. Gewapend met een stofzuiger, een emmer en een dweil ga je aan het werk. Als je net met de keuken bent begonnen, belt de buurman aan. Hij vraagt: 'Wat doe jij nu? Je lijkt wel gek!'. Je zegt:

a) Oh, nee hoor. Ik ben van poetsen aan het bouden  
b) Oh, nee hoor. Ik ben van poetsen  
1-2-3-4-5

'Imagine: Because your brother is on vacation, you clean his house today. Armed with a vacuum cleaner, a bucket and a mop, you start working. When you just started in the kitchen, your neighbor calls. He asks: 'What are you doing now? You look crazy!'. You say:

a) Oh, no! I was of cleaning  
b) Oh, no! I was of cleaning'

167
Imagine: Because your brother is on holidays, you decide to work on his apartment today. You start working with a hoover, a bucket and a mop. After you just started working on the kitchen, the neighbour rings the doorbell. He asks: "What do you do now? You must be mad!". You say:

a) Oh no, I am cleaning at-the-love

b) Oh no, I love cleaning

23) Stel: Elk jaar in de winter brei je een mooie sjaal voor je opa. Dit is iets waar je elke zondag mee bezigbuit, vooral als het regent. Een vriend(in) vraagt je: "Wat doe je elke winter"?

a) Ik brei een sjaal

b) Ik ben een sjaal aan het breien


a) Ik schilder een boerderij

b) Ik ben een boerderij aan het schilderen


a) Ik speel piano

b) Ik ben piano aan het spelen

Imagine: Every year in winter you knit a nice scarf for your grandfather. You work on the scarf each Sunday, especially when it rains. A friend asks: 'What do you do each winter?':

a) I knit a scarf

b) I am a scarf at-the-knit

Imagine: Today you feel like making a painting somewhere outside. You drive to a village in the area and you spot a lovely farm. You decide to sit down, take in the image, and take out the canvas and the brushes. After a while a friend calls and asks: 'What are you doing right now?'. You tell him:

a) I paint a farm

b) I am a farm at-the-paint

Imagine: Today you have to practice for a piano performance. It sounds quite nice and you are totally absorbed in it. At a given time the phone rings. A friend asks: 'What are you doing right now?'

a) I play the piano
b) I am piano at-the-play'

26) Stel: Deze zomer wil je wat geld bijverdienen, dus je werkt bij een verhuisbedrijf. Jouw taak is het inladen van de verhuiswagen. Helemaal niet zo spannend dus, en ook nog erg zwaar werk: Elke dag til je zware meubels en dozen. Op een dag belt een studievriend je en hij vraagt: 'Wat ben je aan het doen deze zomer'. Je vertelt diegene:

   a) Ik draag loodzware dozen naar een verhuiswagen
   b) Ik ben loodzware dozen naar een verhuiswagen aan het dragen.

1-2-3-4-5

'Imagine: This summer you would like to earn some extra money, so you work for a removal firm. It is your job to load the trucks. This is not very exiting and also strenuous: Every day you have to carry heavy furniture and boxes. One day a friend from university calls and he asks: 'What are you doing this summer?'. You tell him/her:

a) I carry heavy boxes to the truck
b) I am heavy boxes to the truck at-the-carry'

27) Stel: Vorige zomer was je in Canada in de bergen om te klimmen. Het was een prachtige ervaring, alleen elke keer nogal eng daarboven. Op een dag durfde je echt niet meer verder omhoog. Vandaag vraagt een vriend(in) naar je ervaringen: 'Wat was je aan het doen die dag?'. Je vertelt:

   a) Ik klom maar ik durfde niet meer verder
   b) Ik was aan het klimmen maar ik durfde niet meer verder

1-2-3-4-5

'Imagine: Last summer you were in Canada to climb mountains. It was a great experience, although each time you reached the summit it was rather frightening. One day you were really too afraid to climb any further. Today a friend asks about your experiences: 'What were you doing that day?':

a) I climbed but I was too afraid to continue
b) I was at-the-climb but I was too afraid to continue'

28) Stel: Elke zondag is er voetbal op tv. Je bent een enorme fan van een van de clubs in de Eredivisie: AZ. Tijdens elke wedstrijd van die club droom je voor een overwinning. Je broer ziet nu dat je zenuwachtig bent en vraagt: 'Wat doe jij toch elke zondag? Je vertelt hem:

   a) Ik hoop dat AZ wint!
   b) Ik ben aan het hopen dat AZ wint!

1-2-3-4-5

'Imagine: Every Sunday, football is being broadcasted on television. You are a big fan of one of the teams in the Premier League: AZ. During every match this club plays you are hoping for victory. Your brother now notices your excitement and he asks: 'What do you do each Sunday? You tell him:

a) I hope that AZ wins!
b) I am at-the-hope that AZ wins!'
29) Stel: Je hebt dit weekend een surf cursus in Zandvoort. De hele dag ben je eigenlijk wel op het strand en in het water te vinden. Tussen twee lessen door word je gebeld op je mobieltje en iemand stelt je de vraag: 'Wat ben je nu aan het doen?'. Je vertelt:

a) Ik ben aan het surfen  
b) Ik surf

1-2-3-4-5

'Imagine: This weekend, you are taking part in a surfing course in Zandvoort. All day long you are to be found on the beach and in the water. In between classes you receive a phone call on your mobile and somebody asks you the question: 'What are you doing right now?'. You tell him/her:

a) I am at-the-surf  
b) I surf'

30) Stel: Elke zaterdagmiddag ga je in een zwembad baantjes trekken. Op een dag vraagt een collega je of je zin hebt om zaterdagmiddag naar de stad te gaan. Hij/vraagt: 'Wat doe je normaal op zaterdagmiddag?'. Je vertelt hem/haar:

a) ik ben aan het zwemmen  
b) ik zwem

1-2-3-4-5

'Imagine: Every saturday afternoon you go to a swimming pool to swim. One day a colleague asks whether you would like to go into town with him/her next Saturday afternoon. He/she asks: 'What do you normally do on a Saturday afternoon?'. You tell him/her:

a) I am at-the-swim  
b) I swim'

31) Stel: Vorig jaar logeerde je kleine nichtje een tijdje bij jullie. Zij wilde toen de hele week alleen maar tekenen, samen met jou. Haar pronkstuk was een grote tekening van een felgekleurd mannetje. Nu vertelt ze over dit logeerpartijtje aan opa en oma. Je oma vraagt je nichtje: 'Wat was je aan het doen vorig jaar in de vakantie?'. Ze zegt:

a) Ik was een heel mooi poppetje aan het tekenen  
b) Ik tekende een heel mooi poppetje/Ik heb een heel mooi poppetje getekend

1-2-3-4-5

'Imagine: Last year your little cousin was staying at your house for a while. All she wanted to do all week was to make drawings, together with you. Her masterpiece was a large drawing of a brightly coloured puppet. Now she is telling her grandparents all about this little trip. Your grandmother asks your cousin: 'What were you doing last year on holidays?'. She explains:

a) I was a very nice puppet at-the-draw  
b) I drew a very nice puppet'

   a) Ik ben een werkstuk aan het maken
   b) Ik maak een werkstuk

1-2-3-4-5

‘Imagine: For school you have to write an assignment, and this has to be finished by next week. You work on it with dedication every day. A friend, whom you have not seen for a long time, rings you up. She asks you: ‘What are you doing each day?’ You tell her:

   a) I am an assignment at-the-make
   b) I make an assignment’

33) Stel: Vorige maand zat je op een vrijdag nog tot zeven uur op je werk. Daardoor miste je de trein naar een vriendin die je dat weekend wilde bezoeken. Nu vertel je een van je collega’s dat je baalt dat je toen je leuke weekendje gemist hebt. Iemand vraagt waarmee je dan je trein miste: ‘Wat deed je die vrijdag dan zo laat nog?’ Je antwoordt:

   a) Ik at nog even snel mijn boterham op/Ik heb nog even snel mijn boterham opgegeten
   b) Ik was nog even snel mijn boterham aan het opeten

1-2-3-4-5

‘Imagine: On a Friday last month you stayed at work until 7 o’clock in the evening. Because of this, you missed the train to go to a friend, whom you would have liked to visit that weekend. Now you are telling one of your colleagues about that situation and that you are sad you missed out on a fun weekend. Somebody asks why you missed the train that night: ‘What did you do that late that Friday?’ You answer:

   a) I ate my sandwich quickly
   b) I was quickly my sandwich at-the-eat’


   a) Ik verander mijn interieur
   b) Ik ben mijn interieur aan het veranderen

1-2-3-4-5

‘Imagine: You are not too fond of your appartment and this has been the case for a while now. Today you decide to do something about it. You pick out a nice colour paint in the shop and some nice accessories and, once at home, you start working. It turns out to be quite a job! After a few hours your phone rings. A friend asks: ‘What are you doing?’

   a) I change my interior
   b) I am my interior at-the-change’
35) Stel: Vorig jaar heb je een klein ongelukje gehad met een mes tijdens het snijden van een komkommer. Nu ziet iemand het litteken op je vinger en vraagt dus aan je hoe je die wond hebt gekregen: ‘Wat was je aan het doen vorig jaar?’ Je vertelt:
   a) Ik was een komkommer aan het snijden
   b) Ik sneed een komkommer/Ik heb een komkommer gesneden
1-2-3-4-5

‘Imagine: Last year you had a little accident with a knife, while cutting a cucumber. Now somebody has spotted the scar on your finger and asks how you received the wound: ’What were you doing last year’?. You tell them:
   a) I was a cucumber at-the-cut
   b) I cut a cucumber’

36) Stel: Vorige maand heb je op een regenachtige dag binnengezeten en een beeld geboetseerd. Je huiskamer lijkt nu wel een galerie! Iemand vraagt: ‘Wat deed je vorige maand?’
   a) Ik was een beeld aan het boetseren
   b) Ik boetseerde een beeld/Ik heb een beeld geboetseerd
1-2-3-4-5

‘Imagine: Last month you sat inside on a rainy day and you moulded a statue. Your appartment now looks like an art exhibition hall! Somebody asks: ’What did you do last month’?:
   a) I was a statue at-the-mould
   b) I moulded a statue’

37) Stel: Je staat in de keuken, en bent bezig met de afwas. Terwijl je bezig bent roept iemand vanuit de andere kamer: ‘Wat doe je nu?’ Je roept terug:
   a) Ik was een pan af
   b) Ik ben een pan aan het afwassen
1-2-3-4-5

‘Imagine: You are in the kitchen, busy doing the dishes. While working, somebody calls at you from the other room: ’What do you do now’?. You call back:
   a) I wash up a pan
   b) I am a pan at-the-washing up’

38) Stel: Je houdt niet zo van koken. Elke avond na het werk kom je thuis en eet je soep, pasta of groenten uit blik. Tijdens de lunchpauze komt het gesprek een keer op koken, en iemand vraagt je: ‘Wat doe je normaal met eten’? Je vertelt:
   a) Ik ben een blik open aan het maken
   b) Ik maak een blik open
1-2-3-4-5
Imagine: You are not too fond of cooking. Every evening after work you come home and eat a canned soup, pasta or vegetable dinner. During the lunchbreak today the conversation is about cooking, and somebody asks you: ‘What do you normally do for dinner?’. You tell them:
a) I am a can at-the-open
b) I open a can’

39) Stel: Vorige maand was het erg rustig op het werk. Er was teveel personeel en je had dus niet veel te doen. Je besloot je toen maar te amuseren met een stuk papier. Helaas zag je baas het en zij vond het niet zo’n goede manier om werktijd door te brengen. Nu vraagt iemand je waarom de baas vorige maand boos op je was: ‘Wat deed je vorige maand?’. Je vertelt:
a) Ik vouwde een vliegtuig/Ik heb een vliegtuig gevouwen
b) Ik was een vliegtuig aan het vouwen

1-2-3-4-5

Imagine: Last month you had a quiet day at work. Too many members of staff were working so there was not much for you to do. You decided to kill time by playing around with a sheet of paper. Unfortunately, your boss spotted it and did not think it such a great way to pass time. Now a colleague is asking why the boss got angry with you: ‘What did you do last month?’. You explain:
a) I folded an airplane
b) I was an airplane at-the-fold’

40) Stel: Je zit thuis achter de computer, als je ineens op een chat programma door een oude bekende wordt aangesproken. Jullie hebben het over vroeger en waar je op dit moment mee bezig bent. Hij/zij vraagt je iets over vorig jaar: ‘Wat was je vorig jaar aan het doen?’. Je vertelt hem/haar:
a) Ik was nog niet klaar met school en woonde in Utrecht.
b) Ik was nog niet klaar met school en was in Utrecht aan het wonen.

1-2-3-4-5

Imagine: You are at home, sitting at your computer, and all of a sudden an old friend starts chatting with you. You talk about old times and about the things you are doing right now. He/she asks a question about what you have been doing last year: ‘What were you doing last year?’. You tell him/her:
a) I hadn’t finished school yet and lived in Utrecht
b) I hadn’t finished school yet and was in Utrecht at-the-live’
Chapter 5: Progressive attraction: a comparative, experimental study on the expression of the aspectual distinction ‘event is ongoing’ in Dutch, Norwegian and German

Abstract

The present paper investigates the conceptual basis for use of aspect markers in Dutch, Norwegian and German, languages in which aspect marking (expressing an event explicitly as 'ongoing') is optional. Systematic event elicitation experiments have been carried out with native speaker informants in the three countries. The results show that German speakers make insignificant use of such markers. On the other hand, usage patterns in Norwegian and Dutch show interesting cases of overlap as well as differences with respect to the set of situational features (as identified in the video clips) that attract and constrain use of the different types of aspect markers available. In Dutch, aspect marking, we claim, is grammaticalizing, while there is no sign that a similar process is taking place in Norwegian.

* This chapter has been submitted for publication (authors: B. Behrens, M. Flecken, M. Carroll & H. Andresen).
5.1. Introduction of the experimental framework

The present paper aims to contribute to our understanding of how verbal aspect is used, conceived, and constrained across three West-European languages. We investigate the extent to which means used to express the aspectual concept ‘event is ongoing’ overlap in meaning and function in the three closely related languages Dutch, Norwegian and German. Use of this aspectual perspective is not obligatory in any context in any of the languages. Factors leading to its selection by native speaker informants are compared in the present study in an experimental setting. Our findings indicate that the degree of overlap across these languages correlates with the extent to which the linguistic means available for expressing the temporal-aspectual concepts are grammaticalized.

Aspectual concepts such as imperfective, progressive, or ongoing are often used interchangeably in the linguistic literature on aspect, as detailed in the overview in Sasse (2002). When we compare use of linguistic markers of the semantic space covered by these notions across languages, i.e. morphosyntactic forms that encode the aspectual distinction ‘event is ongoing’, as opposed to completed, it is necessary to ensure that the phenomena under description are comparable across the different languages. Aspect markers and their semantic interpretation have been studied extensively from a theoretical point of view, not least with respect to English, but empirical studies that compare their use in comparable contexts across languages are only beginning to emerge in the linguistic literature.

Dahl (2000), a comprehensive study of tense and aspect in the languages of Europe, is a major contribution to the literature. But while this survey discusses the different forms and systems across languages, it does not include a semantic analysis based on the actual use of the various means. In this study, therefore, we report on linguistic data elicited from native speakers of the three languages, i.e. their responses to the same visual, non-linguistic input (video clips). The comparison is carried out in an empirical context in which established research procedures in the field of time semantics are complemented by experimental analysis. In the studies in question, speakers of different languages are asked to describe the same set of situations, presented to them in short video clips showing everyday events. The event can be
simple - one event in one clip -, or a short series of interconnected events. The situation types presented have specific temporal properties, manipulated on a systematic basis for the empirical study. This means that the properties of a given situation type are kept constant, allowing the investigation to demonstrate how, and to what extent, event representation patterns overlap and if differences can be linked to the particular tools offered by a given language. In other words, the aim of the present study is to pin down the set of temporal features that attract use of an aspectual perspective, and to see which linguistic means are used by speakers of the three languages, given the specific types of situations they are asked to describe.

The study also addresses the question as to what extent one can speak of a possible grammaticalization of specific aspectual forms. The most important indicator, beyond frequency of use, is de-semanticization, the process by which the lexical meaning becomes bleached and the forms in question start to serve functions which are no longer domain specific (cf. Bybee et al., 1994) (for example: the English to be + V-ing form expresses the notion of progressive aspect in a grammaticalized form). Our investigation shows how use of forms that are grammaticalizing spreads into different semantic domains, as indicated by the different temporal properties of the types of situations used as stimuli in this study.

The results of the experiments performed by Dutch, Norwegian and German native speakers are compared with the findings of a series of studies that includes cross-linguistic comparisons of Romance (French, Italian, Spanish), Semitic (Standard Arabic, Algerian), and Germanic languages (English) which were conducted using the same experimental framework. One of the relevant observations relates to the findings for these former studies whereby certain situation types are prototypical in leading to selection of the perspective 'event is ongoing' in languages such as French or Italian in which this perspective is not obligatory in any context. This framework will be outlined briefly in the next section while a full description of the situation types will be presented below (see 5.2.1).

In order to gain further insight into the notion of aspect, and the factors that trigger its representation in languages in which use of an aspectual perspective is not obligatory, the framework of analysis includes situations that are typically viewed as contexts in which an aspectual perspective is likely to be adopted. These are usually
labelled ‘activities’ (e.g. sing: he is singing; play: he is playing; cf. Vendler, 1957; Comrie, 1976). It is assumed that with situations of this kind, possible temporal boundaries can be defocused, allowing the speaker to view the event as ongoing. Situations viewed in this way are also termed atelic (Comrie, 1976; Bach, 1981; Sasse, 2002) and are represented by 1-state verbs (cf. Klein, 1994). If an event is described as playing ball, for example, versus hitting a ball, hit describes an event with two states or two times in which there is a transition from a time interval with ‘ball not hit’ to one where the assertion ‘ball has been hit’ holds (cf. Klein, 1994; 2000). The contrast between situations represented as having one versus two states is often a question of perspective: if boundaries or transitions from one phase to the other are defocused, speakers make way for a representation of a situation with 1 state verbs: he is playing with blocks, as opposed to two times he is building a tower out of blocks. In the latter case the existence of whatever is being built (the tower) will provide a point of reference with respect to the stage at which the process can be viewed as completed. With the representation he is playing with blocks the possible point of completion is not indicated in the linguistic representation, and the event can be viewed as ongoing.

Following the general assumption that the aspectual distinction ‘event is ongoing’ involves a perspective whereby possible boundaries of the event are defocused, initial studies within the present experimental framework investigated the way in which motion events are represented across languages, and to what extent possible boundaries (source or goal of the event) are defocused (see von Stutterheim, 2003; von Stutterheim & Nüse, 2003). The relevant temporal variables in the study centred around the notion of ‘endpoint’ and the extent to which the goal of a motion event is focused or defocused, when informants are asked to view motion events that are ongoing (a car is travelling along road (to a village) as presented in video clips) and tell what is happening. The results show that differences in the perspectives taken correlate with the selection of an aspectual perspective (e.g. utterance marked by be + V–ing in English). Endpoints of motion events are mentioned to a higher degree in German, where speakers do not select an aspectual perspective, compared to English, where all speakers do. The focus on what can actually be viewed as ongoing (‘what is now the case’) leads to a finer-grained segmentation of the event, and the relevant interval does not generally include prospective endpoints (the final phase of the event in which the entity
in motion is reaching the village, for example, which is not shown in the clips, cf. Carroll, von Stutterheim & Nüse, 2004). These findings were supported by experiments testing non-verbal behaviour: chronometric analysis of speech onset times, direction of attention via eye tracking while viewing the clips (von Stutterheim & Nüse, 2003; von Stutterheim & Carroll, 2006; von Stutterheim, Bastin, Carroll, Flecken & Schmiedtová, under review), as well as further investigations of languages that encode aspect on a systematic basis (Standard Arabic, Russian, Czech, Polish) versus those that do not (German, Dutch).

In the next stage of analysis, the situations classified as ‘activities’ and the related verbs were differentiated with a view to their particular temporal properties (see Carroll, Natale & Starren, 2008 and section 5.2.1 below). ‘Activities’ such as knitting or baking differ, for example, from running, jogging in that baking and knitting typically involve a sequence of sub-events showing changes in state that lead to a final state with the following properties: they include the result given with the presence of an ‘effected object’ such as a knitted scarf, in the case of knitting, or a baked cake, for example, in the case of baking. With running or singing, on the other hand, the final state involves no more than the cessation of the activity in question. There is no tangible result, in contrast to that given with an effected object.

Situations leading to a resultant state were classified as change in state situations with a progressive component. This component is given with the successive steps toward the stage of completion of the effected object, and the contrasts between the pre-stages and the final stage (inferable or actual completion of the effected object). Situations showing someone running or jogging - ‘activities’, in the sense of Vendler - do not exhibit stages of development of this kind and are classified in the experimental framework as situations that do not show a change in state. Change in state situations were manipulated on a systematic scale in the experimental framework with respect to properties such as homogeneity, heterogeneity of its constituent sub-events, duration of the event, whether the resultant state relates to an effected or affected object, and whether the change in state involves an agent or not.

The re-classification of the category ‘activities’ in this way is crucial in the framework of analysis since it draws a distinction between situations that can be simply viewed as ‘ongoing’ (1-state) as well as situations that show changes in state leading up
to the point of completion and with this the target state (the visible or inferable effected object), to given 2-states. As mentioned above, the latter provide a ‘measure’ for progression, since there is a contrast between the changes in state leading up to the final product and the point at which the process is completed (the result with the effected object). Possible preferences in verbal expression allow us to determine, on an empirical basis, whether the form used includes a progressive meaning or not (also in Natale, 2009).

The first cross-linguistic investigation of the factors leading to the use of an aspectual perspective compared speakers of French, Italian, Standard Arabic, Dutch and German (Carroll, Natale & Starren, 2008; Natale, 2009; Leclerq, 2008; Bouhaous, in prep.). In Italian and French, where selection of an aspectual perspective is not obligatory in any context, aspect marking was found to be more frequent in the description of change in state situations that show progression to a resultant state, compared to situations showing no change in state (‘activities’). In Italian use of the form stare + gerund is highest in this context at 56.2%; use of the form en train de (‘in process of’) in French is also highest at 37.3% for this situation type. In situations with no change in state (‘activities’) rate of use in Italian is lower at 39.1%, with French at 21.5%, while use in English is 100% in all situations (Carroll, Natale & Starren, 2008; Leclerq, 2008; Natale, 2009).

The findings for Dutch, Norwegian and German native speakers are compared in the present study with the findings presented above, using the same framework. The number of speakers who select an aspectual perspective overall does not exceed 30.0% in any of the three languages (see in detail below). The relevance of the previously identified variables in attracting the use of an aspectual perspective (e.g. focusing/defocusing endpoints in motion events showing a change in place, changes in state leading to a resultant state/no change in state) was thus tested on the same empirical basis for the three languages.

The findings indicate that there is overlap as well as differences between the three languages, as will be shown below. The results provide further evidence for the claim that in Dutch the grammatical category of progressive aspect is grammaticalizing with the aan het X zijn form (see Flecken, under review), whereas Norwegian and German are not undergoing a similar process.
The paper is set out as follows: Section 5.2 describes the method used in collecting the data and the visual stimuli presented to the informants. The stimuli and the relevant temporal properties varied across different situation types are described before we present and discuss the results for the present comparison between the three languages (sections 5.3 and 5.4).

5.2. Method

5.2.1. Description of the stimuli

The experiments consist of the online re-telling of a set of short video clips (66) which average 6 seconds in length. The video clips are dynamic, live recordings, showing everyday situations of different types. The classification of the stimuli (the video clip scenes) into situation types is based on specific temporal properties isolated as relevant for the cross-linguistic comparisons and not with respect to distinctions that are based on linguistic expressions. As described above, the empirical analysis is based on speakers of different linguistic systems and their responses to the same set of stimuli showing the same temporal features.

The framework covers 6 different situation types. The set showing change in state situations leading to an evident resultant state involve an agent who is acting on a specific object. One group of video clips shows the agent in the process leading to the creation of the particular object (a model airplane, for example) - an effected object. The second group of causative actions, with an affected object, do not involve the creation, but rather the transformation of an object (decorating a cake). The change in state situations include

a) an active agent,

b) causative actions that involve successive transformations in the state of an entity that lead progressively to a target state (effected object or affected object). Situations of this kind show a contrast between the state leading to the point of completion and the target state. This contrast can thus provide a measure for progression, since the ‘distance’ at any point to the intended target is
visible. The transition to the end state is given with the point at which the transformation is completed and the entity is thus fully transformed. Situations of this kind have two states, or more precisely, two times - the intervals preceding the transition point and those following it (cf. Klein, 2000).

As mentioned above, these situations include events with homogeneous and heterogeneous subevents. An event is typically viewed as homogeneous when its subevents 'satisfy the same description as the event itself' (Ryle, 1949; Vendler, 1957). Note that in the present framework this criterion applies for the set of subevents shown in the video clip, and not necessarily in overall terms. An event that can be described as 'baking a cake', for example, consists of many different subevents, but those shown in the clip all satisfy the same description 'stirring a cake mix in a bowl'. The event is homogeneous 'in that it precludes distinctive initial and final states' and thus removes the most obvious basis for bounding (cf. Langacker, 1990). Stimuli of this type are contrasted in the framework with those showing situations with heterogeneous subevents, where different subevents with identifiable initial and final states (such as, for example, some of the different actions involved in building a model airplane) are presented in the clip.

The next set of situations show transformation of an entity on a LOW SCALE and are without a visible agent (candle burning, cigarette burning in an ashtray, tablet dissolving in water). They have

a) no visible agent,
b) two temporal states or times given with the contrast between the time in which the candle is burning down, and the time in which it is burnt down. The transformation process is 'low scale' in that the changes in state are less salient, compared to the change in state situations where an agent acts on an entity to reach a target state (effected object).

The situation type referred to as situations with no change in state includes scenes depicting sports or games such as someone fishing, jogging or playing the violin. These situations
a) do not involve any inherent transition point,
b) have only one temporal interval with no change in state,
b) with respect to the nature of the end state, situations of this kind show cessation of the action only (someone stops fishing), with no inherent change on the part of the participant.

The final situation type consists of motion events that show a change in place with a person, vehicle or animal moving along a path from point A to point B. They cover two groups which differ with respect to the nature of the goal point:

a) situations in which the goal or endpoint is actually reached by the moving entity during the time span given with the video clip (for example a car driving into a garage, a girl running to the train station and in the main door).
b) situations in which the entities involved are not depicted as reaching a possible goal (for example, two girls walking along a path in the direction of a house).

The schema below gives an overview of the types of situations that were distinguished in the stimulus set and their relevant temporal properties.

- **Change in state situations (2 types)**
  - Situations presented as ongoing with an effected or affected object and showing an inherent change in state with progression to a target state (active agent creates/transforms object); transformation of entity high scale
  - Situations presented as ongoing with an inherent change in state, no visible agent, transformation is low scale and leads to non existence of object as its end state

- **Situations with no change in state:**
  - Situations presented as ongoing
  - No inherent change in state, end state involves cessation of action

183
• Motion events (endpoint not reached):
  - Situation presented as ongoing
  - Change in place
  - Endpoint not evident, inferable

• Motion events (endpoint reached):
  - Situation presented as goal-oriented
  - Change in place
  - Endpoint evident and reached

It is important to bear in mind that the classification above applies to the actual temporal features of (parts of) the situations presented in the video clips; the classification at this point makes no claims about how speakers of different languages actually describe the events. Our focus, as mentioned above, relates to the extent to which speakers select an aspectual perspective, given certain situation types and their temporal properties, and the linguistic means available and selected to express it.

5.2.2. Experimental procedure

The stimulus set consists of 66 video clips, depicting the 6 situation types described in 2.2 above and a group of clips that function as distracters (see table 1).
Table 1: Situation types represented in the stimulus set

<table>
<thead>
<tr>
<th>Change in state situations, transformation of entity high scale (agentive)</th>
<th>Change in state situations, transformation low scale (non-agentive)</th>
<th>Situations with no change in state</th>
<th>Motion events</th>
<th>Distracters</th>
</tr>
</thead>
<tbody>
<tr>
<td>affected object</td>
<td>affected object</td>
<td>endpoint not reached</td>
<td>endpoint reached</td>
<td>different type items</td>
</tr>
<tr>
<td>9 video clips e.g. building house of cards</td>
<td>5 video clips e.g. peeling a potato</td>
<td>5 video clips e.g. a candle burning</td>
<td>9 video clips e.g. a man surfing</td>
<td>12 video clips e.g. car driving down the road (to X)</td>
</tr>
<tr>
<td>12 video clips e.g. dog running into a house</td>
<td>14 video clips e.g. man tidying an office</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All participants were asked to tell ‘what is happening’ (in Dutch: Het is uw opgave om te vertellen wat er gebeurt, in German: Es ist ihre Aufgabe, zu sagen was passiert; in Norwegian: Du skal bare fortelle hva som skjer), and were explicitly told to focus on the event only, and not to give a detailed description of the scene. They were also told that they could start to speak as soon as they recognized what was happening. The actual experiment took about 15 minutes, after which the informants filled out a questionnaire concerning their linguistic and educational background.

5.2.3. Participants

The native speakers of Dutch consisted of a group of 32 and a group of 26 students (aged between 18-26 years, 60% female, 40% male) at the Radboud University in Nijmegen, the Netherlands, recorded at different dates. The German native speakers were a group of 32 and a group of 20 students at the University of Heidelberg in Germany, recorded at different dates (age range 20-35 years, approx. 70% female, 30%)

1 For each language, two datasets were analyzed and put together in the present study. Both datasets were elicited under the same conditions. Of the second dataset, the only situation type included in the present analysis are the "no change in state situations", since the first set of data collection covered the other situation types only.
male participants). The Norwegian speakers were a group of 30 and a group of 23 students at the University of Oslo, also recorded at different dates (age range 18-29 years, approx. 50% female, 50% male participants). Native speaker participants were excluded from the analyses when their answers to questions in a language background questionnaire indicated a long stay in an environment where a language other than their mother tongue is spoken, or when they had a very advanced knowledge of another language. The data were collected in the respective countries (i.e. the Netherlands, Germany and Norway) by research assistants who were native speakers.

5.3. Results

5.3.1. Coding

Figures presented in the analyses below are based on morphosyntactic verbal forms that express the aspectual perspective ‘event is ongoing’. We present the relevant aspect markers used in the three languages in sections 3.2-3.4 below.

5.3.2. Overall frequencies of markers that express aspectual perspective ‘event is ongoing’

Overall, the three languages differ with respect to the frequency with which the aspectual perspective is selected. Dutch shows the highest frequency, whereas German speakers rarely select this perspective. The result for Norwegian is between Dutch and German:

Table 2: Overall frequency of markers expressing ‘event ongoing’ in the data (% of total no. of utterances for critical items)

<table>
<thead>
<tr>
<th></th>
<th>Dutch</th>
<th>Norwegian</th>
<th>German</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>443/1610</td>
<td>217/1497</td>
<td>22/1556</td>
</tr>
<tr>
<td></td>
<td>27.52%</td>
<td>14.50%</td>
<td>1.41%</td>
</tr>
</tbody>
</table>

A two-tailed z-test to compare the proportion of aspect markers between Dutch and Norwegian gives a significant difference ($z = 8.822$, $p < .05$). Dutch to German is also significant ($z = 20.699$, $p < .05$) as is German and Norwegian ($z = 13.393$, $p < .05$).
Table 3 and figure 1 below gives the frequency with which the aspectual perspective has been coded per situation type.

**Table 3: Use of the aspectual perspective per situation type**

<table>
<thead>
<tr>
<th>Situation type</th>
<th>Change in state situations with transformation on a high scale (agentive)</th>
<th>Change in state situations with transformation on a low scale (non agentive)</th>
<th>Motion events</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>affected object</td>
<td>affected object</td>
<td>endpoint not reached</td>
</tr>
<tr>
<td>Dutch</td>
<td>154/234</td>
<td>179/288</td>
<td>84/160</td>
</tr>
<tr>
<td></td>
<td>65.81%</td>
<td>62.15%</td>
<td>52.5%</td>
</tr>
<tr>
<td>Norwegian</td>
<td>80/207</td>
<td>59/270</td>
<td>13/150</td>
</tr>
<tr>
<td></td>
<td>38.65%</td>
<td>21.85%</td>
<td>8.7%</td>
</tr>
<tr>
<td>German</td>
<td>17/180</td>
<td>4/288</td>
<td>1/160</td>
</tr>
<tr>
<td></td>
<td>9.44%</td>
<td>1.39%</td>
<td>0.63%</td>
</tr>
</tbody>
</table>

**Figure 1: Expressions marking ‘event ongoing’ for the different types of situations in the three languages**
A closer look at the extent to which speakers select an aspectual perspective across the 6 different situation types reveals distinct patterns of use in the three languages. With Dutch frequency of use is similar for both change in state situations with an effected object as well as situations with no change in state (the difference is not significant: no change in state versus change in state effected object z = 0.774, n.s.). Use with change in state situations with an affected object is also high, while frequency of use in situations with a low scale transformation (candle burning) as well as motion events is comparably low.

In Norwegian the selection of an aspectual perspective is lower in overall terms. The findings show a clear preference with situation types without a change in state (situations with no change versus change in state with an effected object z = 3.977, p<.05). There is no significant difference in frequency of use with change in state situations with a high level of transformation (giving an affected object) and situations with low scale transformations. Both frequencies are equally low at 20% (change in state leading to an effected object versus change in state on a low scale z = 0.558, n.s.).

We thus find that for Norwegian, the prototypical situation type for the selection of the aspectual perspective ‘event is ongoing’, as frequently stated in the literature, involves situations with no change in state (‘activities’). This is the strongest attractor. In Dutch both change in state situations as well as those without a change in state are equally likely to lead to the selection of an aspectual perspective. Dutch thus patterns with the findings for the Romance languages Italian and French where overall frequencies of use are high for change in state situations (see 1; Carroll, Natale & Starren, 2008), while this is not the case in Norwegian and German. Only in Dutch, the variable inherent sequence of changes in state leading to an effected object attracts aspectual markers to the same extent as situations without a change in state.

The overall percentage for German is very low, and thus unreliable. For the few cases observed the aspectual perspective is more likely to be selected with situations showing no change in state.

A final observation for all three languages relates to the fact that the selection of the aspectual perspective is very low in the description of motion events showing a goal-directed change in place, irrespective of whether the endpoint is reached or not. This constraint was also observed for other languages studied so far, in which overall
frequency of occurrence of an aspectual perspective across all situation types does not exceed 30%, as in French for example (Leclerq, 2008). In Italian, where overall frequency of use for all situation types is 41.95%, motion events are the situation type in which an aspectual perspective is least likely to occur (Natale, 2009). The findings thus pattern with the languages in the present study. Constraints observed across the different situation types represent selection restrictions that point to a development of the conception of aspect in our object languages. The next sections take a closer look at the different forms used in Dutch, Norwegian and German respectively and the contexts in which they are typically used.

5.3.3. Dutch

5.3.3.1. Types of forms used in Dutch

The speakers used the following constructions:

(1) *aan het infinitive*\(^2\) *zijn*: *een mevrouw is een torentje aan het bouwen*  
a lady is a tower at the build  
’a lady is building a tower’

(2) *zitten te infinitive*: *een oudere dame zit een sjaal te breien*  
an elderly lady sits a scarf to knit  
’an elderly lady is knitting a scarf’

(3) *staan te infinitive*: *een man staat te vissen aan de waterkant*  
a man stands to fish at the waterfront  
’a man is fishing at the waterfront’

(4) *liggen te infinitive*: *een tablet ligt in een glas te bruisen*  
a tablet lies in a glass to bubble  
’a tablet is bubbling in a glas’

\(^2\) Although the *aan het-construction* is usually described in the literature as consisting of an infinitive (see e.g. Boogaart, 1999), the presence of the article *het* (‘the’) may be taken to indicate that the form is nominal in nature, a verbal noun. In van Pottelberge (2004), however, a number of arguments are put forward in favour of labelling the *aan het-construction* a verbal construction. In line with this analysis, the Dutch construction is considered verbal, as opposed to the German *am-construction* that is more nominal in nature (see 3.5).
The first construction involves a locative preposition (aan ‘at’) plus an infinitive (also described in Boogaart, 1991, 1999; Ebert, 2000; van Pottelberge, 2004; Booij, 2008; Flecken, under review), whereas constructions 2-4 all involve a posture verb plus an infinitive (for a detailed description see Lemmens, 2005)\(^3\). The last expression (5) involves the adjective *bezig* ‘busy’ plus an infinitive with the infinitive marker ‘te’ (see e.g. Ebert, 2000). All constructions express verbal aspect and explicitly encode the event as ongoing.

The *aan het-*construction shows the following specific features with respect to possible syntactic constraints. For example, arguments of the verb phrase can be included within the verb phrase as well as move outside of it (see (6)).

\[ (6) \quad \text{een meijs is piano aan het spelen} \]
\[ \text{a girl is piano at the play} \]
\[ \text{een meijs is aan het pianospelen} \]
\[ \text{a girl is at the pianoplay} \]
\[ \text{‘a girl is playing the piano’} \]

This pattern shows that the preposition is no longer necessarily head of a prepositional phrase that includes the object (see Boogaart, 1991; van Pottelberge, 2004; von Stutterheim, Carroll & Klein, 2009) indicating that the function of *aan het* is no longer that of a true (spatial) preposition. Its position close to the verb shows increasing grammatical status. In van Pottelberge (2004) it is argued that the *aan het-*construction also shares features with other analytical verbal forms, such as the perfect, in that it is for example possible to separate the first part of a particle verb (e.g. *inpakken* ‘to pack’) from the *aan het* phrase, as in (7).

\[ (7) \quad \text{een meijs is piano aan het inpakken} \]
\[ \text{a girl is piano at the packing} \]

\[^3\text{Although the Norwegian posture verb constructions are pseudocoordinations, and thus differ from the present Dutch form, it is generally accepted that in Middle Dutch, the posture verb construction was also a pseudocoordination, as in *bij zit en leest* (*he sits and reads*) (Leijis, 1985).}\]
Utterances that include a posture verb construction do not allow such flexibility in Dutch. More importantly, actual position is still a core element in selection, and the verb phrase allows for the inclusion of locative adjuncts (e.g., *in een stoel* ‘in a chair’, see (8)).

(8)  

\[
\begin{align*}
\text{een vrouw \textit{zit} een sjaal \textit{te breien}} \\
\text{een vrouw \textit{zit in een stoel een sjaal \textit{te breien} /}} \\
\text{een vrouw \textit{zit een sjaal \textit{te breien in een stoel}}}
\end{align*}
\]

a lady sits in a chair a scarf to knit /
a lady sits a scarf to knit in a chair

‘a lady is knitting a scarf in a chair’

The next section will compare the frequency of use of these forms in the Dutch data.

5.3.3.2. Frequency of use of the different forms

The frequency with which the different means occur in the different situation types is depicted in table 4.
Table 4: Types of ‘ongoingness’ markers used in the Dutch data (% of all utterances for the situation type)

<table>
<thead>
<tr>
<th>Situation type</th>
<th>Aan het X zijn</th>
<th>Zitten te + V-inf</th>
<th>Liggen te + V-inf</th>
<th>Staan te + V-inf</th>
<th>Bezig te + V-inf</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situations no change in state</td>
<td>116/234 49.57%</td>
<td>22/234 9.40%</td>
<td>6/234 2.56%</td>
<td>10/234 4.27%</td>
<td>0</td>
<td>154</td>
</tr>
<tr>
<td>Change in state: effected</td>
<td>161/288 55.90%</td>
<td>12/288 4.17%</td>
<td>0</td>
<td>0</td>
<td>6/288 2%</td>
<td>179</td>
</tr>
<tr>
<td>Change in state: affected</td>
<td>79/160 49.38%</td>
<td>2/160 1.25%</td>
<td>0</td>
<td>0</td>
<td>3/160 1.88%</td>
<td>84</td>
</tr>
<tr>
<td>Change in state: low scale</td>
<td>12/160 7.50%</td>
<td>1/160 0.63%</td>
<td>5/160 3.13%</td>
<td>1/160 0.63%</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Motion events - EP not reached</td>
<td>7/384 1.82%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Motion events - EP reached</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>375/1610</td>
<td>37/1610</td>
<td>11/1610</td>
<td>11/1610</td>
<td>9/1610</td>
<td>37/1610</td>
</tr>
</tbody>
</table>

We observe that the *aan het*-construction is used most frequently across the board (*aan het*: 375 out of 443, taking all forms) where speakers select an aspectual perspective.

The situation types will now be analyzed with respect to the possible features that lead to selection of the aspectual perspective. Focus of interest is placed on the factors of *dynamics* (high vs. low) and status of the subevents with respect to *homogeneity* in individual scenes. Starting with change in state situations with an effected object (179/288, 62.15% marked for ongoingness), the figures break down as follows for the relevant scenes: Scenes with subevents that are highly homogeneous evidence the highest rate of occurrence: *painting a picture* (27/32 responses); *knitting a scarf* (21/32 responses). The rate is lower in the group of scenes with heterogeneous subevents:
building a house of cards (12/32 responses); making a figure out of plasticene (15/32 responses); folding an airplane (15/32 responses). The subevents in the latter scenes are heterogeneous in that they include ‘folding a sheet of paper’, ‘turning the paper’ and ‘straightening the wings’, in the case of folding a paper airplane; or ‘taking a card’ and ‘placing it on the house’. Although the results point to the role of homogeneity as a core feature in leading to use of an aspectual perspective, occurrences with heterogeneous subevents are also relatively high.

In situations with ‘no change in state’, 154 out of a total of 234 responses (65.81%) presented the event as ongoing. A detailed analysis has to be conducted with respect to the means used, since two types of constructions occur frequently in this context: posture verbs account for 38/154 of the expressions (24.68%), as well as the aan het-construction at 116/154 (75.32%), which is the most frequent form used. Factors guiding use will be analyzed separately below, taking a closer look at posture verbs.

As presented in the table, occurrences of posture verbs are low in overall terms (59/443 - 13.3% of all means expressing ongoingness), compared to the predominant use of the aan het-construction (375/443-84.6%) in encoding this aspectual perspective. The findings show that change in state situations showing progression to a tangible resultant state clearly increase the attractor effect for the aan het-construction, compared to posture verbs. The latter (the zitten te construction, for example) are more likely to occur with ‘no change in state’ situations. Although all change in state situations show a person either sitting or standing, thus allowing use of posture verbs in theory at least, posture verbs are not the preferred form. There are only 12 occurrences of posture verbs, compared to 161 occurrences of the aan het-construction with change in state situations with an effected object.

We will now take a closer look at the use of posture verbs (59 out of 443 forms expressing aspect) and their distribution across the situation types: posture verb constructions are used to describe situations with no change in state (38/59: 64.41% of all posture verbs), situations with a change in state on a high scale (14/59: 23.73%) as

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4 The other 9 occurrences of aspectually marked utterances involve the ‘busy’ type marker of ongoingness bezig te + V-inf (busy to + V-inf). Since the number of occurrence is very low, no further analyses were conducted on this type.
well as non-agentive low scale change in state situations (7/59: 11.86%). Taking all change in state situations together, i.e. those with both high scale and low scale transformation, the overall frequency of occurrence (21/59: 35.60%) is lower than in situations showing no change in state (38/59: 64.41 %). This finding indicates that there is a preference to apply posture verbs in situations without changes in state.

If a posture verb is selected, there is always an overlap between the semantics of the posture verb and the posture in the situation. The agent of the action is in a physical position that corresponds with the meaning of the posture verb (see examples of use of the *zitten te* construction for video clips showing an agent clearly *sitting in* (9)).

(9) Change in state effected - video clip ‘beading necklace’:

*een vrouw zit kralen te rijgen aan een draad voor een ketting*

a lady sits beads to thread on a string for a necklace

‘a lady is threading beads on a string for a necklace’

Change in state affected-video clip ‘peeling potatoes’:

*een meisje zit aardappelen te schillen met een mesje*

a girl sits potatoes to peel with a knife

‘a girl is peeling potatoes with a knife’

No change in state– video clip ‘relaxing on bench’:

*een meisje zit te zonnen in een park*

a girl sits to sunbathe in a park

‘a girl is sunbathing in a park’

Likewise, in the video clips showing situations without a change in state, there are scenes in which the participant is clearly standing (e.g. a person by the river, fishing, or musicians playing in the street). In the few cases in which a posture verb is used in this context the form is *staan te* (stands), e.g. (10).

(10) *er staat een man te vissen in een rivier*

there stands a man to fish in a river
‘there is a man fishing in a river’

twee mensen staan op straat muziek te maken
‘two persons are making music on the street’

The *liggen te* construction is mainly used with one single video clip within the low-scale transformation situations group that lacks an agent (a smouldering cigarette is seen as lying in an ashtray, cf. (11)).

(11)  er ligt een sigaret te smeulen in een asbak.
‘there lies a cigarette to smoulder in an ashtray’

Many of these occurrences of the posture verb constructions also include reference to an actual location or position in the utterance (as in (10) above: *op straat* ‘in the street’, or (11) *in een asbak* ‘in an ashtray’).

5.3.3.3. Factors driving use of posture verbs

In addition to the question of posture, conditions of use for posture verbs as opposed to the *aan het*-construction can be briefly illustrated on the basis of the following scenes, which reflect usage patterns at two extremes. The participants in the situation can be compared with respect to posture in both cases, in that both are sitting on a chair. In one case an agent acts on an entity, showing progression to a target state (effected object), while in the other nothing happens:

(i) a person is sitting on a chair in the sun, relaxing (single participant, no change in state)
(ii) a person sitting on a chair, knitting a scarf (change in state, participant acting on object)
In the first case 13 out of 26 participants who select an aspectual perspective, mark aspect by means of *zitten te* or *liggen te* (*een vrouw zit/ligt (op een bankje) van de zon te genieten* ‘a lady sits/lies (on a bench) of the sun to-enjoy’) while only 4/26 use *aan het* as in *een vrouw is van de zon aan het genieten* or *een meisje is aan het zonnen* (*a lady is of the sun at-the-enjoy*/ *a girl is at-the-sunbathing*). In the second case, the *change in state situation with an effected object*, only 7 out of 32 participants who select aspect use the posture verb construction *zitten te* whereas 21 out of 32 participants select the *aan het*-construction.

Looking now at the frequency with which these forms occur across the situation types, the findings show that posture verbs occur in situations with a high level of dynamicity and an inherent change in state (effected plus affected object) in 14 out of 59 cases (23.7%). Occurrences of posture verbs in situations showing changes in state on a low scale, with no visible agent, amount to 7 out of 59 cases (11.8%) (*a candle burning* (*staan te* is used), *a cigarette lying and burning in the ashtray* (*liggen te* is used)). Posture verbs can thus occur in contexts with no visible agent (candle burning), but frequency of use is low.

Although use of posture verbs is infrequent, compared to the *aan het*-construction, the numbers reveal that dynamic situations are not a strict constraint on use. The overall frequency of use adds up to 21/59 (35.5%) occurrences in change in state situations, leaving 38/59 (64.4%) in situations that do not show a change in state. Comparing this to situations of use of *aan het*, we see a clear difference. Use occurs very frequently in situations with a high level of dynamicity and changes in state, and is low in situations with a low level of dynamicity (only 12/375 (3.2%) occurrences of *aan het*).

In sum, the range of situation types covered in the framework show how posture verbs are typically used with situations with no change in state while the *aan het* construction accommodates situations with and without a change in state. The *aan het*-construction, thus, clearly supersedes posture verbs as the form which is most likely to be selected in all contexts.
5.3.3.4. Constraints on the selection of aspectual perspective with motion events

An aspectual perspective is unlikely to be selected in Dutch with ‘change in place’ situations with directed motion. The rate of occurrence is 1.82% (7 occurrences only). To sum up, Dutch speakers show clear preferences in the selection of means to express an aspectual perspective for the situation types studied. Use of posture verbs in Dutch show a posture constraint, and frequencies are low (59 occurrences in the present study). They are also markedly lower than the scenes would allow, if posture were a determining factor. Although they are found in all situation types, they are clearly superseded by the aan het-construction in rate of occurrence (443 in all). However, neither form type, neither verbs nor the locative aan het-construction, have yet developed to accommodate ‘change in place’ situations with directed motion to allow use of an aspectual perspective in this context. The predominance in frequency of the aan het-construction, along with morpho-syntactic features and the lack of dependency on features such as posture, show that this form is more grammaticalized and is more likely to accommodate all types of situations.

5.3.4. Norwegian

5.3.4.1. Types of forms used in Norwegian

From a syntactic point of view the formal markers of an aspectual viewpoint used by the informants can be divided into two subgroups: one form with two tensed verbs linked by the coordinator og (and), i.e. the pseudo-coordination as in sitter og strikker (sits and knits), the other form a tensed verb with a preposition followed by the infinitive, as in holder på å vaske (‘holds on to wash’). We present the two structures in turn.

The form of the Norwegian pseudo-coordinations parallels the posture verb + infinitive constructions in Dutch, viz.:

(12) En dame sitter og strikker       Een vrouw zit te breien
    A lady sits and knits            A lady sits to knit
In both languages the ongoingness is marked with verbs denoting the postures of sitting, standing and lying. Norwegian also has two other pseudocoordinate expressions: one constructed with the copula followed by a locative adverb (speaker-relational, deictic perspective); the other takes the Norwegian verb drive (Eng.: drive). Examples are given in (13):

(13) a. *Sitter og ...:*  *en dame som sitter og perler et perlekjede*
   Sits and...  a lady who sits and pearls a pearl necklace

   b. *Står og ...:*  *det er ei dame som står og pynter en kake med krem*
   Stands and...  it is a lady who stands and decorates a cake with cream

   c. *Ligger og...:*  *en røyk som ligger og ryker*
   Lies and...  a cigarette which lies and smokes

   d. *Er ute og ...:*  *her har vi en kvinne som er ute og går ved noen bygninger*
   Is out and...  here have we a woman who is out and walks along some buildings

   e. *Driver og .../ (driver på og ...): en person som driver og hogger ut et ansikt i tre*
   Drifts and ../(drifts on and..)  a person who drifts and carves a face in wood

The other group of verbs used to mark a situation verbally as ongoing combines with prepositions like på (‘on’), med (‘with’), til (‘to’) plus the infinitive of the verb carrying the main lexical content of the sentence. The verb used in each periphrastic progressive is a word that, when used in other contexts, either describes continuity (holde), movement (i ferd) or path (på vej). Examples are provided in (14):

(14) a. *Holder på å...:*  *en mann som holder på å skjære ut en trefigur*
   Holds on to...  a man who holds on to carve a wood figure

---

5 See de Groot 2000 for a discussion of the absentive use of this form.
b. *Er i ferd med å...:* et tog som er *i ferd med å kjøre inn i en tunnell inn i fjellet*

In journey with... a train which is in journey with to drive into a tunnel into the mountain

c. *Er på vei til å...:* en røyk som ligger i et askebeger og er *på vei til å brenne opp*

Is on way to... a cigarette which lies in an ashtray and is on way to burn up

d. *Er i gang med å...:* en vaskemaskin som er *i gang med å vaske klær*

Is in going with.. a washing machine which is in going with to wash clothes

This group of forms has been termed ‘prospective’, or the *prospec group*, in the literature (Tonne, 1999, 2007), for the very reason that it is held to have two types of imperfective meanings: Either the subject referent is in the midst of a situation, or the subject referent is in progress towards a point of change (Tonne, 2006:175). In this latter use the event referred to is seen at a stage before the termination or result state, notable often with the implicature that this result state will not obtain.

The pseudo-coordinations are held to have a process meaning, describing a person in the midst of an activity, as in for example (15)

(15) *en dame sitter og skreller poteter*

‘A woman peeling potatoes’/lit: sits and peels potatoes.

The pseudocoordinations are so named because the apparent coordinated structure (with the conjunction *og*) has properties that are more closely connected with the periphrastic form.

First of all, the verb in the first conjunct is taken from a restricted set (mainly posture verbs). Furthermore, from a syntactic point of view they have certain properties in common with auxiliaries: In Yes-No questions with auxiliaries, for example, the subject must be placed between the auxiliary and the main verb, as in (16a). Example (16b) is unacceptable. Pseudocoordinations are constrained by the
same rule, as exemplified in (17). Regular VP coordination does not behave this way, as exemplified in (18).

(16)  a. *Skal du sole deg (Shall you sunbathe yourself)
      b. *Skal sole deg det (Shall sunbathe yourself you)

(17)  a. *Sitter du og soler deg? (Sit you and sunbathe yourself)
      b. *Sitter og soler deg det? (Sit and sunbathe yourself you)

(18)  a. Sover og spiser du hjemme? (Sleep and eat you at home)
      b. *Sover du og spiser hjemme? (Sleep you and eat at home)

This syntactic difference has been described for Norwegian by Tonne (1999), and for Danish in Bjerre and Bjerre (2007). Norwegian, Swedish and Danish do not differ on this point.

Another argument that the structure is not a regular VP coordination is the fact observed by Lødrup (2002) that it allows a presentational focus construction, as in (19a) below. This is unacceptable for regular VP conjunction, as indicated in (19b):

(19)  a. Det sitter en dame i hagen og soler seg
       There sits a lady in the garden and sun-tans herself

       b. *Det sover en mann i hagen og drømmer
          There sleeps a man in the garden and dreams

Moreover, pseudocoordinations allow an argument of the first verb to appear after the first or after the second verb (20):

(20)  a. Han står i hagen og glor (he stands in the garden and gazes)
      b. Han står og glor i hagen (he stands and gazes in the garden)
The locative element is clearly an argument of the first verb: If we leave the first conjunct out, the combination sounds odd (21):

(21) ??Han glor i hagen (he gazes in the garden)

The syntactic flexibility of locative markers in the posture verb constructions suggests that relative to the second conjunct, the first conjunct has a different status than true coordinations. This is confirmed by the information-structurally interesting observation that the first conjunct can only be assigned a very restricted set of discourse roles such as background (Darnell, 2008), as opposed to true VP coordinations in which the set of discourse relations between the conjuncts is much less restricted. Also the first conjunct is always unstressed, main stress falling on the predicate in the second conjunct.

From a semantic point of view it has been claimed that the meaning of the verb in the first conjunct is somewhat bleached. This has been observed by a number of linguists with respect to pseudocoordination in Scandinavian generally (Vannebo, 1969, Tonne, 1999 for Norwegian). Yet, as we shall see, the posture meaning is retained in the sense that the situations it applies to correlate with the meaning of the posture verb chosen. This constraint is thus no different from the constraint on Dutch posture verb constructions.

5.3.4.2. Frequency of use of the different forms

The frequency counts of the different markers used in the Norwegian data are listed in Table 6.
Table 6: Types of markers of ongoingness used in the Norwegian data (% of all utterances for the situation type)

<table>
<thead>
<tr>
<th>Situation type</th>
<th>Pseudocoordinations</th>
<th>Prospec group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sitter og</td>
<td>Ligger og</td>
</tr>
<tr>
<td>No change in state</td>
<td>24/207 (11.21%)</td>
<td>1/207 (0.47%)</td>
</tr>
<tr>
<td>Change in state: effected</td>
<td>47/270 (17.41%)</td>
<td>0</td>
</tr>
<tr>
<td>Change in state: affected</td>
<td>9/150 (6%)</td>
<td>0</td>
</tr>
<tr>
<td>Change in state: low scale</td>
<td>0/150</td>
<td>8/150 (5.33%)</td>
</tr>
<tr>
<td>Motion events EP not reached</td>
<td>1/360 (0.28%)</td>
<td>0</td>
</tr>
<tr>
<td>Motion events EP reached</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>81/1497</td>
<td>9/1497</td>
</tr>
</tbody>
</table>

We note that the prospec forms are very infrequent in the data (28/1497, as compared to 189/1497 for the pseudo-coordinations). The infrequency with which these forms have been used by our informants could confirm Tonne’s conclusion (see 3.4.1), that they often involve an implicature of non-obtained result, i.e. we would need more complex scenes demanding longer narratives to assess their use in the experiment. We shall therefore leave them out of the present discussion.

The two most frequent expressions used by our informants are the *stand* and *sit* posture verb constructions, the former appearing most frequently in the description of situations without a change in state (18.22%), the latter being somewhat more frequent in the descriptions of the change in state situations with an effected object (17.41%). This distribution is conditioned by the fact that most video clips in the 'no change in state' group actually show agents in a standing position, whereas video clips in the change in state group show agents sitting. The data thus confirm that there is a
very tight semantic overlap between the posture verbs used and the posture of the agents in the scenes. This explains the infrequency of ligger og. It undoubtedly results from the nature of the scenes, which very seldomly depict a situation involving a lying position. As with the Dutch results presented above, we conclude that although the posture verb constructions are used regularly to mark an action as ongoing, the expressions retain their lexical meaning and are therefore chosen relative to the actual posture of the agent in the video clip. Contrary to previous literature on this form, however, they are not restricted to truly agentive actions. Our change in state situations with transformation on a low scale have inanimate subjects (see section 2.1), and this does not prevent representations by means of posture verb constructions.

In comparing the Norwegian results with the posture verb constructions in Dutch we find a significantly higher frequency of use in Norwegian. The non-posture verb structures in Norwegian do not seem to have competitors of any strength similar to the more abstract aan het structure in Dutch. A potential competitor would be the driver og construction: This has a rather abstract meaning, evidence being the fact that it is used to mark ongoingness (though rarely) in nearly all situation types (thus relatively insensitive to specific temporal or spatial properties of the situation). Nevertheless, when the informant chooses to mark ongoingness explicitly, there is still a clear preference for using posture verb constructions if the visual input allows for that.

Another notable preference is that the locative constructions på vei and (to some extent) ute og are mainly used to represent motion events (with or without endpoint). This again may be related to the lexical content of the construction: På vei means ‘on way’ and thus has a strong directional change-in-place component. In comparison with Dutch and German, Norwegian is unique in having specific forms to describe ongoingness in motion events. Though, bear in mind that use is very infrequent.

The selection of an aspectual perspective across the situations types will now be analyzed with respect to the possible role of homogeneity of the subevents in leading to the use of aspect, as well as dynamicity (high or low), as for Dutch above.

Occurrences in change in state situations with an effected object amount to 59 out of a total of 270 responses (21.85%) for all scenes under this situation type with 30 speakers per scene. Within this situation type, we observe that scenes with subevents
that are highly homogeneous display the highest rate of occurrence: *knitting a scarf* (19/30 responses; 63.3%); *painting a picture* (12/30 responses; 40%). Rate of occurrence drops markedly, however, in scenes with heterogeneous subevents: *beading a necklace* (5/30 responses; 16.6%), which involves taking a bead and threading on the string with the row of beads; *building a house of cards* (3/30 responses; 10.0%); *folding a paper airplane* (4/30 responses; 13.3%). All of the latter scenes have heterogeneous subevents, as presented in the video clip. Homogeneity is given in the painting or knitting situation through continuity of movement of the needles/paint brush without a change in place.

These situations contrast with the ‘sketching the tree’ situation (3/30 responses; 10.0%), as another example, which has heterogeneous subevents (the pencil is moved to different places while sketching and shading in). In a similar vein, a scene with a person sweeping a street (the street being an affected object in this case) shows the sweeper changing position while sweeping the street. Scenes of this type have a very low attractor effect, although the movement of the brush itself is homogeneous (1/30 responses; 3.3%).

We can conclude that the selection of an aspectual perspective is very low in scenes with heterogeneous subevents, and this is all the more so if the entities involve a change in place. The results for Norwegian thus point to the relevance of homogeneity of the subevents, without a change in place, as an attractor effect in selecting an aspectual perspective in ‘change in state’ situations. Frequency of occurrence is very low for the set with heterogeneous subevents, however, in contrast to Dutch.

A full comparison with ‘no change in state situations’ (80/207 responses (38.65%) showing an aspectual perspective) can be drawn for Norwegian since posture verbs are used in this context also. Again situations with homogeneous subevents show the highest frequencies (a person standing at a river, flyfishing (20/23; 86.9%); a conductor standing and conducting an orchestra 10/23; 43.4%). A scene showing street musicians playing different instruments is lower at 7/23; 30.4%. The rate of occurrence for two participants standing and playing table tennis (heterogeneous subevents) is again comparably low at 4/23 (17.4%). On the whole, ‘no change in state’ situations are more likely to be viewed as ongoing if the entity in the scene is standing (or sitting) and doing something, in contrast to situations showing a ‘change in state’ or a ‘change in place’.
In sum, the role of homogeneity as an attractor in viewing an event as ongoing was found for Norwegian. The means in Norwegian-posture verbs - do not accommodate heterogeneous subevents, unlike the aan het-construction in Dutch, since there is a large drop in frequency in change in state situations with an effected and affected object that have heterogeneous subevents. The reduced tendency to accommodate heterogeneous subevents on a systematic scale is a constraint given with posture verbs in general - in both Dutch and Norwegian.

5.3.5. German

5.3.5.1. Types of forms used in German

The following types of markers of ongoingness are used in the German data:

(22) am + verbal noun sein: Eine Frau ist am Klavierspielen
(23) beim + verbal noun sein: Ein Surfer (ist) beim Wellenreiten
(24) dabei sein + inf: Ein junger Mann ist dabei ein Flugzeug zu falten

The first two constructions involve a prepositional element (an/bei ‘at’) and they combine with a nominal element, a verbal noun, in contracted form (am (an dem) / beim (bei dem) Klavierspielen ‘at the pianoplay’). Clauses that are marked with the beim construction usually show ellipsis of the finite copula. The third construction also involves a preposition (dabei ‘there-at’) but it is combined with an infinitival construction with the explicit infinitive particle ‘zu’ (see for a description of all forms Ebert, 2000; Krause, 2002; van Pottelberge, 2004). The German am and beim forms only occur in their contracted form when used to express ongoingness (Er ist *bei dem Klavierspielen; he is at-the pianoplay).

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6 van Pottelberge (2004) argues that the beim construction is more locative in meaning, since clauses with the construction are suitable answers to questions asking for spatial information such as Where are you? (answer example: Ich bin beim Einkaufen (‘I am at-the-shopping’)).

7 Even though the German forms only appear in contraction, when compared to the Dutch aan het-construction, we observe a clearly lower degree of flexibility when it comes to object (complement) incorporation and other features of verbal constructions (see van Pottelberge, 2004), indicating no signs of grammaticalization.
The data show that the German prepositional constructions do not combine well with a direct object. If these locative constructions are used in clauses that involve direct objects, the object is usually incorporated into the nominal phrase (as in (11) above *das Klavierspielen* ‘the piano-playing’). Use as such, however, is quite rare, as will be demonstrated in the next section. The German forms are typical of a specific German regional variant, the ‘Rheinische Verlaufsförm’ (see e.g. van Pottelberge, 2004), rather than part of Standard German.

5.3.5.2. Frequency of use of the different forms

The table below shows for what types of situations the German constructions were actually used to mark ongoingness. Since occurrences are very low, with 22 cases in all, compared to 217 in Norwegian and 443 in Dutch, the situation in German can be characterized by the absence of an aspectual perspective, in overall terms.

As the following table shows 17/22 cases occur with the situation type ‘no change in state’.

Table 5: Types of markers of ongoingness used in the German data (% of all utterances for the situation type)

<table>
<thead>
<tr>
<th>Situation type</th>
<th>Am + verbal noun</th>
<th>Beim + verbal noun</th>
<th>Dabei sein zu + Inf</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change in state</td>
<td>1/160 0.63%</td>
<td>14/160 8.75%</td>
<td>2/160 1.25%</td>
<td>17 rubble (/160)</td>
</tr>
<tr>
<td>Change in state: effected</td>
<td>0</td>
<td>1/288 0.35%</td>
<td>3/288 1.04%</td>
<td>4 rubble (/288)</td>
</tr>
<tr>
<td>Change in state: affected</td>
<td>0</td>
<td>1/160 0.63%</td>
<td>0</td>
<td>1 rubble (/160)</td>
</tr>
<tr>
<td>Change in state: low scale</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 rubble (/384)</td>
</tr>
<tr>
<td>Motion events EP not reached</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 rubble (/224)</td>
</tr>
<tr>
<td>Motion events EP reached</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0 rubble (/384)</td>
</tr>
<tr>
<td>Total</td>
<td>1/1600</td>
<td>16/1600</td>
<td>5/1600</td>
<td></td>
</tr>
</tbody>
</table>
The table shows that overall the *beim construction is used most frequently (both with and without the finite element) with 16 out of the 22 expressions encoding ongoingness. The form is used mainly when describing situations with no change in state. The *beim construction does not combine (syntactically) with a direct object (*er ist *den Kuchen beim Backen; ‘he is *the cake at the bake’). Nor can one relate to a specific subevent (indicating a change in state) with this form: *er ist *beim Mehl in den Schüssel tun; ‘*he is at flour in the bowl put’). The form used in this case is *dabei (*sie sind *beim Mehl in den Schüssel zu tun; ‘they are there-at flour in the bowl to put’). Use depends on the possibility of abstracting away from individual subevents (as in *er ist beim Kuchenbacken ‘he is at (dative) cake-bake’), and labelling an event in overall terms as a ‘macroevent’ e.g. *beim Backen ‘at the baking’ or *beim Fußballspielen ‘at the football-playing’ (examples in (25)) (see in detail Carroll & von Stutterheim, 2009; von Stutterheim, Carroll & Klein, 2009).

(25)  Ich sehe zwei Menschen *beim Tischtennisspielen
I see two people by-the tabletennis playing
‘I see two people playing tabletennis’

_Ein Geiger *beim Geigespielen_
A violinist at-the violinplaying
‘A violinist playing the violin’

_Ein Angler ist *beim Fliegenfischen_
A fisherman is at-the flyfishing
‘A fisherman is flyfishing’

Even though the *am construction is constrained by the same conditions, it is used less frequently than the *beim construction in the current dataset.

With respect to the *dabei sein construction, in other data sets collected in previous studies using the same methodology (see Carroll, Natale & Starren, 2008; von Stutterheim, Carroll & Klein, 2009) a preference for this construction was found in the
description of motion events, even though use was still rare, as exemplified in (26) below:

(26)  *Eine Frau ist dabei die Straße zu überqueren*
    A lady is there-at the street to cross
    'A lady is crossing the street'

It is not possible to use the construction with *beim* in change in place events: *Sie ist beim Straßeüberqueren* ('she is at (dative) streetcross').

In summary, the findings indicate that use of means that express the aspectual perspective is simply not a relevant option in Standard German (see also Booij, 2008), and may not be considered appropriate for use in the present setting. The very low frequency of use in the German data do not allow us to draw any conclusions on patterns of use, and this language will not be included in the overall summary below.

5.4.  Summary and conclusions

5.4.1.  Results for Dutch

The extent to which speakers of Dutch select an aspectual perspective when viewing everyday scenes that are presented as ongoing amounts to 27.52%. Situations showing a change in state (effected or affected object) as well as ‘no change in state’ are equally likely to be viewed from an aspectual perspective. With regard to form, the *aan het-* construction shows the highest frequency (375 occurrences), compared to posture verbs (59 occurrences).

Although the *aan het-*construction occurs with change in state situations with both homogeneous and heterogeneous subevents, *homogeneity* leads to an increase in use, compared to change in state situations with heterogeneous subevents. Posture verbs and the *aan het-*construction differ in this regard since posture verbs do not accommodate heterogeneity to the same extent. Factors driving use of posture verbs differ markedly since, apart from the posture constraint, they are more likely to occur in situations showing no change in state.
It has been claimed that the *aan het*-construction is a marker of progressive aspect, but this has been made without evidence of what this term means for Dutch (Booij, 2008; Boogaart, 1991; 1999; Ebert, 1996; 2000; van Pottelberge, 2004). The clarification of a range of factors by experimental means in the present study confirms that the Dutch *aan het*-construction has a progressive component, since use is target state oriented, whether homogeneity is given or not. The results for change in state situations with dynamic change on a low level (e.g. *a candle burning down*, all with no visible agent) shed further light on factors which determine use of this construction: use of the *aan het*-construction is very low, compared to those change in state situations leading to the creation of an object.

The findings for posture verbs and factors which drive their use are as follows: the posture taken by the main referent in the situation is relevant since use always conforms with this feature in the present experimental setup (there are, however, corpus studies showing that use of posture verbs can be extended to situations involving different posture, e.g. Lemmens, 2005; Ebert, 2000). However, posture in itself is not a determining factor in Dutch, since occurrences are low in change in state situations in which an agent acts on an object, compared to the *aan het*-construction, despite the fact that participants were either sitting or standing. Posture can not therefore be the deciding issue. Selection of a compatible posture verb is clearly superseded by the *aan het*-construction for situation types showing a change in state as well as those with no change in state, irrespective of posture.

In addition to the greater tendency to occur in situations showing no change in state, the range of situation types covered in the framework show how posture verbs also accommodate low dynamic situations while *aan het* does so to a lesser extent - the relative amount of posture verbs selected with the low scale change in state situations (7/59; 11.86% of all posture verbs) is larger than the relative amount of *aan het*-constructions (12/375; 3.20% of all *aan het*-constructions). Use in non agentive situations (low scale change in state situations) reveals that posture verbs are selected although there is no visible agent, contrary to what has been claimed in the literature on Dutch (Ebert, 2000) and on posture verb and other expressions of ongoingness in general (Tonnie, 1999, 2007; Bernineto, Ebert & de Groot, 2000; Hundt, 2004). The data thus indicate that the function of posture verb constructions is not restricted to
merely locating *agents* in the midst of an activity (see e.g. Traugott & Heine, 1991; Bybee, 1994; Tonne, 1999; Lemmens, 2005).

Ebert (1996; 2000) discusses semantic factors of the predicate (and thus not features of the situation, as in the present study) that may be involved in choosing between the *aan het* form and the posture verb constructions. She observed that the posture verb constructions may be preferred ‘with verbs of low dynamicity like ‘sleep, wait, look’ (2000: 53). Other possible factors observed relate to telicity (telicity would attract *aan het* marking whereas atelicity would attract posture verb marking). Taking a different framework and method of analysis, the present findings show that the *aan het*-construction is used in situations with a resultant state as well as situations with no change in state to an equal degree.

Motion event situations that focus a specific change in place are unlikely to lead to selection of an aspectual perspective in Dutch. Change in place events that are explicitly represented as ongoing show representations that subsume individual subevents (as in *een meijsje is door een park aan het wandelen,* ‘a girl is taking a stroll (through the park’). Verbalizations of this type (*out for a walk, taking a stroll*) defocus the change in place that is depicted in the video clip. This pattern contrasts with English, for example, where use of the progressive form is 100% in all situation types: a car is driving towards a petrol station is fine, but *een auto is naar een benzinestation aan het rijden* is distinctly odd. In Dutch use is almost zero in situations of this type. As mentioned above, almost zero occurrence was also found in the other languages analyzed within this framework in which the marking of an aspectual perspective in overall terms is less than 25-30% (e.g. French). It indicates the path taken on the continuing elimination of selectional restrictions.

The present findings confirm the status of the *aan het*-construction as the least constrained form and the preferred means to express ongoingness across situation types in Dutch. The speakers’ preference for the *aan het*-construction indicates that although its meaning is derived from the basic locative meaning of the preposition *aan* (*‘at’*), its temporal-aspectual use in this construction involves a de-semantization of the locative dimension. We can conclude that *the aan het*-construction is extending its range of use across the domains.
5.4.2. Results for Norwegian

Looking at the total number of aspectual markers in the Norwegian data, we can distinguish two groups of situation types according to the strength with which they attract the marking of an aspectual perspective. Motion events (with the variable change in place) are weak attractors, along with the change in state situations with affected objects.

Situations with no change in state make up the strong attractor (38.65%), while situations with a change in state and an effected object (21.85%) are significantly weaker, as the statistical analysis above shows. These types can thus be ranked as follows:

No change in state > Change in state (effected) > Change in state: low scale

<table>
<thead>
<tr>
<th></th>
<th>No change in state</th>
<th>Change in state (effected)</th>
<th>Change in state: low scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>80/207</td>
<td>59/270</td>
<td>28/150</td>
</tr>
<tr>
<td>Percentage</td>
<td>38.65%</td>
<td>21.85%</td>
<td>18.67%</td>
</tr>
</tbody>
</table>

We also note that the change in state situations with effected objects mainly attract the posture verb pseudo-coordinations. The other two situation types, although posture verb constructions are far more frequent choices than other structures, demonstrate a greater variety of chosen expressions.

As the results of the detailed analysis of ‘change in state’ situations reveal (in 3.4.2), speakers show a sensitivity to the factors homogeneous versus heterogeneous subevents. We assume that the prototypical platform for the aspectual concept 'ongoingness' is homogeneity, and its role could be confirmed for Norwegian across all situation types. In marked contrast to Dutch, selection of an aspectual perspective is constrained by this factor in Norwegian; since responses for scenes with heterogeneous subevents are markedly low. Homogeneity is such a marked constraint in Norwegian, it overrides the role or relevance of any target state, in contrast to Dutch.

Norwegian also differs from Dutch with respect to the presence of means that can be used to express an aspectual perspective given a change in place. The constructions er ute og ('to be out') and er på vei ('to be on way') are occasionally used to mark ongoingness in the motion events. Norwegian is unique in the sense that it has
forms that can explicitly mark the ongoingness of change in place situations, even though use overall is still relatively low.

We mentioned in section 3.3.1 above that a less semantically constrained construction is available in Norwegian: the *driver* ("drift") pseudocoordination does not require a particular posture of the agent to be used. One might therefore expect a higher frequency of use than the posture verb constructions, but this was not found to be the case. An explanation for this fact is suggested by the observation that the stimulus set presented to the informants did not include scenes that were neutral to the physical posture of the agents. In order to investigate this further, we have looked at informant data elicited by the distracter items. Two of the distracter scenes stand out as attracting the use of *driver og* most frequently: One scene in which a mountain climber is climbing a wall (an endpoint is inferable), another scene in which a person is moulding an object (actually also a change in state situation with an effected object - the physical position of the agent is unclear; only the upper part of the body of the agent is visible in the video clip). The scenes each attracted 6 (of 30 responses) uses of this construction. Although an interpretation of this result is somewhat unclear, we observe that in these scenes the actor is either moving about (not sitting or standing) or the physical position of the actor is not clear. The very few scenes attracting the use of the *driver og* form suggests, however, that the structure is not at present a strong competitor to the other forms available for expressing ongoingness in Norwegian.

Even though in fact all situations depicted in the video clips (except for the motion events in which an endpoint is reached) show the intermediate ongoing phase, they differ with respect to the salience of inherent changes in state or endpoints. As the findings above show, Norwegian speakers have a preference for using an aspectual perspective to describe situations with no change in state. The less prominent the change in state in the situation depicted, the higher the frequency of use. This is in line with the results found for the low-scale change in state situations: these situations show ongoingness towards a change in state at a very low pace and the change is not at all salient. For this situation type, aspect marking is relatively frequent in Norwegian (almost 20%).

We interpret the findings to mean that the posture pseudocoordinations in Norwegian are expressions of temporary localizations in space (stand-sit-lye) and
contribute to the interpretation of the situation in two ways: They localize the subject referent in space (statively), and its temporary state denotation adds temporariness to the situation expressed by the main verb. In this sense any inherent change in state/change in place of the situation will be defocused, making room for the crucial feature isolated in the analysis: homogeneity. The fact that motion situations on the whole do not attract the posture verb markers can thus be explained by the fact that motion by its very nature conflicts with the state-locational meaning aspect of the posture verb markers. This interpretation thus suggests that the forms do not represent true aspectual forms as free options in perspective selection.

5.4.3. Overall comparison and conclusions

We have seen that there are differences as well as overlap not only in the extent to which an aspectual perspective is selected, but also in the degree to which contexts of use pattern across the three languages. Speakers of Dutch, German, and Norwegian were asked to view video clips showing different situation types in which events are presented as ongoing and to tell 'what is happening'. The temporal properties of the situations were varied on a systematic basis in order to trace factors driving the expression of aspect in languages in which use is still relatively low. Selection of an aspectual perspective is highest in Dutch (27.52%), with Norwegian at (14.50%), but is so low in German (1.41%) that we will not consider it any further in the present comparison. Although use spreads across all situation types studied for both Dutch and Norwegian, there are significant differences across the two languages that reveal different stages of development.

Situations showing progression toward the creation of an effected object (target state) were implemented in the framework of analysis in order to test the extent to which the linguistic means that represent an event in aspectual terms have a progressive component or not. Since the aan het-construction in Dutch is highly sensitive to situations with this property, the findings confirm the status of the aan het-construction as a form with a progressive component.
The findings for Norwegian show a different pattern. The means used to express an aspectual perspective in all situation types are posture verbs and these forms are more likely to occur with situations with no change in state, showing a significant drop for change in state situations. Patterns of use for Norwegian point to the relevance of **homogeneity** as an attractor effect in selecting an aspectual perspective, irrespective of whether there is a target state or not. We assume that focus on the factor **homogeneity** goes hand in hand with the aspectual perspective *event is ongoing*, where endpoints or target states remain defocused. There is no evidence to show that the means in Norwegian are sensitive to situations with a **progressive** component, in contrast to the *aan het-*construction in Dutch.

In contrast to Norwegian, use of posture verbs is low in Dutch in overall terms, compared to the predominant use of the *aan het-*construction when encoding an aspectual perspective. Posture verbs in Dutch and Norwegian share a similar feature in that posture is a relevant criterion in selecting these means; so use is not triggered by the different temporal properties grouped in the present analysis according to situation type. The posture verb constructions, whether in Norwegian or Dutch, have clearly not taken on a progressive meaning and function. Contrary to what is stated in the literature, the data also show that the function of posture verb constructions is not restricted to merely locating agents in the midst of an activity (see Traugott & Heine, 1991; Bybee, 1994; Tonne, 1999; Lemmens, 2005): use is also frequently found with non-agentive low scale change in state situations, where dynamic change is low.

The Dutch speakers’ preference for the *aan het-*construction across situation types indicates that although its meaning is derived from the basic locative meaning of the preposition *aan* (at), its temporal-aspectual use involves a de-semanticization of the locative dimension. The predominance in frequency of use of the *aan het-*construction, along with the lack of dependency on features such as posture shows that this form is more grammaticalized, although there are still major constraints in use.

Situations showing *motion events* that focus a specific change in place are unlikely to lead to selection of an aspectual perspective in Dutch, or Norwegian. Norwegian, as opposed to Dutch and German, has separate forms to express ongoingness for motion events, yet their use is rather infrequent in our data. The fact that Norwegian has such a variety of partly overlapping expressions to indicate
ongoingness is another indication that aspect marking is not at present grammaticalizing in this language, since grammaticalization is more likely to relate to one dominating form (cf. Bybee et al., 1994).

Assuming that de-semantization and extension to non-prototypical contexts of use are integral parts of a grammaticalization process, we conclude that Dutch is ‘ahead’ of Norwegian with respect to grammaticalization of particular aspectual forms. It is not at all clear that the posture verb constructions in Norwegian will develop into a grammatical expression for the progressive aspect. On analogy with the fact that a more abstract expression is taking over in Dutch, we may speculate that the highly informal _driver og_ may find its way into the standard language, if a conceptual need should be felt to mark a special perspective of progression. On the other hand, the pseudocoordinate structure, with two finite verb forms, may require too much of the lexical content of the individual verbs that it will ever develop into a fully grammatical aspect marker.

From a temporal-aspectual point of view, based on the features studied in the present framework, we suggest the following set of relevant factors and scale of grammaticalization for the means in Norwegian and Dutch (Figure 2).

<table>
<thead>
<tr>
<th>Norwegian posture verb constructions</th>
<th>Dutch <em>aan het</em> construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture constraint</td>
<td>Semantic bleaching (locative)</td>
</tr>
<tr>
<td>Homogeneity constraint high</td>
<td>Homogeneity constraint low</td>
</tr>
<tr>
<td>Target state defocused</td>
<td>Target state relevant</td>
</tr>
<tr>
<td>+/- change in state (Norwegian)</td>
<td>+/- change in state situations</td>
</tr>
<tr>
<td><strong>Aspectual distinction:</strong> Ongoing</td>
<td><strong>Aspectual distinction:</strong> Progression / Ongoing</td>
</tr>
</tbody>
</table>

Figure 2. Scale of grammaticalization with set of relevant factors

The aspectual concept _ongoing_ is used in the present framework in order to describe an aspectual perspective that is not sensitive to target states or endpoints of any kind,
while linguistic means that are viewed as expressing *progressive aspect* will be. The *aan het-*
construction exhibits both features in the following sense: It is confined to the
expression 'event is ongoing' with motion events showing a change in place, since use
which includes an endpoint is now only emerging; but this construction also expresses
progressive aspect, as the findings show. Emerging use in the context of motion events
indicates the extent to which it is now losing constraints given with its 'locative' roots.

Dutch does not have a dynamic *driver* ('drift') pseudocoordination, which is not a
'locative', and is the only form used in the context of motion events in Norwegian.
Restrictions on use for motion events in initial stages of grammaticalization is thus
linked to the locative meaning of the expressions available in encoding aspect. A form
such as the periphrastic *be + V-ing* in English, for example, is inclusive in this regard. It
can be used to defocus endpoints, or to encode progression to a target state, depending
on context, and use is not, or no longer, subject to selectional restrictions of the kind
found in this study.

The present study stresses the advantages of looking at actual language use
based on identical input in order to make claims concerning the nature of the forms
available in different languages. We have seen how use of comparable forms such as
posture verbs varies in distribution and frequency on the basis of native speaker
responses to the same non-linguistic input. By correlating the expressions with the
actual visual input, i.e. temporal features manipulated on a systematic scale in the
situations presented, we can compare the informants' choice of expression, across
languages, and generalize over the function of the different aspect markers on this basis.
This would not be possible in a study based on purely linguistic data. Taking English as
a point of reference, the posture verb expressions in Norwegian and Dutch have
nowhere near the abstract character of the progressive form in English. As for Dutch,
the posture verb constructions are used infrequently, and the grammaticalizing form is
the kind from which progressives often develop: a periphrastic construction using a
copula plus a verbal noun in a prepositional locative phrase (cf. Sasse, 2002). Finally,
the Norwegian posture verb constructions seem rather stable in their spatial
interpretations. The likelihood of further abstraction of this type of construction may
be rather low. However, repeated studies over time, based on the same visual input, and
modified to include more scenes that are neutral to the bodily posture, can make an important contribution to the study of progressive attraction.

References


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Chapter 6: Event conceptualization by early Dutch-German bilinguals: insights from linguistic as well as eye tracking data

Abstract

This experimental study investigates event construal by early Dutch-German bilinguals, as reflected in their oral depiction of everyday events shown in video clips. The starting point is the finding that the expression of an aspectual perspective (progressive aspect), and its consequences for event construal, is dependent on the extent to which means are grammaticalized, as in English (e.g., progressive aspect) or not, as in German (von Stutterheim & Carroll, 2006). The present study shows that although speakers of Dutch and German have comparable means to mark this aspectual concept, at a first glance at least, they differ markedly both in the contexts as well as in the extent to which this aspectual perspective is selected, being highly frequent in specific contexts in Dutch, but not in German. The present experimental study investigates factors that lead to the use of progressive aspect by early bilinguals, using video clips (with different types of events varied along specific dimensions on a systematic basis). The study includes recordings of eye movements, and examines how far an aspectual perspective drives allocation of attention during information intake while viewing the stimulus material, both for and while speaking. Although the bilinguals have acquired the means to express progressive aspect in Dutch, their use, however, shows a pattern that differs from monolingual Dutch speakers. Interestingly, these differences are reflected in different patterns in the direction of attention (eye movements) when verbalizing information on events.

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6.1. **Background: language-specificity in the construal of events**

In recent years, researchers in the field of psycholinguistics have looked at how speakers organize content for linguistic expression when talking about events. The present analysis is carried out in the context of studies that investigate the role of grammaticalized means in guiding spatial representation as well as event representation and whether patterns of event construal are specific to native speakers of certain languages, given the way concepts are encoded (cf. Talmy, 1988; Slobin, 1996 (the Thinking for Speaking hypothesis); Carroll & von Stutterheim, 1993; von Stutterheim, Nüse & Murcia Serra, 2002; von Stutterheim & Nüse, 2003; Carroll, von Stutterheim & Nüse, 2004; Carroll & von Stutterheim, 2009).

It was found that concepts that have paved their way into the grammar of a language play a significant role in establishing language-specific preferences in the segmentation, selection and structuring of information for event construal (cf. von Stutterheim & Nüse, 2003). This process is referred to here as conceptualization, in line with Levelt (1989). Cross-linguistic comparisons were carried out on the basis of the following question: are grammaticalized means of expression prominent for speakers of a given language in that they will implement the associated concepts in specific contexts (when talking about events, for example) systematically and frequently? Specifically, are they prominent in the sense that the more grammaticalized, the more automatized access to that concept will be in the process of conceptualization (Carroll, von Stutterheim & Nüse, 2004; Schmiedtová, von Stutterheim & Carroll, in press)? For example, when conceptualizing motion events (as shown in a cross-linguistic study using video clips), speakers of English as well as Standard Arabic - languages with a highly grammaticalized progressive/imperfective marker - tend to segment the event into phases (the inceptive, intermediate, or terminative phase, e.g. *he is walking along the road, he is heading for the train station*), depending on the phase that is represented in the video clip, and which, in that sense, is ‘ongoing’ at the time of speech. Motion event descriptions by speakers of German - a language without grammaticalized aspectual markers-show that speakers follow a different pattern and represent events in holistic terms (e.g. *er läuft zum Bahnhof* ‘he walks to the train station’) (von Stutterheim &
Carroll, 2006). It is hypothesized that systematic differences of this kind (phasal segmentation versus holistic representation of an event) are linked to the role of grammaticalized aspectual concepts.

The relevance of these concepts for event conceptualization is supported by differences in patterns of attention allocation by speakers of English and German, as measured by the tracking of eye movements during the speech planning phase (von Stutterheim & Carroll, 2006). Eye movements before and while speaking are considered to reflect speech planning processes (see e.g. Bock & Griffin, 2001; Levelt, Roelofs & Meyer, 2002; Griffin, 2004) and it is assumed that eye movements during event conceptualization provide a window on underlying event representations, which are linked to linguistic means (Papafragou, Hulbert & Trueswell, 2008). The findings show that grammaticalized and frequently used aspectual structures in a language focus the attention of its native speakers to relevant features of events (von Stutterheim & Carroll, 2006). In the example provided above, speakers of German, who present motion events holistically, tend to also allocate more attention to a possible endpoint of a motion event, although the sections focused in the clip show the intermediate phase of the event (travelling along a road). Speakers of languages that use progressive or imperfective aspectual constructions (e.g. speakers of Russian, Arabic, Spanish, English) tend to focus on the phase shown, and are less likely to look for and mention a possible endpoint. In other words, they do not direct attention to the relevant area (possible endpoint) in the clips to the same extent as the German speakers (von Stutterheim & Carroll, 2006). Papafragou et al. (2008), looking at the manner versus path verb typology (Talmy, 1985) and its implications for attention allocation when describing motion events, support the idea that there are early language-specific effects on attention distribution due to cross-linguistic differences given with verb-framed versus satellite-framed languages (cf. Talmy, 1985).

As mentioned above, speakers of Dutch and German have comparable means to mark progressive aspect but differ markedly in the extent to which this aspectual perspective is selected, being highly frequent in Dutch, but not in German. The present experimental study investigates factors that lead to the use of progressive aspect by early bilinguals, using video clips showing different types of situations that have been varied on a systematic basis. The focus is placed on event construal, and eye
movement is measured both before and while speakers are verbalizing the dynamic live-action video clips. This approach provides a window on the conceptualization processes that take place during the organization and selection of content for expression. The novelty of the current paper is the investigation of the role of grammatical concepts in event construal and the interrelation between attention allocation and event construal patterns in bilingual speakers. The next section will look at previous studies on event conceptualization and L2 users/bilinguals.

6.1.1. Background: event conceptualization by advanced L2 users and early bilinguals

Many studies on L2 users address the question of whether a speaker who has formally acquired the L2 linguistic system also fully acquires the associated conceptualization patterns that are typical for native speakers of the second language, in both verbal and non-verbal tasks. Pavlenko (2005) and Jarvis and Pavlenko (2008) provide an overview of a number of possible outcomes for L2 and bilingual performance: the coexistence of L1 and L2 conceptualization preferences, L1-based conceptual transfer, the internalization of new conceptual distinctions, the restructuring of conceptual organization, convergence of L1 and L2 conceptualization preferences, a shift from L1 to L2 conceptualization preferences, or L1 conceptual attrition. The question is which of these possible outcomes apply to event conceptualization preferences and the role of aspect in bilingual speakers, as investigated in the present study, or whether there are other options. The sections below will discuss the outcomes of previous studies looking at event construal in L2 or bilingual speakers.

Several studies looking at the impact of frequently used aspectual notions on event construal (Carroll & Lambert, 2003; von Stutterheim & Lambert, 2005; von Stutterheim & Carroll, 2006; Schmiedtová & Sahonenko, 2008; van Ierland, 2009) show that very advanced L2 users have not fully acquired the subtle but systematic implications of aspectual forms for information organization. Although these speakers have a high level of proficiency, their patterns of event construal follow a specific but not target-like pattern. For example, German as well as French learners of English, when constructing a narrative, mainly use the progressive –ing to stress the duration of
a situation, but they do not acquire the global planning principles and the perspective associated with use of the form: L1 English narratives centre around a deictic point of reference and speakers relate to ‘what is now the case’ for each scene when re-narrating a short silent film. L1 German narratives, on the other hand, show a holistic perspective and centre around the notion of temporal shift. The German learners of English use the progressive marker but still re-narrate a large number of bounded events (cf. von Stutterheim & Lambert, 2005; Carroll & Lambert, 2006). The outcome of the above studies can be labelled (partial) L1 based conceptualization transfer, resulting in a ‘mixed’ system with its own (non target-like) logic.

Studies of other domains show that it is possible for L2 users to fully adapt their conceptual organization to the concepts encoded by the L2 (e.g. Athanasopoulos & Kasai, 2008, looking at grammatical number marking in a non-verbal object categorization task; Pavlenko, 2003, for the expression of (lexical) emotion concepts). Another set of studies on L2 users or early bilinguals found that they develop a shared linguistic and conceptual system, combining elements of both languages, which makes the system different from that of native speakers of either language (for work on object classification see: Marian & Spivey, 2003; Ameel, Storms, Malt & Sloman, 2005, for syntax: Hartsuiker, Pickering & Veltkamp, 2004, also described in Grosjean, 1985; 1998). Findings for early bilinguals on an object naming task (Ameel et al., 2005) suggest a lexical system that has a ‘midway’ bias and is applied in both languages of the L2 user or bilingual, i.e. it shows convergence between the L1 and L2 pattern. Ameel, Storms, Malt and van Assche (2009) and Ameel et al. (2005) claim that for the early bilinguals investigated, the category boundaries of the lexical concepts of both languages have moved closer to one another, causing the semantic boundaries of particular concepts to become more broadly defined (and in a way, simplified), compared to monolinguals of the particular language. It is argued that such a system satisfies individual cognitive demands, in that having one set of concepts that can be applied to both languages is less demanding on the limitations of memory storage (cf. Ameel et al., 2009; 2005). The consequences of such a system are that language-specific idiosyncrasies are ‘dropped’ and the system is less determined by such means, when compared to monolinguals (Ameel et al., 2009). These findings are in line with those of Grosjean who argues that early bilinguals should be treated as ‘unique-language
speakers’, having language systems that do not always conform to the monolingual standard (1985; 1998).

Schmiedtová and Sahonenko (2008) looked at how Russian and Czech learners of German described goal-oriented motion events. First of all, they found that, given differences in the use of aspectual devices in Czech and Russian L1, speakers take different perspectives on motion events again underlining the perspectiving role of grammatical aspect for event construal. Concerning the learners, the results show that both groups used L1-rooted principles when conceptualizing goal-oriented motion events in the target language.

Bylund (2009) looked at event construal by advanced Spanish learners of Swedish (with a focus on L1 attrition) and he found that the age of acquisition of the L2 may play a role in determining bilinguals’ conceptualization patterns: subjects who had started learning the L2 before the age of 12 showed a divergence from the monolingual Spanish conceptualization preferences when describing motion events in Spanish. Performance in the L2 was not discussed in this study.

Other work on event construal in L2 has mainly investigated the manner / path verb lexicalization typology (e.g. Hohenstein, Eisenberg & Naigles, 2006; see Cadierno, 2008). Cadierno and Ruiz (2006) for example found that intermediate Danish learners of Spanish showed more traces of L1-specific verb lexicalization patterns in L2 than advanced Danish learners of Spanish, showing how levels of proficiency play a role in the achievement of L2-specific conceptualization preferences.

Generally, we may say that most L2 studies focus on lexicalization patterns and that there is inconclusive evidence in L2 research regarding the acquisition of event conceptualization patterns, i.e. linguistic knowledge that does not rely on the acquisition of formal means only. Proficiency in event conceptualization preferences may be more difficult to gain considering the conceptual complexity of the domains. Factors that aid the achievement of target-like patterns of conceptualization were found to be e.g. a high level of proficiency (as in Athanasopoulos, 2006; Cadierno & Ruiz, 2006) and there is some evidence that the age of acquisition of the L2 may correlate with the ability to achieve native-like preferences (see Boroditsky, 2001; Bylund, 2009). The next section will elaborate on the aims of the present study.
6.2. General aims of the paper

The present study investigates the type of speaker that has both a high level of proficiency in the two languages and an early age of acquisition of both languages. This is the early bilingual and/or simultaneous bilingual. The focus is on the selection of an aspectual perspective, coupled with specific verbal aspectual forms, by early Dutch-German bilinguals when construing different types of events in Dutch, in comparison to monolingual Dutch and German speakers. Furthermore, the present study will expand on the relation between use of an aspectual perspective and the allocation of attention (eye tracking measurements) by looking at this interrelation in early bilinguals. According to the definition used in the present paper, early bilinguals are speakers who have acquired two languages in early childhood and have an excellent knowledge of both languages. Their level of proficiency is (at a first glance) native like and exposure and input in both languages is relatively balanced. Within this group, one can further distinguish simultaneous bilinguals. These are speakers who have started to acquire the two languages during the first three or four years of life and who are usually brought up with the one-person one-language principle, ensuring a remarkable capability to switch between the two language systems (cf. Butler & Hakuta, 2004, Meisel, 2004; see also Bialystok, 1999). For this type of speaker the factors that play a crucial role in the debate on the possibility for speakers to control and use two language and conceptual systems independently of one another are held constant, i.e. age of acquisition and possibilities for achieving a high level of proficiency.

A relevant case arises when a particular conceptual distinction is present and productive in one language of a bilingual, but not in the other. As the studies outlined above indicate, native speakers of the former language may be more likely to attend to the concept in relevant contexts and, when conceptualizing events, these speakers may be more likely to convey the aspects of a dynamic situation that are linked to the specific concept, when compared to speakers of languages that only rarely use specific means to convey the same meaning. If speakers of the other language of the bilingual do not encode the same conceptual distinction, the question is how do early bilingual speakers deal with this difference (also suggested as an area for research in Green, 1998). This is the focus of the present study.
6.2.1. Research questions and hypotheses

As mentioned above, the focus of the linguistic analyses is on the use of progressive aspectual means when verbalizing these events. The bilinguals’ verbalizations in Dutch will be compared to monolingual speakers of Dutch and German. In order to gain insight into conceptualization processes, the eye movements of all participants are measured before and during their production of verbal descriptions of the events. The aim is to see how bilingual speakers (speaking Dutch) differ from or resemble monolingual Dutch speakers. Dutch represents a challenge for the bilingual learner in the following respect: although use of an aspectual perspective is not obligatory, in any context, the language currently shows specific preferences that are linked to specific situation types with relevant temporal features (see next section). Although similar forms for expressing an aspectual perspective are available in German, overall use is rare (see below).

With respect to the eye tracking analyses, it is hypothesized that monolingual speakers of Dutch and German may show differences in the distribution of attention to specific parts of the stimuli, depending on use of progressive aspect in describing the stimuli. For bilinguals the question arises as to whether they show patterns in representing events in aspectual terms that are similar to, or diverge from, those of monolingual speakers of Dutch. The analysis of the bilinguals’ eye movements will provide insights into the interrelation of the use of specific linguistic means and attention allocation, with the aim of shedding light on bilinguals’ possibilities of achieving target language-specific conceptualizations.

6.2.2 The languages at stake: expressing ‘ongoingness’ in Dutch and German

The two West Germanic languages show many similarities: they are both verb-second (V2) languages, with a similar syntax and tense system (see e.g. König & van der Auwera, 2002). Dutch has several constructions that express progressive aspect. One is the periphrastic aan het form (examples in 1a, 1b).
The function and meaning of the *aan het*-construction is to express the ongoingness of an event at a particular time interval (also in Boogaart, 1999; Booij, 2008). Use of the construction has shown to be frequent amongst native speakers of Dutch in specific contexts (see in detail Flecken, under review; von Stutterheim, Carroll & Klein, 2009). The examples (1a, 1b) also show that the syntax concerning the *aan het*-construction is rather flexible (see also Boogaart, 1991; 1999), while this is not the case for means in German (see below). Use of the *aan het*-construction, however, is subject to semantic restrictions. One of the prototypical contexts of use of the *aan het*-construction and the associated perspective is with situations depicting ongoing events, without a change in state ('activities', cf. Vendler, 1957, e.g. *to play tennis, to surf*) that occur in the here-and-now, while use with the description of motion events is very rare in monolingual Dutch (see Carroll, Natale & Starren, 2008; von Stutterheim, Carroll & Klein, 2009; Flecken, under review).

Dutch also has other verbal constructions to express the perspective 'event is ongoing'. These involve the posture verbs *zitten, liggen, staan* or the motion verb *lopen* plus the infinitive (examples 2-5).

(2)  
Femke *zit te werken*  
Femke sits *to-work*  
‘Femke is working’

(3)  
De baby *ligt te slapen*  
The baby *lies to-sleep*  
‘The baby is sleeping’
(4) Caspar staat de muur te schilderen
   Caspar stands the wall to-paint
   ‘Caspar is painting the wall’

(5) Marlies loopt te zeuren
   Marlies walks to-nag
   ‘Marlies is nagging’

These constructions are used to a much lesser extent than the aan het form by native
speakers of Dutch. Also, to allow for the use of posture verbs it is important for the
subject to be in the respective physical position\(^1\). The posture verb constructions are
mainly used in contexts that show agents in the physical posture that corresponds with
the posture verb used (see in detail Lemmens, 2005).

The means in German are formally similar to the Dutch aan het progressive
(see 6-7).

(6) Eine junge Frau ist am Lernen
   A young lady is at-the learn
   ‘A young lady is learning’

(7) Ein paar Männer sind beim Fussballspielen
   A couple of men are at-the football-play
   ‘A couple of men are playing football’

\(^1\) The overlap between the physical position of an agent referred to and the posture verb as used
in the construction is a strong tendency, however not mandatory. In the present data the
 correspondence is almost always present, though for the zitten te construction the restriction
 seems weaker.
In contrast to Dutch, the prepositions used cover *an* (‘at/on’) or *bei* (‘by/at’); and *dabei* (‘there-at/by’) one of the ‘busy’-type progressives (cf. Ebert, 2000) (see (8)).

(8) *Eine Frau ist dabei ein Papierflugzeug zu falten*  
A lady is there-at a paper airplane to fold  
‘A lady is folding a paper airplane’

Experiments eliciting event descriptions with stimuli that include a variety of situation types (e.g., motion events, events showing a change in state) show that native speakers of German (from different regions) rarely express the concept of ongoingness in general, and also rarely by means of the *an* or *bei* construction (see e.g. von Stutterheim, Carroll & Klein, 2009). Moreover, a higher frequency is typical of a specific German dialect (the ‘Rheinische Verlaufsform’, for a detailed description see Ebert, 2000; Krause, 2002) and not of Standard German (also in Booij, 2008).

The relevant question arises as to what the bilingual speakers do when construing events in Dutch: Do they show the same preferences as monolingual speakers when expressing ongoingness when it comes to form and usage patterns or will there be evidence for a specific bilingual-Dutch aspectual system?

### 6.3. Method

#### 6.3.1. Participants

The monolingual speakers of Dutch were 19 students (average age 20.38 years; age range 18-23 years; 13 female, 6 male) at the Radboud University in Nijmegen, the Netherlands, and the German monolingual speakers were 19 students at the University of Heidelberg in Germany (average age 24.32; age range 20-35 years; 11 female, 8 male). Monolingual native speaker participants were excluded from the analyses when their answers to questions in a language background questionnaire indicated a long stay in an

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2 In German, clauses that include the *bei* progressive are usually elliptical (the finite verb *to be* is usually ellipted).
environment where a language other than Dutch or German is spoken, or when they had an advanced L2 knowledge of either Dutch or German. In this regard, ‘monolingual’ should be interpreted in a narrow sense, meaning having no advanced knowledge of the other language under investigation in the present study.

The bilingual participants consisted of 12 secondary school pupils (and 1 teacher). The average age of the pupils is 16.6 years; age range of the majority 16-19 years, plus one 46 year-old; 10 female, 2 male and were enrolled in a bilingual German-Dutch education programme. They were given a detailed questionnaire relating to their language background. The questionnaire was inspired by parts of existing questionnaires (Gullberg & Indefrey, 2003; Li et al., 2006; Marian, Blumenfeld, & Kaushanskaya, 2007) but fully adapted and extended to the situation of early bilinguals. Appendix 1 gives some information regarding the acquisition of the two languages; appendix 2 shows self assessment of their proficiency and confidence in both languages. Proficiency ratings were made on a scale of 1 to 5 (from 1 ‘excellent’ to 5 ‘poor’) for speaking, understanding, writing, reading, grammar and pronunciation separately. The table gives the ratings calculated as an average of ratings in all 6 areas.

Most of the participants are in fact simultaneous bilinguals (that is, most of them have been exposed to two languages from birth), but some of the participants have a slightly later onset of acquisition of one of the two languages (all of them, however, before or from the age of four). These speakers are usually also characterized as simultaneous bilinguals (see e.g. Butler & Hakuta, 2004). Nevertheless, to avoid confusion the whole group is characterized as early bilinguals. The group as a whole has an early age of acquisition of both languages in common and for this reason no

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1 The native speaker participants were labelled ‘monolingual; this label is to be interpreted in a narrow sense, meaning not having very advanced knowledge of the other language of investigation (in the case of Dutch native speakers, German and vice versa). The term ‘monolingual’ is used in the sense that it opposes the label ‘Dutch-German bilingual’.

4 Despite the fact that there is a difference in the educational background and the age range of the monolingual and the bilingual speakers, no differences in patterns of event construal are to be expected. The task at hand deals with the description of simple, everyday events as shown in video clips, common to speakers of all ages. Since the study is based on previous work that shows that event construal patterns are linked to specific aspects of the grammatical system of a language, it is assumed that these patterns are robust and that age differences (at adolescent and adult age-after closure of the acquisition process) should play no role.
differentiation is made within the participant group.

6.3.2. Experimental procedure

The experiment consisted of the online re-telling of a set of 65 short video clips, depicting everyday situations. The video clips were dynamic, live recordings, on an average of 6 seconds in length. In between each video clip a black screen with a white focus point was shown for 8 seconds. All participants were told that they would see video clips showing everyday events and they were instructed to tell ‘what is happening’ (in Dutch: *Het is uw opgave om te vertellen wat er gebeurt*, in German: *Es ist Ihre Aufgabe, zu sagen was passiert*). All participants were explicitly told to focus on the event only, and not to give a detailed description of what is shown on the screen. They were also told that they could start to speak as soon as they recognized what was happening. The actual experiment took about 15 minutes. Beforehand, the participant had the chance to practice the task with 6 training items. The participant's event descriptions were recorded with a microphone throughout the experiment, and the subjects’ eye movements were recorded with eye tracking equipment during the entire phase in which the video clip was shown. Before the start of the experiment, the cameras were calibrated to adjust them to the subjects’ eyes which took a few minutes. After the experiment, the monolingual participants were asked to fill out a questionnaire concerning their language background.

The bilingual participants were recruited to take part in the same experimental set-up twice: once while speaking in Dutch and once while performing all experiments

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1 Since most of the speakers reside in the Netherlands, and there are differences between the ways in which the languages were acquired (whether mainly through communication with father or mother or other persons), and differences in the language that is preferred, it is plausible that there are differences within the group concerning language exposure and dominance. It is reasonable to assume that the current sample mainly consists of speakers who show an increased exposure to the Dutch language, when compared to German. This might also imply that the speakers under analysis can be characterized as ‘Dutch dominant’ early bilinguals. Since at this point, it is not possible to systematically control for these issues, the group of speakers is taken together as one sample. I am aware of the fact that in research on bilingualism variables such as exposure and dominance play a crucial role in determining the speakers’ performance. For the current study, the main variable that distinguishes the bilinguals under analysis from L2 learners, is an early onset of acquisition of both languages.
in German. To reduce memory effects, the second part of the study, i.e. the experimental procedure done in German, took place 4 months after the bilingual participants had performed all tasks in Dutch. The current study will only report on the Dutch experiment.

The bilingual participants first took part in an offline narrative retelling task (a silent film) which functioned as a language mode inducing task (for a discussion of the relevance of language mode, see Grosjean, 1998) and as a proficiency test (see for the results Flecken, in press). After the narrative retelling task, the bilinguals were asked to carry out the event description task described above. The bilinguals were given the exact same stimuli and experimental setup as the monolingual participants. They then took part in two more experiments, unrelated to the present study. At the end of the experiment session, the bilinguals were asked to fill out a language background questionnaire.

All in all, the total procedure took about 1.5 hours per bilingual participant and they were paid 10 Euros for participation.

6.3.3. Stimuli

The stimuli consist of video clips that can be classified into 5 different situation types (48 critical items in total) and a group of distractor items (see Table 1 and Appendix 3 for a full list of items).

<table>
<thead>
<tr>
<th>Situation Type</th>
<th>No change in state situations</th>
<th>Change in state situations (COS)-effected object</th>
<th>Change in state situations (COS)-affected object</th>
<th>Change in state situations (COS)-2 levels of event representation</th>
<th>Motion events (MOTION)-endpoint not reached</th>
<th>Fillers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 items</td>
<td>10 items</td>
<td>10 items</td>
<td>10 items</td>
<td>10 items</td>
<td>17 items</td>
</tr>
</tbody>
</table>

The situation type referred to as "no change in state situations" cover situations that do not show a change in state, for example scenes such as two young men surfing, a person singing. These are events which involve only 1 temporal interval (1-state events
cf. Klein, 1994), and no change in state is entailed. The change in state situations show an active agent who is acting on a specific object. The agent is shown to be in the middle of a process that leads to the creation of a particular object. These events thus show progression to a clear, tangible resultant state in the near future (examples are knitting a scarf, painting a picture, with the scarf and the painting as the effected objects) (cf. Natale, 2009). The other group of change in state situations do not involve the creation, but rather the transformation of an object. Examples of those are peeling potatoes, wiping off a table with a cloth, with the potato and table as affected objects.

The third group of change in state situations (5 with an effected object, 5 with an affected object) also show a change in state but offer two options for event construal. First, they can be viewed and verbalized as a macro event (e.g. a lady is typing) (see Bohnemeyer, Enfield, Essegbey, Ibarretxe-Antunano, Kita, Lüpke & Ameka, 2007; Talmy, 2000), or the event can be verbalized with the specific events shown in the video (e.g. a lady is taking a sheet of paper and inserting it into a typewriter). Another video shows a person in the kitchen adding flour to a cake mix. This can be represented in this specific way or in overall terms as someone baking a cake, i.e. as the macro-event (cf. in detail Carroll & von Stutterheim, 2009).

The motion events involve a person, vehicle or animal moving along a path from point A to point B. These entities are not depicted as reaching the possible goal or endpoint. In other words, the event depicted is a motion event in progress.

All of the above situation types were included in the stimulus set because certain features of the situations depicted in the video clips have proven to be relevant with respect to the marking of the progressive aspect in languages where use of such constructions is frequent yet not fully grammaticalized (see Leclerq, 2008; Natale, 2009; Bouhaous, in prep.). In short, the cross-linguistic findings show that the aspectual means in Italian and French are used most frequently for situations that show progress toward a resultant state, a qualified object (for example knitting a scarf) (Carroll, Natale, & Starren, 2008; von Stutterheim, Carroll & Klein, 2009).

6.4. Linguistic analyses
6.4.1. Results

The focus of the linguistic analysis is on the number of events that are marked with progressive aspectual means, that is the number of events that explicitly entail a perspective of ongoingness. Table 2 below shows the total number of progressives used by monolingual speakers of Dutch and German and by the bilinguals speaking Dutch. Table 3 distinguishes between situation types.

Table 2: Progressive marking (% of total no. of responses) by Dutch and German monolingual native speakers and bilingual Dutch speakers

<table>
<thead>
<tr>
<th>Speaker group</th>
<th>Use of progressive constructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual German</td>
<td>53/911 - 5.83%</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>280/911 - 30.74%</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>262/547 - 47.90%</td>
</tr>
</tbody>
</table>

The first analysis focuses on the two monolingual speaker groups only. A Mann Whitney test was conducted to compare the proportion of progressive marking between monolingual Dutch and monolingual German, and the difference was significant (U = 32, p <.001).

Table 3: Progressive marking by monolingual Dutch and German speakers and bilinguals speaking Dutch per situation type

<table>
<thead>
<tr>
<th>Speaker group</th>
<th>No change in state situations</th>
<th>COS-effected object</th>
<th>COS-affected object</th>
<th>COS-2 levels of event repr.</th>
<th>MOTION-endpoint not reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual German</td>
<td>20/152 - 13.16%</td>
<td>-</td>
<td>8/190 - 4.2%</td>
<td>7/190 - 3.68%</td>
<td>17/190 - 8.95%</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>66/151 - 43.71%</td>
<td>-</td>
<td>83/190 - 43.68%</td>
<td>56/190 - 29.47%</td>
<td>75/190 - 39.47%</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>57/88 - 64.77%</td>
<td>-</td>
<td>81/116 - 69.83%</td>
<td>54/113 - 47.79%</td>
<td>54/113 - 47.79%</td>
</tr>
</tbody>
</table>

The standardized residuals of a chi square analysis showed that the Dutch speakers use more progressives than the Germans when describing the situation types labeled 'change in state with an effected object' and 'no change in state situations' ($\chi^2$ (4) = 15.088, p <.001). A within-group comparison to compare aan het marking by

---

For one of the Dutch participants, one verbalization for a no change in state-stimulus is missing.
monolingual Dutch speakers between all five situation types shows that the motion events were marked with *aan het* significantly less than the other four situation types (Kruskal Wallis test: $H(4) = 36.98, p < .001$).

The second analysis compared the monolingual Dutch speakers with the bilingual Dutch speakers. A Mann Whitney test showed that the bilinguals (speaking Dutch) used progressive markers with a greater frequency than the monolingual Dutch speakers, across all situation types. Standardized residuals of a chi-square test revealed that specifically for the situation type motion events and the change in state situations with an affected object the bilingual speakers used more progressive markers than the monolingual Dutch speakers ($\chi^2(4) = 19.562, p < .001$).

If we first take a closer look at the actual means used by the monolingual Dutch speakers and the bilingual Dutch speakers, we see that in both groups mainly the *aan het-*construction was used, whereas the other progressive constructions (the posture verb constructions *zitten/staan te*) were hardly used (see Table 4).

<table>
<thead>
<tr>
<th>Table 4: Different progressive constructions used-Monolingual and bilingual Dutch (% of total no. of responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aan het + V–inf zijn</strong></td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
</tr>
</tbody>
</table>

Table 4 shows that the higher frequency of use of progressives by the bilingual speakers can be attributed to an increased use of the *aan het-*construction only. A speaker analysis revealed that the other progressive constructions were used by the bilingual participants in a manner different from the monolingual Dutch speakers: all occurrences of the *zitten* and *staan te* progressive constructions in the bilingual data appeared in the verbalizations of only 2 (out of 12) speakers. One of the bilingual participants actually used these posture verb constructions exclusively (for 13 out of 48 critical video clips), without a single occurrence of the *aan het-*construction. This is rather different from the

7 Since we can rule out a transfer effect of German, there is no need to compare the bilinguals’ patterns of use of aspect with those of the monolingual Germans.

8 The other Dutch posture verb construction (*liggen te*) and the motion verb progressive (*lopen te*) are not used. This is probably due to the fact that in the stimulus set no video clips show agents in the respective positions.
way in which they were used by the monolingual Dutch speakers (see the distribution of the use of posture verb progressives in Table 5).

Table 5: Distribution of use of posture verb progressives

<table>
<thead>
<tr>
<th>Participant Monolingual</th>
<th>No. of posture verb progressives</th>
<th>Participant Bilingual</th>
<th>No. of posture verb progressives</th>
</tr>
</thead>
<tbody>
<tr>
<td>vp01</td>
<td>10</td>
<td>vp01</td>
<td>0</td>
</tr>
<tr>
<td>vp02</td>
<td>0</td>
<td>vp02</td>
<td>13</td>
</tr>
<tr>
<td>vp03</td>
<td>4</td>
<td>vp03</td>
<td>0</td>
</tr>
<tr>
<td>vp04</td>
<td>0</td>
<td>vp04</td>
<td>0</td>
</tr>
<tr>
<td>vp05</td>
<td>0</td>
<td>vp05</td>
<td>0</td>
</tr>
<tr>
<td>vp06</td>
<td>6</td>
<td>vp06</td>
<td>0</td>
</tr>
<tr>
<td>vp07</td>
<td>2</td>
<td>vp07</td>
<td>0</td>
</tr>
<tr>
<td>vp08</td>
<td>3</td>
<td>vp08</td>
<td>0</td>
</tr>
<tr>
<td>vp09</td>
<td>0</td>
<td>vp09</td>
<td>0</td>
</tr>
<tr>
<td>vp10</td>
<td>3</td>
<td>vp10</td>
<td>0</td>
</tr>
<tr>
<td>vp11</td>
<td>0</td>
<td>vp11</td>
<td>9</td>
</tr>
<tr>
<td>vp12</td>
<td>1</td>
<td>vp12</td>
<td>0</td>
</tr>
<tr>
<td>vp13</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp14</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp15</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp16</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp17</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp18</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vp19</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Mann Whitney test comparing the frequency of use of the posture verb constructions between the two speaker groups also showed that the monolingual Dutch group used more of these constructions than the bilingual Dutch speakers (U = 67, p < .05).

A qualitative analysis focusing on the posture verb progressive constructions indicated that these constructions were used mainly when the video clip that was being verbalized actually showed an agent in the respective physical position. Video clips of this type attracted a number of the *zitten* or *staan te* constructions in the monolingual Dutch data. In the bilingual Dutch data only occasionally one of the two bilingual participants who actually used the posture verb progressives also used one in these contexts (see examples in Table 6). This shows that with respect to the usage preferences of the posture verb forms the bilinguals differ from the monolinguals. In the bilingual data, there is a clear preference for the *aan het-*construction only, even though the visual input in the video clips would also allow use of the other
constructions. In these cases, the monolinguals make use of all options available (see Table 6).

Table 6: Use of posture verb and aan het progressives in specific video clips

<table>
<thead>
<tr>
<th>Video: A woman is highlighting text in a book (sitting pos.)</th>
<th>Video: A man is fishing (sitting pos.)</th>
<th>Video: A lady is knitting a scarf (sitting pos.)</th>
<th>Video: A woman is cooking (standing pos.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
</tr>
<tr>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
</tr>
<tr>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
<td>Mono (N=19)</td>
<td>Bil (N=12)</td>
</tr>
</tbody>
</table>

| all progr | 12 | 6 | 10 | 8 | 14 | 11 | 14 | 8 |
| aan het | 8 | 6 | 7 | 8 | 9 | 10 | 12 | 8 |
| posture v. | 4 | 0 | 3 | 0 | 5 | 1 | 2 | 0 |

When taking a closer look at the German data, we see that the number of progressives is low for all situation types (never more than 20 occurrences per situation type). There seems to be a preference to use progressives when expressing situations without a change in state (e.g. Ein Mann ist beim Billiardspielen ‘A man is at-the billiardsplay’-a man is playing billiards). German speakers use the beim construction mainly: of all the progressives used in this dataset, 50 (out of 53) include the preposition bei, whereas only 2 include an and 1 instance exists of the dabei sein construction.

6.4.2. Discussion of the linguistic data

Comparing use of an aspectual perspective in the data by monolingual speakers of Dutch and German, it is clear that the expression of ongoingness in Dutch (aan het-construction) is frequent. Significantly, Dutch speakers are sensitive to the specific temporal characteristics of situations that attract use of progressive markers in other languages as well (e.g. visual presence of an affected object has a high attractor effect on the progressive (in the same task) in Italian (Natale, 2009), Modern Standard Arabic (Bouhaous, in prep.) and French (Leclercq, 2008-see for more evidence on Dutch, van Ierland, 2009). Motion events represent a special case since this situation type shows the lowest rate of occurrence for this perspective in Dutch (as well as Italian and French). The events shown in the clips focus the intermediate phase of the trajectory
(between source and possible goal) and the stimuli show a possible endpoint which is, however, not reached by the moving object. In Dutch, the results of native speakers’ acceptability judgements (Flecken, under review) also underline the pattern found in the present data: descriptions of motion events (e.g. gaan to go, rijden to drive somewhere) and the aan het form are untypical for speakers of Dutch (see also Carroll, Natale & Starren, 2008). This holds throughout all the pilot studies that were conducted for this analysis (Flecken, 2008). For 40 subjects (other than those in the current sample), a progressive construction was only used in 1.35% of all utterances relating to a motion event (13 aan het-constructions out of a total of 960 utterances). Interestingly, in nearly all these instances, the verb used was an activity-like motion verb explicitly expressing not just manner of motion, but a macro-event such as ‘being out for a walk’ (and not a specific change in place with reference to path of motion or a possible goal (going along x to y)). The forms used are for example aan het wandelen (‘taking a walk’), aan het fietsen (‘cycling’) and aan het paardrijden (‘horseriding’).

The results for the bilingual speakers show that they also use progressive markers highly frequently. The bilinguals apply the aan het progressive in the contexts that are typical attractor areas of the form for the monolingual Dutch speaker (i.e. the no change in state situations and change in state situations with an effected object). It shows that in these semantic domains there is convergence between the mono- and bilinguals’ usage preferences for expressing ongoingness. However, there is a significant difference and this applies to the frequency with which an aspectual perspective is expressed by means of the aan het form. The bilinguals’ use of aan het exceeds that of monolingual speakers, in all the situation types tested. This means that we find use of an aspectual perspective also when referring to motion events, the type of situation in which monolingual speakers rarely use an aspectual perspective. Bilingual Dutch examples such as (9) were rarely found in the current monolingual Dutch data, nor in the pilot set (i.e. not found among a sample of in total 59 monolingual Dutch subjects, Flecken, 2008).

(9) 001 twee mensen

9 For a discussion of why the aan het-construction is not (yet) compatible with motion events, see von Stutterheim, Carroll and Klein (2009).
Another example in which the *aan het* construction is used in a way that does not compare with monolingual speakers are those occurrences of predicates marked by *aan het* and also a spatial adjunct expressing an endpoint or goal of the motion (10).

(10)  001 een man
002 *die naar een auto aan het wandelen is*  
’a man who is taking a walk to a car’

For the bilingual group, restrictions on the use of the *aan het* progressive are less prominent in the domain of motion events, compared to monolingual speakers.

A relevant factor in this regard is given with the extent to which the *aan het* construction is used, in comparison to other means such as posture verbs. The findings indicate that the bilingual speakers have a slightly less diversified system in expressing progressive aspect: Dutch monolingual speakers make use of posture verbs when specific properties of the situation allow use of this alternative, i.e. ongoing events in which agents perform actions in a particular physical position (*sits to do x; stands to do x*). Bilingual speakers use these alternatives to a significantly lower degree and thus show less variety in range of forms used when expressing an aspectual perspective. They are less sensitive to the factors that lead monolingual speakers to use posture verbs.

It would seem that the bilingual speakers have chosen the option when expressing ongoingness that is most frequent in the input, the *aan het* construction, showing a greater tendency to use the form in constrained contexts, while underusing less frequent alternatives (posture verbs) in contexts in which they do occur in the monolingual data.

In sum, the data show that the bilinguals’ patterns of use of progressive aspect in Dutch are different from the monolingual pattern, but not in a sense which would indicate ungrammatical use of language, or cross-linguistic influence from German. The use of means to express an aspectual perspective can be taken as a manifestation of a bilingual-specific language competence.
6.5.  Eye tracking data

6.5.1.  Research questions: eye tracking analysis

Differences in use of aspectual devices are crucial for event construal in that they are linked to different perspectives on events, which are not only reflected in linguistic performance, but also in attention as measured by eye movements (von Stutterheim & Carroll, 2006). The Dutch linguistic data show that the concept of ongoingness represents a productive option for perspective taking in event conceptualization. Dutch speakers’ decision between a simple (unmarked) form and an aspectual perspective marked with *aan het* depends on features of the specific type of situation. In German, similar progressive means are used at a very low frequency in all situation types. In this sense, Dutch speakers have an extra option to decide on when conceptualizing events, i.e. taking a perspective of ongoingness explicitly or not. The question with respect to the eye tracking analysis relates to the extent to which this is reflected in the direction of attention during event conceptualization and how the monolingual and bilingual speakers differ.

The results of the linguistic analyses of the bilingual data show a higher tendency to use an aspectual perspective across all situation types, compared to the monolingual groups. A comparison of the frequencies of use of progressives for all situation types between the three speaker groups, the difference is largest for the stimuli showing change in state situations with an affected object (e.g. *knitting a scarf*): the bilinguals mark an aspectual perspective for this type of event in 69.83% of all utterances. In monolingual Dutch, the percentage is 43.68%, whereas German speakers select this perspective in no more than 4.20% of the cases. One may thus also expect differences in direction of attention to specific parts of the situation shown in the video clips — to the part in the video clip in which the ongoing process is presented. This is the area that, first of all, is crucial for the selection of verb form. Most importantly, the linguistic findings show that both the monolingual and the bilingual Dutch speakers activate the concept of progressive aspect given specific temporal properties of the event depicted in the video.
clip (i.e. the presence of an effected object). The monolingual and especially the bilingual Dutch speakers are thus expected to pay extra attention to relevant features of the stimulus (of the ongoing action) at the level of conceptualization.

The next section presents a comparison of the duration and timing of speakers’ gaze fixations in this area of interest.

6.5.2. Method

The same participants, but two\(^{10}\), as discussed for the linguistic analyses above are included in the analyses of eye movement. The stimuli analyzed are the change in state situations with an effected object (moulding a vase). To be able to analyze differences in attention distribution, two specific areas of interest were defined: the part of the video clip showing the ongoing action and the object (labelled AoI (area of interest) ‘action’), and on the other hand, the agent (labelled AoI ‘agent’) or to be more precise the upper part of the body of the person who is shown performing the action (see Figure 1).

Figure 1: Example of a stimulus (video clip) analyzed for eye movement: two areas of interest

\(^{10}\) One bilingual participant and one monolingual Dutch speaker had to be excluded from the eye tracking analysis due to a technical problem that occurred during the experiment.
Only those video clips in which these areas show no overlap, i.e., between that of the AoI of the action and the AoI of the agent, were selected for analyses. The following 6 scenes were selected:

(1) A woman making a pearl necklace
(2) A woman building a tower of blocks
(3) A woman decorating a cake with cream¹¹
(4) A woman sitting on a sofa and knitting a colourful scarf
(5) A man folding a paper airplane
(6) A man drawing a tree with a pencil

Attention was measured on the basis of the duration for fixations within both AoIs (the time they spent looking at the area of interest), or by means of the time (measured in milliseconds from video clip onset) at which a fixation period¹² started within both AoIs (start time). Both measures for attention (i.e. duration and start times of fixations within AoI) are calculated per subject over all stimuli. The timing data (the start time of the first fixation period within the AoIs) were aggregated across stimuli per subject. All the subsequent analyses were carried out per speaker group.

6.5.2.1. Apparatus

Eye movement was recorded by a remote eye tracking device, with binocular eye tracking capability, of the type Eyefollower by I.C. Technologies. Stimuli were shown

¹¹ This scene can actually also be interpreted as a causative action with an affected object-decoration can be a process of change of an existing object, but it can also indicate the creation (the finishing touch of the creation process) of an object which is not totally finished. Due to the fact that this particular scene has two clearly separated areas of interest, it was included in the analyses.

¹² Measures for direction of attention were based on the following: the start time of the first set of fixations within the AoI and the duration of the period of the time that the gaze remained focused within the AoI (which in the present analysis relates to the second time speakers spent a period fixating points within the AoI, as well as the total duration for all fixations within the AoI). In other words, in this period there were no fixations outside the area of interest in question.
on a 20 inch wide computer screen, and audio as well as gaze movement were recorded with the software NYAN, designed for our purposes by Interactive Minds in Dresden, Germany. The eye tracking device had a 120 Hz gaze point sampling rate and it was capable of automatic eye acquisition during the entire experiment.

6.5.3. Results: eye tracking data

The first analysis focuses on the start time of the first period of fixation within the AoIs. Table 7 shows aggregated start times for the first fixation period within the areas of interest per speaker group in milliseconds.

Table 7: Average start times of first period of fixation within the two areas of interest

<table>
<thead>
<tr>
<th>Start time for period of fixation in AoI ACTION</th>
<th>Average (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual Dutch</td>
<td>422.74</td>
<td>129.00</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>545.13</td>
<td>144.00</td>
</tr>
<tr>
<td>Monolingual German</td>
<td>547.23</td>
<td>186.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Start time for period of fixation in AoI AGENT</th>
<th>Average (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual German</td>
<td>418.34</td>
<td>246.60</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>547.56</td>
<td>172.50</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>738.28</td>
<td>476.30</td>
</tr>
</tbody>
</table>

A repeated measures ANOVA shows that there is a significant interaction between the within-subjects factor area of interest and the between-subjects factor speaker group ($F(2, 48) = 5.18, p < .05$). A paired samples t-test shows that for the bilingual Dutch group, there is a trend to have an earlier start time for the first fixation period within the area of interest of the action, rather than within the agent area ($t(10) = -0.234, p = .069$). This is not the case for either monolingual speaker group.

A condition (area of interest) x speaker group ANOVA shows a significant effect of the AoI agent ($F(2, 48) = 4.39, p < .05$). Posthoc tests (LSD) show that German speakers have an earlier start time for the first fixation period within the AoI of the agent than the bilingual Dutch speakers ($p < .001$). When comparing the start time of the first fixation period (AoI agent) of the bilingual Dutch speakers to the start time of monolingual Dutch speakers, posthoc tests show a trend ($p = .084$): the
bilingual Dutch speakers tend to look later at the agent than both monolingual groups. There is no difference between the two monolingual groups. This indicates that the bilingual Dutch speakers tend to look at the action earlier than at the agent, when compared to both monolingual groups. The German speakers tend to look earlier at the agent.

If we compare the total duration of the second fixation period within the two AoIs between groups, we see that there is a trend for differences in the AoI of the action (F (2, 48) = 2.73, p = .075), and a highly significant effect of the AoI of the agent (F (2, 48) = 7.13, p < .001). Table 8 and Figure 2 below show the total duration of the second fixation period for the two AoIs.

Table 8: Average duration of the second period of fixation within both areas of interest

<table>
<thead>
<tr>
<th>Second period of fixation: duration for AoI ACTION</th>
<th>Average (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual German</td>
<td>2380.80</td>
<td>966.53</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>2455.90</td>
<td>991.61</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>3142.52</td>
<td>616.68</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second period of fixation: duration for AoI AGENT</th>
<th>Average (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bilingual Dutch</td>
<td>319.73</td>
<td>88.55</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>475.31</td>
<td>128.17</td>
</tr>
<tr>
<td>Monolingual German</td>
<td>508.22</td>
<td>163.06</td>
</tr>
</tbody>
</table>

Figure 2: Average duration of second period of fixation in both areas of interest
Posthoc tests (LSD) show that the bilingual Dutch speakers have a longer second fixation period in the AoI of the action when compared to the German speakers ($p < .05$), and this is a trend when compared to the monolingual Dutch group ($p = .051$). There is no difference in fixation time between the two monolingual groups.

Looking at the total duration of all the fixations within both areas of interest (total fixation time), again differences between the two AoIs (repeated measures analysis: $F (1, 48) = 718.36$, $p < .001$) and the interaction between AoI and the 3 speaker groups arise ($F (2, 48) = 5.00$, $p < .05$) (see Table 9 and Figure 3).

Table 9: Average total fixation time per speaker group in both areas of interest

<table>
<thead>
<tr>
<th>Total fixation time in AoI</th>
<th>Average (ms)</th>
<th>SD (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monolingual German</td>
<td>4153.08</td>
<td>832.03</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>4305.46</td>
<td>628.34</td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>4782.86</td>
<td>620.76</td>
</tr>
<tr>
<td>AGENT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>613.05</td>
<td>256.23</td>
</tr>
<tr>
<td>Monolingual Dutch</td>
<td>863.20</td>
<td>367.60</td>
</tr>
<tr>
<td>Monolingual German</td>
<td>1065.21</td>
<td>366.96</td>
</tr>
</tbody>
</table>

T-tests for paired samples show that for all language groups, there is a significantly longer fixation time on the action than on the agent (Monolingual German: $t (18) =$
A condition x language ANOVA shows that for the action AoI there is a trend for differences between groups (F (2, 48) = 2.95, p = .062), and a significant effect of the agent AoI (F (2, 48) = 6.11, p <.05). Posthoc tests (LSD) show that the German speakers spend less time overall looking in the action AoI, compared to the bilingual Dutch speakers (p <.05). Within the agent AoI we see that the bilingual Dutch group has less fixation time than the German group (p <.001) and the shorter fixation time is a trend when compared to the monolingual Dutch group (p = .061). The monolingual Dutch speakers also show a trend for a shorter fixation time at the agent AoI than the German speakers (p = .080). The distribution of attention is such that all groups look longer at the action than at the agent. A between group comparison of overall fixation time shows that the monolingual Dutch speakers and the bilinguals look at the agent for a shorter period of time (and at the action for a longer period of time) than the German speakers. The bilingual Dutch speakers again show a trend for looking at the agent for a shorter period of time (and longer at the action) than the monolingual Dutch speakers.

6.5.4 Discussion of the eye tracking data

Overall the analyses of fixation time within the two identified AoIs (although many comparisons showed trends, possibly due to a power problem) indicate that the bilingual Dutch speakers have a long fixation time at the part of the video clip where the action (the creation process) is shown. This is interpreted as showing that the bilingual speakers pay more attention and have more interest in the ongoing process as shown in the video clips, rather than the agents that are performing the action. The same holds for the monolingual Dutch speakers, though to a lesser extent\(^\text{13}\). In both

\(^\text{13}\) Even though in the present analyses, the data of the monolingual Dutch and German speakers do not always differ significantly, another analysis which involves a larger sample (N=28 per group) does show a significantly longer (and earlier) fixation time at the action for the (monolingual) Dutch speakers, when compared to the German speakers (see Flecken, 2009). The fact that in this paper the differences are less pronounced is thus taken to indicate a lack of
cases, the higher degree of attention to the depicted ongoing process correlates with a high frequency of use of progressive aspectual forms.

These results support the hypothesis that relevant temporal features of the stimuli led monolingual as well as bilingual speakers of Dutch to take an aspectual perspective of ongoingness when conceptualizing the specific events. It is argued that the activation of this perspective is linked to the fact that the language has a productive linguistic form available in expressing this concept, which is not the case in German.

The bilingual speakers, first of all, showed an even higher frequency of selection of an aspectual perspective and it was hypothesized that they would show longer (or earlier) fixation times within the area of interest that shows the ongoing process. This is indeed what the eye tracking analyses have revealed (although again, one should note that most effects indicated trends).

The results of the eye tracking analyses thus suggest that the monolingual and bilingual Dutch speakers' increased degree of attention to the action in progress can be linked to the selection of the aspectual concept 'event is ongoing'. Given specific temporal features of the event shown in the stimulus, the monolingual and bilingual Dutch speakers select the *aan het* progressive to refer to the event. The increased degree of attention to this part of the stimulus could also reflect the part of the speech planning process which relates to the selection of the verb form (part of the formulation process and not so much conceptualization, in Levelt's (1989) terms).

All in all, the attention patterns are linked to the speech production results, and they appear to be language-specific (or rather speaker group-specific). The data show that the Dutch-German bilinguals have a unique pattern of scanning the stimulus material for verbalization, which is linked to their unique pattern of use of specific linguistic forms, compared to the monolinguals. Although the present results of the eye tracking analyses are tentative, the differences, though small, do reveal interesting trends which are in line with the linguistic analyses.

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power. Nevertheless, the trends found do support the central hypothesis that differences in attention are driven by differences in use of aspect.
6.6. General discussion and conclusion

The present study has provided evidence for the interrelation between the selection of specific aspectual categories and specific patterns of event conceptualization, as reflected in the direction of attention during information intake (both for and while speaking). Taking the case of the *aan het* progressive in Dutch, a high frequency of use of the form by mono- and bilingual speakers in event construal correlates with a marked direction of attention to the part of the stimulus that shows the event in progress.

The early Dutch-German bilinguals showed a specific preference in the use of an aspectual perspective in Dutch, at the linguistic as well as the conceptualization level. Even though the bilinguals apply the *aan het* progressive to a high extent in contexts that represent attractor areas for monolingual Dutch speakers, the findings show a less constrained pattern of use of the Dutch *aan het* progressive at the expense of other options (posture verbs). The bilinguals use this perspective on motion events to a higher degree, as with the other situation types studied, but with motion events they produce event descriptions that are not typical for native speakers (e.g. the combination of progressive aspect (*aan het*) with an endpoint). These findings indicate that the semantic restrictions on the use of the progressive do not replicate those found for monolingual speakers and are thus bilingual-specific. This in a way resembles the results of Ameel et al. (2009; 2005) who found a comparable pattern for lexical object naming since the bilinguals in their sample had weaker semantic boundaries for specific lexical concepts. Significantly, the bilinguals’ patterns of attention allocation differ compared to both monolingual groups, suggesting that the Dutch-German bilingual, when speaking Dutch, has a bilingual-specific event conceptualization system. This system differs from monolingual Dutch speakers and does not show any sign of cross-linguistic influence from the monolingual German pattern. In this sense, the current study may provide an alternative to the possibilities in conceptualization patterns as outlined by Jarvis and Pavlenko (2008, see 1.1): increased use and extension of a conceptualization pattern (in this case extension of an aspectual perspective to goal-oriented motion events) that departs from conceptualization preferences found for monolinguals of one of the two languages - that is, the Dutch pattern.
An important question remains: in what way do the early Dutch-German bilingual speakers go about solving tasks of event construal in German? Might we here again find evidence that the bilingual speaker is a very competent but unique language user (cf. Grosjean 1998), or will we find traces of cross-linguistic influence from the Dutch system? These questions will be the focus of a forthcoming study.

References


Flecken, M. (under review). What native speaker judgements tell us about the grammaticalization of an aspectual marker of ‘ongoingness’ in Dutch.


253


## Appendices

### Appendix 1: Overview of bilingual participants

<table>
<thead>
<tr>
<th>SUB</th>
<th>m/f</th>
<th>Age</th>
<th>Country of Birth</th>
<th>Country of residence</th>
<th>Dutch acquired</th>
<th>German acquired</th>
<th>Other languages in childhood</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>f</td>
<td>19</td>
<td>Netherlands</td>
<td>Germany</td>
<td>Home (mother + father)</td>
<td>Outside the home (2 years)</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>f</td>
<td>46</td>
<td>Germany</td>
<td>Netherlands</td>
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<td>Home (mother + father)</td>
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<tr>
<td>3</td>
<td>f</td>
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<td>Belgium</td>
<td>Home (mother)</td>
<td>Home (father)</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>f</td>
<td>16</td>
<td>Netherlands</td>
<td>Netherlands</td>
<td>Home (mother)</td>
<td>Home (father)</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>m</td>
<td>19</td>
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<td>Netherlands</td>
<td>Home (mother)</td>
<td>Home (father)</td>
<td>English</td>
</tr>
<tr>
<td>6</td>
<td>f</td>
<td>16</td>
<td>Germany</td>
<td>Netherlands</td>
<td>Home (mother + father)</td>
<td>Outside the home (0 years)</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>f</td>
<td>16</td>
<td>Netherlands</td>
<td>Netherlands</td>
<td>Home (father)</td>
<td>Home (mother)</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>f</td>
<td>16</td>
<td>Netherlands</td>
<td>Netherlands</td>
<td>Outside the home (0 years)</td>
<td>Relatives (4 years)</td>
<td>Turkish</td>
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<tr>
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<td>Netherlands</td>
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<td>Home (mother)</td>
<td>-</td>
</tr>
<tr>
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<td>Netherlands</td>
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<td>Home (mother)</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>f</td>
<td>16</td>
<td>Netherlands</td>
<td>Netherlands</td>
<td>Home (mother)</td>
<td>Home (father)</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>m</td>
<td>16</td>
<td>Germany</td>
<td>Germany</td>
<td>Outside the home (0 years)</td>
<td>Home (mother + father)</td>
<td>-</td>
</tr>
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</table>
Appendix 2: Bilinguals’ self-assessed proficiency in both languages

<table>
<thead>
<tr>
<th>Participant</th>
<th>Preferred language</th>
<th>Self-assessed proficiency Dutch</th>
<th>Self-assessed proficiency German</th>
<th>Confidence Dutch</th>
<th>Confidence German</th>
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</tr>
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<td>1.00</td>
<td>1.67</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>German</td>
<td>1.67</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>4</td>
<td>German</td>
<td>1.33</td>
<td>2.33</td>
<td>1.67</td>
<td>1.33</td>
</tr>
<tr>
<td>5</td>
<td>Dutch</td>
<td>2.50</td>
<td>1.83</td>
<td>2.00</td>
<td>1.67</td>
</tr>
<tr>
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<td>Dutch</td>
<td>1.17</td>
<td>2.83</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td>7</td>
<td>Dutch</td>
<td>1.00</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>8</td>
<td>Dutch</td>
<td>1.67</td>
<td>2.00</td>
<td>1.33</td>
<td>1.67</td>
</tr>
<tr>
<td>9</td>
<td>Dutch</td>
<td>1.17</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>10</td>
<td>Dutch</td>
<td>1.00</td>
<td>1.67</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>11</td>
<td>Dutch</td>
<td>2.17</td>
<td>3.17</td>
<td>1.00</td>
<td>1.67</td>
</tr>
<tr>
<td>12</td>
<td>Dutch</td>
<td>1.08</td>
<td>1.25</td>
<td>1.33</td>
<td>1.33</td>
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</tbody>
</table>

Appendix 3: Overview of critical stimuli

<table>
<thead>
<tr>
<th>No change in state situations</th>
<th>Change in state situations (COS) -affected object</th>
<th>Change in state situations (COS)-effected object</th>
</tr>
</thead>
<tbody>
<tr>
<td>a man surfing</td>
<td>a woman peeling potatoes</td>
<td>a woman building a cardhouse</td>
</tr>
<tr>
<td>a woman playing piano</td>
<td>a man doing the dishes</td>
<td>a man folding an airplane</td>
</tr>
<tr>
<td>men playing football</td>
<td>a woman wiping off a table</td>
<td>a woman beading a necklace</td>
</tr>
<tr>
<td>a woman playing the flute</td>
<td>a woman beating an egg</td>
<td>a potter moulding a vase</td>
</tr>
<tr>
<td>a man practising with a dumbbell</td>
<td>a man sweeping the floor</td>
<td>a man drawing a tree</td>
</tr>
<tr>
<td>two women playing cards</td>
<td>a man shedding paper</td>
<td>a woman knitting a scarf</td>
</tr>
<tr>
<td>people playing tennis</td>
<td>a woman decorating glasses/drinks</td>
<td>a woman building a tower of blocks</td>
</tr>
<tr>
<td>people playing billiards</td>
<td>a woman opening a can</td>
<td>a woman making a clayman</td>
</tr>
<tr>
<td></td>
<td>a woman cutting a cucumber</td>
<td>a man painting</td>
</tr>
<tr>
<td></td>
<td>a woman cutting a piece of paper</td>
<td>a woman decorating a cake</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in state situations (COS)</th>
<th>Motion events (MOTION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 2 levels of event representation</td>
<td>– endpoint not reached</td>
</tr>
<tr>
<td>woman inserting paper/typing</td>
<td>car driving towards a petrol station</td>
</tr>
<tr>
<td>woman stirring in a bowl/baking</td>
<td>man climbing a ladder</td>
</tr>
<tr>
<td>man hammering/repairing shoes</td>
<td>car driving towards a village</td>
</tr>
<tr>
<td>woman taking something from a shelf/shopping</td>
<td>car driving towards a house</td>
</tr>
<tr>
<td>woman writing something on the blackboard/teaching</td>
<td>woman walking towards a car</td>
</tr>
<tr>
<td>woman adding salt to a soup/cooking</td>
<td>woman walking towards a barrier</td>
</tr>
<tr>
<td>woman picking up sheets of paper/tidying an office</td>
<td>horse riding towards a gate</td>
</tr>
<tr>
<td>woman putting on lipgloss/putting on make-up</td>
<td>child walking towards a playground</td>
</tr>
<tr>
<td>woman highlighting text/studying</td>
<td>women walking towards a house</td>
</tr>
<tr>
<td>man casting a line/fishing</td>
<td>man walking towards a car</td>
</tr>
</tbody>
</table>
Chapter 7: How early bilinguals respond to time constraints in language production tasks: indicators for automaticity in accessing temporal concepts

Abstract

The purpose of the present study is to investigate how bilingual speakers of two closely related languages, Dutch and German, cope with processing constraints in language production when talking about events. The study aims to contribute to our understanding of processes in language production and the extent to which they may be bilingual-specific, compared to monolingual speakers. It addresses the question as to whether the bilingual system is language-specific or encompasses shared elements in conceptualization in language production (e.g. bilingual language production model by de Bot, 1992; 2000).

The area under investigation concerns temporal concepts and the conditions under which speakers select the aspectual perspective ‘event is in progression’, or not (e.g. iemand is een vliegtuigje aan het vouwen ‘someone is folding a paper airplane’ versus iemand vouwt een vliegtuigje ‘someone folds a paper airplane’). Use of this aspectual concept is frequent in Dutch in specific situations in both bilingual and monolingual usage, but not in German, where it is rarely selected. Significantly for the present experiment, selection in Dutch depends on specific temporal variables and situation types that warrant its use (as revealed by features of dynamic situations presented in video clips), while the non-aspectual perspective (simple verb form) is both applicable and acceptable in all the situations studied. This context in event conceptualization is used to compare possible differences between bilingual and monolingual speakers in language production: the experiment investigates how bilingual and monolingual

* This chapter has been submitted for publication (authors: M. Carroll & M. Flecken).
speakers describe a set of situations (video clips) with no time constraint (baseline condition), compared to when the time given to carry out the task is reduced (time constraint condition). In this case speakers are given a shorter time span to verbalize information on the event depicted.

The findings for the time constraint study show that unlike monolingual speakers of Dutch, the Dutch-German bilingual speakers do not avail of a condition that enhances selection, but show a decrease rather than an increase in the use of progressive aspect, given a time constraint. The differences between the mono- and bilingual speakers are discussed in the light of possible processing constraints in bilingual language production that relate to automaticity. We postulate that the relevant temporal factors which speakers have to take into consideration in the selection of aspect are less accessible in bilingual speakers’ planning processes under time pressure, compared to monolingual speakers of Dutch.

7.1. Introduction

7.1.1. General framework of the study

Cross-linguistic comparisons show how speakers’ conceptual representations in language production involve specific patterns in the segmentation, selection and structuring of information for the dynamic situations depicted in different sets of stimuli (video clips), depending on whether an aspectual perspective is selected on the event or not. Patterns identified in previous studies can be linked to frequencies in use and the level of grammaticalization of progressive or imperfective aspect (von Stutterheim & Nüse, 2003; Carroll, Natale & Starren, 2008; von Stutterheim, Carroll & Klein, 2009). Differences between speakers of English and German in the representation of situations showing motion events, for example, can be traced to the fact that English provides fully grammaticalized means for the expression of progressive aspect, while German does not (Carroll, von Stutterheim & Nüse, 2004). In telling what is happening, i.e. with situations presented online, speakers of English use the progressive (expressed by be +V-ing) and typically relate to the segment of the event that holds for the relevant temporal interval given with this concept—the ‘deictic here
and now’ of the observer, speaker. When asked to tell what is happening for events presented online, a situation which is evolving in time, the segment of the event selected for expression is driven by a temporal criterion that can be formulated as follows: ‘relate to what is now in progression’ as viewed by the speaker at the time of utterance. In other words, what holds at the time of utterance, from the viewpoint of the speaker, shapes what is asserted about the event. The aspectual perspective typically leads to a high level of resolution and motion events may be segmented into an initial, intermediate or final phase, depending on what can be asserted as being the case. If the intermediate phase of a motion event is focused in the clip, a vehicle is driving along a road, for example, and not the final phase, a vehicle is approaching a town, speakers of English will focus on the phase of the event that is actually in progression at the time of utterance. Although what fits into the interval now may vary to some degree, it will not include a phase of the event that can be inferred as happening at a future or previous point in time. Unlike the aspectual perspective activated with the progressive form, the simple present is not constrained in this way. An assertion such as a vehicle travels along a road need not necessarily apply to what holds at the time of utterance, but can be unspecific in this regard.

Although asked to view the stimuli and tell was passiert gerade (what happens right now), speakers of German do not select an aspectual perspective in event conceptualization, given the absence of grammaticalized means in the language. The form selected (simple verb form) is unmarked for aspect and speakers take a holistic view on the scenes presented in the stimuli (video clips). This means that they are more likely to include a possible endpoint of the motion event when conceptualizing the event, although this endpoint is not actually reached during the interval shown in the clip, but may occur at a future point (Ein Auto fährt auf einer Straße zu einem Dorf ‘a car drives on a road to a village’). The observed cross-linguistic differences are also reflected in language-specific patterns in allocation of attention, as revealed by eye tracking experiments, as well as memory tests (von Stutterheim & Carroll, 2006; von Stutterheim, Bastin, Carroll, Flecken & Schmiedtová, under review; Flecken, in press).

The findings underline the role of the linguistic category aspect in event representation, since language-specific effects are in evidence at the level of the conceptualizer in language production. Language-specific criteria come into play in the
segmentation, selection, and structuring of information from the input when planning what to say. In other words, the findings of the studies indicate that processes taking place during macroplanning when thinking for speaking (i.e., while 'deciding what to say', cf. Levelt, 1989) are language-specific, as well as processes taking place during microplanning (i.e. while 'deciding how to say it').

Studies on speakers of languages that show a relatively high frequency of use of progressive aspect, but where aspectual markers have not (yet) become part of the core grammar of the language (e.g. Italian, French, Dutch), show systematic preferences in use depending on the type of situation and their specific temporal features (Carroll, Natale & Starren, 2008; Leclercq, 2008; Natale, 2009; von Stutterheim, Carroll & Klein, 2009; Behrens et al., under review). A high frequency in the selection of progressive aspect is observed with situations showing a change in state. The situations in question involve causative actions in which an agent acts on an object, with step by step transitions leading to the creation of the effected object - its resultant state (e.g. the process given when building a model airplane; painting a picture; moulding a vase, and the envisaged state of completion). The process shown in the stimuli is nearing completion in all cases, and both the objects in question, as well as their state when completed, are clearly identifiable. Situations of this kind were designed within the cross-linguistic framework to test whether linguistic means to represent an event as ongoing at the time of speech also have a progressive meaning component or not (Carroll, Natale & Starren, 2008; Natale, 2009). Analyses of monolingual Dutch show that this holds for the aspectual *aan het*-construction, but not for aspectual posture verb constructions (e.g. *zitten/staan te + V-inf*), since the latter forms are not systematically used in these contexts. Although use of posture verb constructions would be warranted, since the agents involved in the action in the video clips are always clearly sitting or standing, the *aan het*-construction is preferred when representing causative actions as in progression (Behrens et al., under review).

The hypothesis based on these cross-linguistic findings claims that change in state situations with an effected object are prototypical in attracting use of progressive aspect. The situations show a high attractor effect since they deliver a scale in determining progression - given the 'measurable' distance, or contrast, between each stage in the process and the envisaged resultant state that can be readily inferred (the effected object
such as the vase or model airplane, when completed). Change in state situations were selected as the focus of the present comparison between monolingual and bilingual speakers since they constitute a prototypical case for the use of the aspectual concept 'event is in progression'. Monolingual and bilingual speakers’ performance in language production in Dutch is compared in this context both with and without a time constraint.

7.1.2. Bilingual speakers and event construal in language production

In the present experiment, the term ‘early bilingual’ refers to highly proficient bilinguals, who acquired both languages in early childhood, i.e., before the age of four, and have been exposed to both languages on a daily basis (definition cf. Butler & Hakuta, 2004). Many researchers hypothesize that processing in language production tasks in one language of a bilingual differs from monolingual speakers performing tasks in their L1 (cf. Grosjean, 2008). This is attributed to the fact that a bilingual speaker may have to deal with possible competition between the two languages at different levels of linguistic processing when performing tasks in one language, and competition will be thus involved in managing cognitive control (see the Inhibitory Control model, cf. Green, 1998; Abutalebi & Green, 2008).

Production tasks have generally been carried out with late bilinguals (i.e. advanced L2 speakers) with the lexicon as one of the main domain of analysis. Researchers have looked for evidence as to whether lexical items are stored separately, and access to lexical items is thus typically language-selective, or whether there is evidence for some degree of co-activation. However, one must bear in mind that the type of production studies differ extensively and cover word repetition tasks as well as picture naming tasks, for example (see Birdsong, 2006). Overall findings reveal that L2 processing, when compared to monolingual language processing, is in a sense

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1 There are also numerous studies that address the advantages of bilingualism on tasks that require selective attention; bilinguals’ executive control functions are well developed (presumably due to the practice of controlling two language systems), which may lead to benefits in other, non-linguistic tasks (Bialystok, 1999; Craik & Bialystok, 2006; Costa, Hernandez & Sebastian-Galles, 2008).
‘mediated’ by the variables age of acquisition of the L2, proficiency level in the L2, and amount of exposure to the L2, versus the L1 (see Birdsong, 2006).

Green (2003) has proposed that level of proficiency is the most decisive factor in determining what way language is processed by (late as well as early) bilinguals, when compared to monolinguals speaking only one language (production tasks) (see also Perani & Abutalebi, 2005; Abutalebi & Green, 2007; 2008). Also, it could be shown that when proficiency in either language increases, this results in a shift from a more controlled to greater automaticity in language processing, as measured at a neuro-anatomical level relating to reduced activity in particular areas of the brain (see Abutalebi & Green, 2007). Most behavioural studies on bilingual language production point to the relevance of proficiency for the degree of selectiveness when activating the concepts studied (see overview in Costa, 2004).

With respect to studies investigating language-selectiveness in production tasks by late bilinguals (studies of performance on lexical items, taken out of context), some researchers argue that a cue for language selection plays a role at the level of conceptual representation of the planned utterance, leading to activation of concepts in the appropriate language only (e.g. de Bot & Schreuder, 1993). If we assume that bilingual speakers have to be selective at some point in conceptualization, since they are performing tasks in only one language, this could cause a minor slowdown in conceptual access, when compared to monolingual speakers. Some researchers argue that there is always competing activation of both languages of bilinguals at any level in a linguistic task (as evidenced by phenomena such as cross-language priming (for production tasks involving picture naming see Hermans, Bongaerts, de Bot & Schreuder, 2003; for comprehension tasks see Dijkstra & van Heuven, 2002, on word recognition). Different models have been proposed as to how bilinguals manage to eventually select items of only one language in a production task (see Kroll & Tockowitz, 2005, for an extensive review).

A model of bilingual language production (de Bot, 1992; 2000) proposes that during conceptualization language-specificity will play a role at the level of microplanning (i.e. when deciding ‘how to say it’, in line with Levelt, 1989; 1999), but not during macroplanning, when deciding ‘what to say’. The findings on motion events

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2 The present study disregards contexts of code-switching (see e.g. Milroy & Muysken, 1995).
discussed in section 1.1. above, however, show how preferences in information selection, i.e., when deciding what to say, are language-specific, indicating that macroplanning processes are influenced by specific features of the linguistic system of the speaker. A number of studies on event construal by late bilingual speakers have also focused on micro- and macroplanning in language production, and the extent to which language-specific features can be acquired by L2 users (i.e., advanced L2 users who acquired the second language after the age of ten). Studies have addressed the role of grammaticized concepts in language production by looking at languages that contrast in the types of temporal concepts grammaticized (L1 German-L2 English; L1 English-L2 German) and how speakers proceed when deciding what to say in narrative tasks (entities selected for mention), or when describing goal-oriented motion events (segmentation of the path of motion). Learners maintain use of L1-rooted principles in their L2 (Carroll & von Stutterheim, 2003; von Stutterheim & Carroll, 2006), in that they do not converge with the target language-specific pattern, but display maintenance of the L1 patterns in specific respects in event conceptualization (i.e. phases of the motion event, such as the potential ‘endpoint’ of a motion event). Similar findings for Czech and Russian advanced L2 learners of German were reported in Schmiedtová and Sahonenko (2008). Bylund (2009) investigates event construal by advanced Spanish L2 learners of Swedish, with a focus on L1 attrition, and finds that the age of acquisition of the L2 plays a role in determining bilinguals’ conceptualization patterns: subjects who had started learning the L2 before the age of 12 show a divergence from preferences found for the monolingual Spanish group when describing motion events in Spanish (their L1). Other work on event construal by late bilinguals has mainly investigated typological differences in the lexicalization of manner of motion and path of motion (e.g. Hohenstein, Eisenberg & Naigles, 2006; Cadierno, 2008). Cadierno and Ruiz (2006), for example, found that Danish learners of Spanish at an intermediate level of proficiency have more traces of L1-specific verb lexicalization patterns in their L2, compared to advanced Danish learners of Spanish, showing how levels of proficiency play a role in conceptualization preferences in this domain.

A study on early Dutch-German bilinguals focused on the extent to which different situation types are represented by means of an aspectual perspective (Flecken, in press). The findings pinpoint contexts in which bilingual selection of the aspectual
concept ‘event is in progression’ differs from monolingual patterns of selection, although core principles that drive use of this concept are similar in both monolingual and bilingual usage. The bilinguals show patterns of extension in their use of aspect that are untypical for monolingual speakers, as well as a pronounced reliance on one particular form of expression. Van Ierland (2009) also investigated the conditions under which an aspectual perspective is selected in event construal by L1 and L2 speakers of English and Dutch. Advanced English learners of Dutch had more problems than the Dutch learners of English in adhering to target-language usage for progressive aspect in the contexts studied. Van Ierland proposes that the Dutch pattern is more difficult to acquire, since learners have to recognize the set of constraints and attractors that determine use in Dutch (see also section 2).

Other studies on early bilinguals have mainly focused on processing in bilingual systems, compared to monolingual speakers. Ameel, Malt, Sloman and van Assche (2009), for example, find that when categorizing and naming objects, early French-Dutch bilinguals display strategies that are ‘in between’ those of monolinguals of both languages. The study of Hernandez, Bates & Avila (1994) on a sentence processing task also provides evidence for amalgamated processing strategies in early bilinguals. Foursa, Austin and van der Walle (2005) show that the speed of processing in early bilinguals differs from monolinguals, i.e. they report later reaction times on a specific linguistic task.

With regard to the notion of automaticity in (late) bilingual performance on linguistic tasks and language processing, automatization is generally understood as relating to processes in which the need for attention and effort to perform a certain task is reduced, and performance becomes more efficient and fluent (see Segalowitz, 2003). Speed of processing, as a result of a qualitative change in performance, has been empirically investigated from a pedagogical perspective (e.g. Hulstijn, 2001; Skehan & Foster, 1999), but a discussion with respect to automaticity in this context would go beyond the scope of the present study. In short, it was found that the integration of different performance goals in L2 production tasks suffer from competition when it comes to the allocation of attentional resources: communicative fluency, grammatical accuracy and linguistic complexity.
7.1.2.1. **Focus of the present study**

For the present study this means that specific processes may be affected when bilinguals are placed under a time constraint when performing a task in language production, and certain temporal concepts may become less accessible, compared to monolingual speakers. The temporal concept studied in the present experiment is frequently active in the one language, Dutch, but rarely active in the contexts studied in the other language, German, as discussed above. Giving the bilinguals, as well as the monolinguals, a time constraint, by reducing the time for verbalizing information on the event, may provide insights into the ‘upper limits’ of linguistic processing for the two speaker groups, and specifically for the bilinguals. This type of experiment should provide a window on differences with respect to degrees of automaticity when accessing temporal concepts in language production and with this possible constraints in bilingual language production. Also, the experiment may contribute to the debate on the extent to which activation processes are language-specific, or whether some degree of convergence or co-activation of the other language can be observed, despite the fact that the task at hand is carried out in one language only (since use of aspectual concepts is rare in German). The linguistic phenomenon under analysis concerns event conceptualization and thus affects decisions made during macroplanning (as discussed above in 1.1., e.g. information selection and segmentation of motion events). Since language production always entails the selection of means used to express the concept at issue, the experiment compares the concept selected, given the linguistic form produced, when the speaker has ample time to decide what to say as well as how to say it, in comparison to when the time available is reduced. It thus relates to macro- as well as microplanning processes in language production. Significantly, pre-trials ensured that the time constraint was held above the threshold that would lead to breakdown at the level of formulation. All options selected by the speakers are both well formed, as well as acceptable, for the contexts of use, and utterances do not differ in complexity under both conditions (see in detail below).

Only few linguistic studies have made use of a time constraint method, as in Damian & Dumay (2007), for example, who investigated the effect of time pressure on phonological advance planning in a picture naming task. The time pressure condition
did not change priming effects, but merely accelerated response latencies. Oomen & Postma (2001) also explicitly included time pressure in a language production task. They found that the speed of processing did not affect accuracy in error detection, but this condition did lead to more errors and repairs in speech, however.

7.2. *Expressing the aspectual distinction ‘event is in progression’ in Dutch*

Empirical studies on the use of aspect in Dutch (e.g. Carroll, Natale & Starren, 2008; von Stutterheim, Carroll & Klein, 2009; van Ierland, 2009; Behrens et al., under review; Flecken, under review) have identified one specific form, out of a variety of options for expressing the aspectual concept ‘event is in progression’, which is hypothesized as being in the process of grammaticalization. This is the periphrastic, locative *aan het*-construction (see (1)) (see also Boogaart 1991; 1999; Ebert, 2000; Krause, 2002; van Potterelberge, 2004; Booij, 2008).

(1) (a) *Katja is aan het studeren*  
*Katja is at-the study*  
‘Katja is studying’

(b) *Liesbeth is een sjaal aan het breien*  
*Liesbeth is a scarf at-the-knit*  
‘Liesbeth is knitting a scarf’

Although cross-linguistic comparisons provide evidence that this form has lost its original lexical (locative) meaning and function, and use is frequent in specific contexts (see Behrens et al. (under review) for an extensive discussion), constraints on use do exist, showing that the form is not as grammaticalized as the English progressive *be + V-ing*, for example. There are also other verbal constructions available to express aspect in Dutch. They involve the posture verbs *zitten/liggen/staan* or the motion verb *lopen* plus the infinitive (examples 2-5).

270
These constructions are used to a much lesser extent than *aan het* by native speakers of Dutch in tasks similar to those in the present study (see in detail Behrens et al., under review), since use of posture verb constructions is constrained by the physical position of the referent, in contrast to the *aan het*-construction\(^3\) (see in detail Lemmens, 2005). Although use is very low, aspectual posture verb constructions also belong to the possible options which speakers may consider in language production in the present task.

### Time constraints in language production

As mentioned above, all the stimuli presented to the participants depict events that are ongoing, and the task instruction to tell *what is happening* tunes the speakers into talking

\(^3\)The overlap between the physical position of an agent referred to and the posture verb as used in the construction is a strong tendency, however not mandatory. In the present data the correspondence is almost always present, though for the *zitten te* construction the restriction seems weaker.
about what is happening right now, from the point of view of the speaker, in both the baseline as well as the time constraint condition, as discussed above. This context thus presents a prime condition for the representation of an event as in progression at the time of speech. A time constraint was introduced by reducing the time between the video clips to three seconds, compared to the baseline condition, where speakers have eight seconds between each video clip. However, the time left for information processing, i.e. the length of time of the video clip, was maintained as in the baseline. Since the experiment involves an on-line condition, and speakers are asked to start to speak as soon as they recognize what is happening, we did not expect difficulties in formulating the response, given less time for verbalization (e.g. incomplete event descriptions, other errors, etc.), as the pre-trials had ensured.

Crucially for the experiment, the time constraint profiles the core temporal concept for use of an aspectual perspective: The narrower time span clearly focuses what holds in the situation as being now the case and can be asserted as holding for the time of utterance, given the high degree of overlap. In other words, speakers are even more tuned into what is exactly now the case, and the temporal prominence of the deictic ‘here and now’ is enhanced. For this reason, the time constraint is hypothesized as profiling the selection of the aspectual perspective, given the findings for monolingual speakers in a previous analysis of the use of aspect in Italian with the same framework (for results on Italian see Natale, 2009).

7.3.1. Hypothesis for the task

We hypothesize that monolingual speakers, under the time constraint, will select the form that is the most grammaticalized in the linguistic system, and is thus the most stable form, for the temporal concept at issue. This applies in Dutch to the aan het-construction. The time constraint is thus used as an indicator of the relative strength of situational features that either attract or constrain use of aspect in optional aspectual systems, such as Dutch, where selection of an aspectual perspective is not obligatory in any context. The time constraint is thus relevant as a tool in comparing perspective

4 In Natale (2009) use of the progressive stare + gerund construction in Italian (monolinguals) increased significantly under the time constraint condition with the same event construal task.
taking in languages in which aspectual distinctions present an option in event conceptualization for both the monolingual and bilingual group. Furthermore, we assume that performance under a time constraint is an indicator of degree of automaticity in language processing during language production. In this sense, the time constraint can be used to investigate whether bilingual speakers show the same preference in selecting aspectual concepts, when compared to monolingual speakers. As discussed above, differences between mono- and bilingual speakers in ease of access to particular concepts under a time constraint may exist, due to the relative ‘costs’ of bilingualism, i.e. inhibition and executive control functions that may play an important role in language production by bilinguals. Furthermore, the selection of aspect in one language may be subject to influences of co-activation of the other language and the options available for aspectual perspective taking in that language. The principal question is what happens when bilinguals are put under a form of pressure when executing a complex task involving event conceptualization, compared to monolingual speakers?

In addition to the change in state events described above involving causative actions with an effected object, two further situation types are represented in the stimuli (see below), each with its own set of potentially relevant temporal properties. Speakers responses for the three situation types will be compared for the two groups of Dutch speakers, covering both the baseline condition and the time constraint condition, in which the time to verbalize information on the event is reduced.

### 7.4. Method

#### 7.4.1. Participants

The monolingual Dutch participants consist of two groups of students: 25 speakers took part in the experiment in the baseline condition (age range 18-23 years, average age 19.46 years, 15 female, 10 male speakers); another sample of 25 speakers took part in the time constraint condition (age range 18-25 years, average age 20.53 years, 16 female, 9 male speakers). All speakers are students at the Radboud University in Nijmegen. Monolingual native speaker participants were excluded from the analyses when their answers to questions in a language background questionnaire indicated a
long stay in an environment where a language other than Dutch is spoken (a period longer than 3 months). The label 'monolingual' should therefore be interpreted in the sense of not having very advanced knowledge of an L2 (or L3); all participants indicated having intermediate to advanced knowledge of a second language, mainly English.

The group of bilingual Dutch speakers (N = 10; 9 female, 1 male) are secondary school pupils with an average age of 16.6 years (ranging for the majority of speakers between 16-19 years, with one 46 year-old)\(^5\). All speakers are enrolled in a bilingual German-Dutch education programme. The same group took part in both experiments, leaving a time span of six months in between to reduce memory effects. It should be mentioned that these disparities in the study with respect to age and a within-versus between- subjects design arise from the difficulties in finding a group of early bilinguals that meet most of the required criteria for these two closely related languages. The speakers were given a detailed questionnaire relating to their language background which was inspired by parts of existing questionnaires (Gullberg & Indefrey, 2003; Li, Sepanski & Zhao, 2006; Marian, Blumenfeld, & Kaushanskaya, 2007), but was fully adapted and extended to the situation of early bilinguals. Half of the participants are in fact simultaneous bilinguals (that is, most of them have been exposed to two languages from birth), and the other half of the participants have a slightly later onset of acquisition of one of the two languages (all before or from the age of four). These speakers are usually also characterized as simultaneous bilinguals (see e.g. Butler & Hakuta, 2004). In order to avoid confusion, however, the whole group is characterized in the present study as early bilinguals, since the group as a whole has an early age of acquisition of two languages in common, and is the relevant variable in distinguishing the bilingual participant group from the monolingual Dutch speakers.

\(^5\) Even though there are differences with respect to the educational background and the age range of the two groups of speakers, we do not expect differences in preferences in event conceptualization. The present experiment involves event conceptualization with regard to simple, everyday events common to speakers over the age of 10 at least (knitting a scarf; building a model airplane, etc). Since previous studies show that preferences in conceptualization are linked to grammatical features of the specific languages, we assume that patterns may be robust and that performance resulting from the given age differences (sixteen year old high school students and university students with an average age of 20 years) should be negligible in this domain.
7.4.2. Stimuli

The stimulus set in the baseline condition (65 videoclips) includes three situation types, giving a total of 21 critical items, while the remaining clips are distracter items. The critical items encompass situations showing a *change of state* as well as those showing a *change of place*. The change of state situations consist of two types of causative actions in which an agent acts on an object which can be viewed as an *effected* or *affected* object. As mentioned above, the situations were selected on the basis of previous cross-linguistic studies that show how specific temporal features attract or constrain use of aspectual concepts in different systems.

- Change of state situations with an *effected object* consist of clips showing causative actions in which an agent is acting on an entity, as when making a toy figure out of plasticine, moulding a vase, knitting a scarf, or drawing a tree. The tree, toy figure and vase are the *effected* objects which come about via the actions of the agent, and the resultant state is evident and can be readily inferred from the clip.

- Change of state situations with an *affected object* include agents involved in repairing a shoe, putting books back on a shelf while tidying up a room, painting a bottle green. In contrast to the scenes with an effected object, the process involved does not lead progressively to a final state in which an object is created, as discussed above. Rather, an already existing object is affected by the action of the agent.

- Change of place situations cover motion events in which a figure (person, vehicle) is depicted as on its way along a path. The events are therefore presented as ongoing, in other words, a possible endpoint (goal) is not reached by the moving entity, though it is visible in the videoclip (a person walking along a path leading up to a house, or a vehicle on a road leading toward a village).

The following table provides an overview of the situations types used in the study.
Table 1: Situation types present in the stimulus sets

<table>
<thead>
<tr>
<th>Change of State Situations (CoS)</th>
<th>Change of State Situations (CoS)</th>
<th>Change of Place Situations (CoP) (motion events)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effected object</strong></td>
<td><strong>Affected object evident in clip</strong></td>
<td><strong>Figure underway, endpoint not reached</strong></td>
</tr>
<tr>
<td>7 items</td>
<td>7 items</td>
<td>7 items</td>
</tr>
<tr>
<td>beading a necklace</td>
<td>adding flour into a bowl (while baking)</td>
<td>car travelling along a road with a village in the distance</td>
</tr>
<tr>
<td>building a house of cards</td>
<td>taking a packet off shelf in supermarket (while shopping)</td>
<td>someone leaving the supermarket and walking across the parking lot to where cars are parked</td>
</tr>
<tr>
<td>making a paper airplane</td>
<td>hammering a nail into a shoe (while repairing)</td>
<td>someone climbing a ladder (to a loft)</td>
</tr>
<tr>
<td>moulding a vase</td>
<td>inserting paper into an old typewriter (preparing to type)</td>
<td>two girls walking on a path leading to and beyond a house</td>
</tr>
<tr>
<td>making toy figure out of plasticine</td>
<td>putting cup of coffee on a table in a café (serving in a café)</td>
<td>van travelling along a road with a gas station in the distance</td>
</tr>
<tr>
<td>drawing a tree</td>
<td>putting books back on shelf (while tidying up)</td>
<td>someone walking along a sidewalk toward a car</td>
</tr>
<tr>
<td>knitting a scarf</td>
<td>writing equation on a board (while giving a maths lesson)</td>
<td>two nuns walking along a country road with a house in the distance</td>
</tr>
</tbody>
</table>

The present study looks at the selection of an aspectual perspective on the basis of selected temporal features for the above mentioned situations, for both the monolingual and bilingual group. The questions addressed are as follows: do the attractor variables, as well as constraining features, as identified in the baseline condition, have the same effect on the selection of an aspectual perspective, given a time constraint, and to what extent do the two groups of speakers compare or differ in this respect.

7.4.3. Procedure

The method consists of the online retelling of a set of short, live-recorded dynamic videoclips of 6 seconds in length. All participants were told that they would see video clips showing everyday events, events that are not connected in any way, and their task was to tell *what is happening* ("wat gebeurt er?"). They were also instructed that they should start to speak as soon as they recognized what was happening.
The experiments were carried out by a Dutch researcher and the question was formulated as follows: *Het is jouw opgave om te vertellen wat er gebeurt* ("it is your task to tell what-there-happens"). In the baseline condition, the stimulus set consists of 65 videoclips with a short break (blank screen) in between each videoclip. As mentioned above, the blank screen lasted 8 seconds in this condition. In telling what is happening, all participants were also requested to mainly focus on the *event*, and not to give a detailed description of specific aspects of the scene (e.g. colours, things in the background).

In the time constraint condition, the only difference in the experimental set up was that the blank screen between the clips was reduced to 3 seconds, which means that the time for verbalizing information on the event was reduced by 5 seconds, compared to the baseline. The set of videoclips was also reduced to 44 videoclips (sets of filler items were omitted, due to time constraints for the recording session with the bilingual group). However, all of the critical videoclips in the time constraint stimulus set were identical to the ones used in the baseline condition (see below). Speakers started the experiment with a practice session in both cases with a set of 6 videoclips. They could thus practice the task and get used to the pace of presentation of the clips. All verbalizations were recorded with a microphone and transcribed by a native Dutch speaker.

### 7.5. Results

#### 7.5.1. Frequency of selection of the aspectual perspective: baseline condition

The monolingual Dutch speakers select an aspectual perspective for the critical items in 34.67% of all utterances (182 of 525 utterances) in the baseline condition. The bilingual Dutch speakers do so to a similar extent, with 34.76% of all utterances (73 of 210 utterances). Furthermore, there is no significant difference between the two groups in the distribution across the different situation types. The results for the changes of state (CoS) and change of place (CoP) situations are presented in table 2.
Table 2: Selection of aspectual perspective per situation type under the baseline condition

<table>
<thead>
<tr>
<th></th>
<th>CoS effected object</th>
<th>CoS affected object</th>
<th>CoP (motion events)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monolingual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dutch</strong></td>
<td>103/175 58.86%</td>
<td>79/175 45.14%</td>
<td>0</td>
</tr>
<tr>
<td><strong>Bilingual</strong></td>
<td>43/70 61.43%</td>
<td>28/70 40.0%</td>
<td>2/70 2.86%</td>
</tr>
</tbody>
</table>

For both the monolingual and bilingual group there is a trend for a difference in the use of aspect between the two types of change in state situations (monolingual Dutch: CoS effected object versus CoS affected: Chi (1) = 3.227, p = 0.072; bilingual Dutch: CoS effected versus CoS affected: Chi (1) = 3.169, p = 0.075). Both groups tend to select the aspectual perspective with a higher frequency for the change in state situations with an *effected object*, compared to situations with an *affected object*, while there is a marked absence of aspect for change of place events in both groups. The bilingual speakers do express aspect explicitly in this context, but only in 2 cases (which did turn out to lead to a trend for a difference between groups: Chi (2) = 5.352, p = 0.069).

7.5.2. Frequency of selection of the aspectual perspective: time constraint condition

Frequency of use of the aspectual concept ‘event is in progression’ by the monolingual Dutch group and the bilingual group reveal significant differences given a time constraint. The monolingual Dutch speakers select an aspectual perspective for the critical items in 38.48% of all utterances (202 of 525 utterances), while the bilingual Dutch speakers do so to a significantly lower extent, in 23.81% of all utterances (50 of 210 utterances) (total occurrences for mono- versus bilinguals: U = 805, p < .05). The following table presents the frequency per situation type, for the time constraint condition.

Table 3: Selection of aspectual perspective per situation type under time constraint condition

<table>
<thead>
<tr>
<th></th>
<th>CoS effected object</th>
<th>CoS affected object</th>
<th>CoP (motion events)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monolingual</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dutch</strong></td>
<td>124/175 70.86%</td>
<td>70/175 40%</td>
<td>6/175 4.57%</td>
</tr>
<tr>
<td><strong>Bilingual</strong></td>
<td>27/70 38.57%</td>
<td>23/70 32.86%</td>
<td>0</td>
</tr>
</tbody>
</table>

6 For this analysis, Mann-Whitney tests were conducted instead of chi square tests, since the two samples are unequal in size.
For the monolingual speakers, a comparison between conditions shows that the time constraint (which focuses the core deictic interval) leads to a significantly higher frequency for CoS involving an affected object (Chi (1) = 12.978, p < .001). As discussed above, this situation type presents a prototypical context for the variable of progression. This does not hold for the change of state situations with an affected object. The findings show that there is no increase in the selection of the aspectual perspective in this latter context under time pressure, while there are now some occurrences for motion events in the monolingual data.

In contrast to the monolingual group, the bilingual Dutch speakers, given the time constraint, do not show any increase in the use of the aspectual perspective under this condition, in a comparison between the two conditions. Also, there is no difference in frequency in the time constraint condition for the selection of aspect for the two types of change in state situations (Chi (1) = 0.320, n.s.). In other words, the frequency of selection for the two types of change of state situations is similar in the time constraint condition and selection for change in state situations with an effected object does not increase, in contrast to the monolingual speakers (see Figure 1).

Figure 1: the mean frequency of selection of the aspectual aan het form for the two groups, under the two conditions (situation type change in state situations with an effected object).
A comparison of the overall frequency of use between conditions (chi square test) reveals that the bilingual Dutch speakers select an aspectual perspective less frequently across all situation types, given the time constraint (Chi (1) = 4.301, p < .05).

7.5.3. Selection of form

Both groups show a similar pattern, however, when it comes to the selection of the linguistic means available in Dutch. The progressive *aan het* is the form used most frequently by both groups of speakers in the baseline condition (see table 4).

<table>
<thead>
<tr>
<th></th>
<th>Aan het-construction</th>
<th>Posture verb constructions / bezig te+inf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual Dutch</td>
<td>150/182 -82.42%</td>
<td>32/182 -17.58%</td>
</tr>
<tr>
<td>(N=25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>56/73 -76.71%</td>
<td>17/73 -23.29%</td>
</tr>
<tr>
<td>(N=10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A Mann-Whitney test demonstrates that there is no difference between the two groups in the selection of this form for all situation types taken together (total use of the *aan het* form in mono- versus bilinguals: U = 1116.5, n.s.).

A similar pattern applies with the time constraint. The progressive *aan het* form is again the form used with a high frequency by both groups of speakers (see table 5).

<table>
<thead>
<tr>
<th></th>
<th>Aan het-construction</th>
<th>Posture verb constructions / bezig te+inf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monolingual Dutch</td>
<td>193/202 -95.54%</td>
<td>9/202 -.46%</td>
</tr>
<tr>
<td>(N=25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bilingual Dutch</td>
<td>43/50 -86%</td>
<td>7/50 -.14%</td>
</tr>
<tr>
<td>(N=10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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7 See footnote 7.
A comparison for the monolingual Dutch group between the baseline and the time constraint condition reveals a trend for a significant increase in use of the "aan het" form under the time constraint: In the baseline condition, "aan het" is used in 28.57% (150/525) of all utterances, in the time constraint condition use is higher at 36.76% (193/525) (Chi (1) = 5.391, p < .05). With regard to the use of posture verbs across the two conditions, we find a significant decrease under the time constraint for the monolinguals (6.10% posture verbs baseline vs. 1.71% time constraint, Chi (1) = 12.100, p < .001).

7.5.4. Time constraints and accessing linguistic form in language production

It is important to note that the time constraint condition does not lead to any form of breakdown in the capacity of the speakers of either group to produce well-formed sentences that are syntactically as well as semantically intact. The speakers access appropriate forms at all levels in carrying out the task. Furthermore, there is also no evidence of any change in the complexity of the utterances produced. This observation may be attributed to the fact that the situations to which they relate in their responses do not require complex descriptions, and responses are equally to the point in both the baseline and time constraint condition. Furthermore, use of aspect actually reduces the amount of information that speakers need to supply in context, since it suffices in the case of an aspectual perspective to say "a man is painting," without further qualifications, given the fact that the aspectual marker grounds the event in context as a specific case, anchored in the ’here and now’. In other words, speakers will supply further means in grounding the assertion if the simple present tense form is used. So rather than assert that "a woman knits," they will typically use adjuncts or complements to ground the assertion as a specific case. Specifications such as "a woman in a chair knits," or "a woman knits a scarf," avoid the interpretation that the response is a general statement about the referent that may hold over an unspecified period of time. The examples below show some of the bilinguals’ event descriptions, with or without aspect, in the time constraint condition. All examples can be viewed as appropriate solutions to the task at hand.
In sum, we interpret the findings as an indication that the speakers of both groups do not run into problems in accessing linguistic means at the form level under the time constraint condition. If bilingual speakers do not select an aspectual perspective, this may not be a question of accessing and activating the construction as such (*aan het*), but rather the set of temporal concepts that have to be taken into consideration when viewing the situation and deciding, at the level of the conceptualizer (Levelt, 1989), whether to select an aspectual perspective on the situation or not. We assume that when planning what to say in language production, thereby relating to the relevant events, speakers will take into account the temporal features of situations that warrant use of the aspectual perspective in Dutch, and then select the form.
7.6. Discussion and summary of the findings

The experiment reveals significant differences between conditions, for both the monolingual and bilingual speakers of Dutch, in the selection of the aspectual perspective ‘event is in progression’. Marked differences between the two groups occur given a time constraint, but not when there is sufficient time to carry out the task, in the present datasets.

Turning to the first aim of the study, and the role of attractor and constraining variables for the use of aspectual concepts in the baseline condition, no major difference between mono- and bilingual Dutch speakers was observed in this case. A minor, though significant, difference was found in the selection of aspect with motion events, since the bilinguals do occasionally mark aspect in this context, whereas the monolinguals do not (for further evidence of this type of extension by the bilingual group see Flecken, in press).

Under the time constraint condition, we find a significantly higher frequency in the activation of the aspectual concept by monolingual speakers of Dutch for the change of state situations with an effected object (when compared to the baseline condition), but not for bilinguals. Given the time constraint, the two groups differ with regard to the overall frequency of selection: the frequency for the monolingual speakers is 38.48%, compared to the bilinguals at 23.81% which is significantly lower. Moreover, the monolinguals under the time constraint show an increase in selection of aspect for one specific situation type only: change of state situations with an *effected* object, but not for change of state situations with an *affected* object, or change of place events. This reveals that aspectual concept expressed by *aan het* is most likely to be used in situations that depict ‘progression’ in prototypical terms. For the monolingual speakers, the main attractor situation type, as identified in the baseline condition, has an even greater effect under the time constraint condition, since there is a higher frequency of aspect for this situation type - change of state situations with an *effected* object - given this constraint when compared to the baseline. Since no enhancement is observed for change in state situations with an *affected* object, this finding pinpoints the status of the situation type with an *effected* object as the prototypical attractor for the aspectual perspective ‘event is in progression’ at the present stage of grammaticalization.
There is a slight increase with motion events, given the time constraint, which is a fully constrained area of use in the baseline condition. Use in motion events, however, occurs with verbs that focus manner of motion, rather than direction.

(8) twee vrouwen zijn aan het wandelen over een landweggetje (vp13)

two ladies are at-the-walk along a country lane
‘two ladies are taking a stroll along a country lane’

The representation of the motion event presented in (8) shows that the monolingual speakers do not ignore the semantic restrictions that exist for the selection of *aan het* in the baseline condition: use of the progressive perspective to describe motion events is consistently rare in the baseline condition, given the incompatibility of goal-oriented motion verbs with the locative progressive marker. The few occurrences in the baseline condition also relate explicitly to manner and not direction (*being out for a walk*) and are in this sense “activities” (cf. Vendler, 1957) (see in detail Behrens et al., under review).

Looking at the linguistic means used, there is an increase in use of the *aan het*-construction for the monolingual group given the time constraint (28.57% in the baseline, 36.76% under the time constraint), paired with a significantly lower frequency of use of the posture verb constructions by the monolingual Dutch speakers.

The findings can be interpreted in light of a different response, given a time constraint, to attractors and constraints for selection of an aspectual perspective, as identified in the baseline condition, for the two groups of speakers. For both groups, situations showing changes in state leading to a qualified *affected object* have a high attractor effect on selection of an aspectual perspective, expressed mainly by means of the *aan het* form, in the baseline condition. This confirms its semantic status as an aspectual form with a clear progressive component, compared to posture verbs.

When given less time to verbalize information on the situations depicted in the video clips, which at the same time enhances the conditions for use of a temporal perspective by which speakers are asked to decide and assert ‘what is now the case’ and with this is ‘in progression at the time of utterance’, monolingual speakers select an aspectual perspective more frequently, as hypothesized. The data also show further evidence of the enhancement effect given with the time constraint, since monolingual
speakers occasionally use \textit{aan het} (in combination with specific verb types) in what is otherwise a heavily constrained situation type - change of place events (motion events).

The bilingual speakers, on the other hand, show a different picture: Their reaction to the reduction in verbalization time and the enhancement for use of the temporal perspective results in an overall lower frequency of selection of the aspectual concept, when compared to the baseline. Under a time constraint, the bilingual speakers use \textit{aan het} less frequently, compared to the monolingual group, for both change of state situations with and effected object (attractor context) as well as change of place situations (constraining context).

As with the monolingual group, the use of posture verbs diminishes, indicating that the \textit{aan het} form is the most automatized form available for expressing the concept of progression, again underlining the higher grammatical status of the \textit{aan het} form, compared to the posture verbs, as the form in Dutch that expresses the concept 'event is in progression'. Furthermore, speakers have to take posture into account when selecting posture verbs, while this is not the case with the \textit{aan het}-construction.

Importantly, as the comparison between the two groups under the baseline indicate, the findings cannot be attributed to a lack in knowledge on the part of the bilingual speaker. Both monolinguals and bilinguals show a similar response to relevant variables, i.e. change in state situations attract a high frequency of use of aspectual concepts and motion events represent a constraint in the baseline condition. This indicates that the aspectual systems of both groups of speakers function according to a similar underlying logic, with no difficulties in accessing aspectual concepts when there is no time constraint.

However, the results reveal differences in the ease and stability, and with this the automaticity, with which aspectual concepts are accessed under time pressure in a complex language production task, between mono- and bilingual speakers. Monolingual speakers not only sustain but show increased access to the aspectual distinction 'event is in progression' given a time constraint. They avail of a condition that enhances access in temporal terms, even though use in Dutch is optional and is not highly grammaticalized in the language system. The bilingual speakers show a preference for the perspective on the event given with the simple tense form when there is less time to
verbalize. It is important to state here again that event conceptualizations that include a simple verb form are appropriate solutions to the task at hand in both languages. The change in preference of the bilingual speakers (from a perspective 'event is in progression' to a neutral perspective, expressed by means of the simple verb form) suggests that access to aspectual concepts is less stable and less automatic, given the fact that we are concerned here with the prime domain of use: the situation type with the highest attractor effect in the baseline condition (change in state situations with an effected object) where a decrease in selection occurs for the bilinguals.

The bilingual speakers are more likely to select the temporal perspective that would also be appropriate in their other language, German, the perspective that does not explicitly present the event as in progression at the time of utterance, as expressed by the simple verb form. Assuming that a bilingual’s two languages may be to some extent co-activated, which findings on lexical access to date suggest (1.2.), the bilingual may experience activation of the German options for perspective taking during conceptualization, when under time pressure. Under a baseline condition, the bilingual is given sufficient time to process and select the appropriate option in Dutch, which, as we know is dependent on the specific temporal features of the situation depicted. The time constraint condition reveals how these selection processes suffer and the bilinguals are more likely to opt for the alternative temporal concept that converges in both languages, and represents a stable, appropriate solution for the task at hand. In other words, bilinguals may have more options to decide on (namely options available in the two languages), and with shorter time interval they select a temporal concept which is appropriate in all cases in both languages, independent of situation type.

With regard to models of language production and the question of macro- and micro planning in conceptualization, the language-specific factors that speakers have to take into account when deciding to use an aspectual perspective in Dutch or not, cannot be circumscribed with the term 'how to say it'. The deciding factors in the selection of an aspectual perspective relate to features concerning the nature of the event with respect to its dynamic components (contrasts that give a measure for progression, duration of the event, etc). We assume that the relevant language-specific concepts are activated at the level of macroplanning, when ‘thinking for speaking’, where the event is conceptualized as ‘in progression at the time of utterance’. The
selection of the possible coding options in Dutch (aan het-construction or posture verbs) will also occur on the basis of features at a macro level of representation. However, the matching process between established criteria that allow selection of the aan het-construction, for example, over posture verbs, or vice versa, and event representation at the macroplanning level, can be viewed as taking place at the level of microplanning. Speakers of Italian, for example, may share similar representations at the level of macroplanning as speakers of Dutch for the situations studied, as the crosslinguistic findings for these two languages indicate. However, the clustering of criteria that are relevant with respect to the selection of a suitable linguistic form is likely to be language-specific.

The findings reveal that bilingual speakers are less likely to activate concepts associated with an aspectual perspective under time pressure. Although they may be aware of the relevant dynamics of the situation they are describing, the temporal concepts that are profiled and activated will differ with and without aspect. The absence of an aspectual perspective means that the temporal concepts activated apply to a wide range of situations and converge for both Dutch and German, which in turn determines the linguistic form selected.

The bilinguals show a sensitivity to language-specific preferences in Dutch under baseline conditions in language production, but under time constraints bilingual speakers display a greater tendency to select a converging option that holds in both Dutch and German. The concepts activated at the macro planning level will be similar and although the actual form will differ, the cluster of features that allow the selection of the simple verb form will also converge in both languages. The findings with the time constraint condition thus point to a simplification strategy in that the option selected shows convergence between the two languages of the bilinguals.

The present results converge with findings on lexical concept selection in language production that show that there is always a degree of co-activation of concepts of the other language when performing tasks in only one language (see overview in Costa, 2004).

In conclusion, the present study has used a method that involves a time constraint in a language production task to gain insight into the stability and automaticity with which bilingual speakers of Dutch select and access temporal
concepts in language production, compared to monolingual speakers who were asked to carry out the same task. It has proven to be a useful tool in assessing the extent to which processes in language production may be bilingual-specific, and how mono- and bilingual speakers compare or differ in cases when the time available to verbalize information is reduced.

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Chapter 8: Assessing bilingual attainment: macrostructural planning in narratives*

Abstract

The present study addresses questions concerning bilinguals’ attainment in the two languages by investigating the extent to which early bilinguals manage to apply the information structure required in each language when producing a complex text. In re-narrating the content of a film, speakers have to break down the perceived series of dynamic situations and structure relevant information into units that are suited for linguistic expression. The analysis builds on typological studies of Germanic and Romance languages which investigate the role of grammaticized concepts in determining core features in information structure. It takes a global perspective in that it focuses on factors that determine information selection and information structure that hold in macrostructural terms for the text as a whole (factors driving information selection, the temporal frame used to locate events on the time line, and the means used in reference management). A first comparison focuses on Dutch and German monolingual native speakers and shows that despite overall typological similarities, there are subtle though systematic differences between the two languages in the above mentioned areas of information structure. The analyses of the bilinguals focus on their narratives in both languages, and compares the patterns found to those found in the monolingual narratives. Findings show that the method used provides insights into the individual bilingual’s attainment in the two languages and identifies either balanced levels of attainment, patterns showing higher degrees of conformity with one of the languages, as well as bilingual-specific patterns of performance.

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8.1. **Introduction**

Studies on the linguistic performance of advanced second language or bilingual speakers are faced with the task of finding proficiency measures that reflect speaker’s abilities on a representative scale. The measures adopted mainly address issues such as vocabulary size or formal errors, however, and thus relate to specific linguistic phenomena which are often taken out of context. The lack of contextuality and the diversity in assessing attainment often lead to difficulties in interpreting and comparing results, as well as replicating previous findings (see Grosjean, 1998; De Bot, 2008). Furthermore, there is a great deal of variation in the methods used: subjective tests (for example self-ratings of abilities to speak, read and write, as in Kohnert, Hernandez & Bates, 1999), objective tests (performance on a given linguistic task), or external measures such as variables in language history (age of acquisition, contexts of use).

The present study presents a method whereby attainment is investigated on the basis of performance on a complex task involving text production. The texts produced by bilinguals in their two languages are compared with those of monolinguals and this comparison represents the basis of assessing attainment. The current study is based on findings that show that there are language-specific micro- as well as macro-planning (cf. Levelt, 1989) principles that drive information structure in texts. The type of information organization required when producing a text such as a narrative, for example, involves questions relating to information selection (deciding what to say), thematic continuity (e.g. topic assignment), referential framing, which relates to predicate-argument structures and how they are anchored in contexts in temporal and spatial terms. In order for a sequence of propositions to be coherent, their referential properties have to be related in consistent terms across utterances (von Stutterheim, 1997). This has been demonstrated in a series of cross-linguistic studies which address the following question: to what extent are decisions in information structure determined by grammatical features of the language in question? The cross-linguistic comparisons cover narrative and descriptive texts in languages that differ typologically (Germanic, Romance, Semitic (e.g. Standard Arabic). Speakers were given the same visual input (a short silent film, for example) and were asked to tell what happened.
Research within this framework has shown that the organization and embedding of linguistic form in context is driven grammatically in the domains studied, and poses problems for learners even at very advanced levels of adult second language acquisition (Carroll, Murcia Serra, Watorek & Bendiscioli, 2000; Carroll & von Stutterheim, 2003; Carroll & Lambert, 2003, 2006; von Stutterheim & Lambert, 2005; Carroll, Roßdeutscher, Lambert & von Stutterheim, 2008).

Further research in this context led to the question concerning the nature of the linguistic knowledge which drives decisions underlying information structure: are issues in information structure solved for each sentence on an individual basis or are there principles that guide the speaker, on a default basis, at each relevant stage in the narrative that hold for the text as a whole? For example, is the decision to map an agent of an action as subject of a main or subordinate clause made individually at each point in the narrative, or are there planning principles that provide guidelines for the speaker at a macrostructural level, in the sense that they are found to apply on a global basis throughout the text, comparing speakers of English, German, and French (cf. Carroll et al., 2008). The findings show that principles underlying information structure that are grammatically driven hold for the whole text on a default basis.

The results are relevant for the investigation of both L2 users as well as early bilinguals, since the underlying linguistic knowledge is difficult to acquire and can thus provide insights not only into questions concerning ultimate attainment with L2 learners but also into questions relating to balance or differences in attainment in the two linguistic systems of bilinguals. The linguistic knowledge at issue plays a major role in the establishment of what can be termed ‘large-scale coherence’ (cf. Jackendoff, 2002) in texts. The difficulty in acquiring the preferred patterns of information structure can explain why certain L2 or bilingual texts, despite being error-free, do not sound native-like (von Stutterheim, 2003; from a UG-perspective Sorace, 1993; 2003).

The current paper looks at how a sample of adult and adolescent (16 year old) Dutch-German early bilinguals (selected on the basis of age of acquisition of both

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1 In Sorace (1993), though, the observed differences between natives’ and learners’ performance on a given linguistic task are described by means of the terms ‘divergence’ and ‘incompleteness’. These have a rather negative connotation. In the present paper, systematic differences from monolingual performance (that are grammatically correct) will be labelled ‘bilingual-specific’ (governed by principles specific to bilingual performance, that hold at text level), similar to Sorace’s (2003) concept of ‘optionality’ in L2 systems (at the syntax-semantics interface).
languages—both before the age of 4)—go about constructing a narrative in both languages. The sample investigated represents an interesting case since the two languages involved are typologically close (both V2 languages). Since there are nevertheless subtle but consistent differences in information structure in Dutch and German, it is hypothesized that the languages’ typological closeness poses a challenge for learners. The question is: how do early bilinguals manage to acquire and keep apart principles underlying information structure in a narrative task in languages that differ in subtle terms? The focus of interest in the present analysis of Dutch and German concerns the following areas: information selection (deciding what to say) when asked to narrate the content of the silent film; organization of the temporal frame used to shift the story line and the means used in reference to person (reference introduction, reference maintenance and topic assignment), since these factors are closely linked in information structure, as will be shown below.

The systematic comparison of narrations in both languages of bilingual speakers with narrations of monolingual speakers of these languages allows us to assess questions relating to attainment in both languages. If, for example, a Dutch-German bilingual displays patterns in information structure in the German narratives that resemble patterns in monolingual German narratives, but the bilingual’s Dutch narrative shows differences from the monolingual Dutch pattern, then differences in performance of this kind between the two languages will be taken to reflect differences in attainment, with (in this example) a higher level in German.

Differences in attainment of this kind will (presumably) correlate with certain forms of ‘linguistic exposure’ and distinguish those that lead to a higher level of attainment compared to those that do not. However, high levels of attainment in the acquisition of the linguistic knowledge underlying information structure need not necessarily correlate with factors at the level of processing such as fluency (rate of delivery) or automaticity. If a bilingual speaker frequently uses one of the languages with other bilingual speakers, for example, and the language is in this sense not only the most fluent but also the most ‘active’, this may not necessarily lead to a high level of attainment when structuring information for expression—the focus of the present study.
The notion of ‘accuracy’ is also frequently cited in assessing language dominance but this is generally a measure of performance with respect to grammatical or lexical knowledge. As will be shown in the present study, it does not easily fit the complex patterns of information organization that underlie the formal structure on which a text such as a narrative, for example, is based. Not many forms, or sentences, are inaccurate or inappropriate at a grammatical or lexical level in the data of the present bilingual speakers. But the set of underlying principles by which information is organized as a coherent whole in language production may differ from those of monolingual speakers.

Possible differences or balance in the bilinguals’ attainment in the two languages is measured in the present study by looking at how information is structured in producing a narrative, with its complex organization, compared to the typical monolingual patterns in information structure in both languages. This analysis will be carried out by comparing the narratives in the two languages not only as a group but also within subjects. The first stage of analysis (in 3.3.1) concentrates on a comparison of the relevant features in information selection and information structure in narratives of monolingual speakers of Dutch and German.

The present paper sets out to show how the investigation of speakers’ performance in acquiring the principles that guide use of the linguistic means available provides a new and insightful tool in assessing attainment levels, especially in more advanced learner/bilingual populations dealing with challenging language pairs.

8.2. Language-specificity in the information structure of narratives

As mentioned above, previous work within the present framework on narratives produced by native speakers of Dutch, German, French and English relate to the role of grammaticized means for information structure, focusing on a core feature of a

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2 In Birdsong (2006), for example, language dominance is defined as a measure of processing, related to degree of fluency, accuracy, speed and automaticity of processing. Defined as such, the present comparison of attainment in the two languages cannot provide insights into this issue. However, differences in performance on the complex task at hand between the two languages of a bilingual, i.e. evidence of a higher level of attainment in one language over another, may be taken as an indirect measure of language dominance (as in Flege, Mackay & Piske, 2002; Golato, 2002): the language one has a higher level of attainment in, may be the one that is most ‘active’ (as in Heredia, 1997) and the language one has (had) most exposure to, etc.
narrative task: the means used to locate events in succession on the time line in order to advance the story line. The studies take into account the role of (i) differences in word order constraints given with verb second (V2) languages (Dutch, German) versus SVO languages (English, French); (ii) contrasts in the temporal domain given with languages that mark aspectual distinctions grammatically (progressive be + V-ing in English; perfective aspect in Standard Arabic), compared to those that do not. Aspectual distinctions are marked by lexical means in German, for example, and will not have an obligatory status in certain contexts of use, compared to contexts in which speakers of English will be required to use progressive aspect.

In the temporal frame established for the film retellings in English (and Standard Arabic), events are linked to an external anchor which is deictic ('now you see' or 'then you see'). All types of situations can be connected to this external temporal anchor, both directly or indirectly, and ongoing events (expressed by the progressive – ing for example) may form an integral part of the event sequence (he is walking around and sees a huge rock heading straight for him). We assume that temporal frames of this kind are not random but facilitate the integration of ongoing events into the story line in languages that mark aspectual distinctions (such as the progressive) on a grammatical basis (cf. Carroll & Lambert, 2006).

The temporal frame found in Dutch and German (V2 languages) in shifting the story line can be linked to a different grammatical feature, i.e. word order and the V2 constraint. Since the finite verb must be placed in second position in main clauses (second main constituent), a preverbal slot is created in which only one constituent can occur. This can be the syntactic subject, but in narratives the linguistic means that encode temporal relations are also prime candidates for mention in this position (temporal adverb such as 'dann' 'then'). The consequences of this factor for the temporal frame also affect information selection, as shown in the analyses. The temporal frame is based on the principles of temporal shift ('and then') in which the temporal anchor is given internally by the point of completion of the last event mentioned. The analyses show that focus is placed when deciding what to say on the selection of entities and associated events that reach a point of completion and can thus accommodate the relation of temporal shift ('and then'). This temporal relation is satisfied by events with a right boundary or endpoint and the selection of entities for
mention that are involved in events of this kind (see in detail Carroll et al., 2008). In the film used for the cross-linguistic comparison this leads to a preference to mention events carried out by the animate protagonist, who is responsible for bringing about events that have an endpoint in the stimulus film (see 3.2), rather than inanimate entities such as environmental forces (gusts of wind knocking things about; pieces of paper flying around; rocks falling; water dripping, etc.). This is in contrast with speakers of English, for example, who relate to both to a similar extent. The extension of the comparison to other languages (Spanish, Arabic) shows that the presence of grammaticized means to present events as in progression leads to a tendency to include events of different kinds, since the temporal frames used in shifting the story line are not organized around events with a point of completion to the same degree. This is reflected in the status or level of attention accorded to entities (protagonist, inanimate agents) in reference introduction and reference maintenance.

One feature which is important for the present study of bilinguals concerns the status accorded to the main protagonist in German and Dutch. In German, reference to the protagonist as the subject in main clauses is frequently ellipted and expressed by means of zero anaphora. This phenomenon will be labeled topic deletion. Reference in individual clauses can be omitted and remain implicit (when in preverbal position). In monolingual German narratives, topic deletion is high and occurs in 54.2 % of all main clauses when the protagonist is maintained as syntactic subject (Carroll & Lambert, 2006). This is not the pattern found in Dutch, as will be shown in detail below.

8.2.1. Insights from monolingual L1 acquisition

Halm (in press) provides a useful illustration of the constraints that occur in information structure given the presence of a specific relation in one domain (e.g. temporal shift) and its consequences for the means used in another domain, in this case reference management-as when marking informational status of an entity such as the main protagonist as ‘topic’. A study investigating the acquisition of the above mentioned language-specific principle of topic assignment and management in
monolingual German shows that children do not acquire the adult like pattern of topic deletion until the age of 13/14 years (see Halm, in press). This is due to the predominance of the core re-narration strategy which is centered around the notion of temporal shift (Halm, in press), and the fact that this relation is explicitly marked for the majority of events located on the time line. Children tend to fill the pre-verbal slot exclusively with the temporal shifter ‘(und) dann’ (‘and then’), creating a situation in which it is impossible to delete reference to the protagonist (the topic), since it then has to be mentioned explicitly in a post-verbal position, given word order constraints in German (see example (1) 034-036 below, taken from Halm, in press).

(1) Monolingual German - 12 year old

032a aber in dem Moment
‘but in that moment’

032b wo er die Hände hochhebt
‘where he the hands lifts’

033 kommen/fallen keine Tropfen mehr vom Himmel
‘come/fall no more drops from the sky’

034 und dann betastet er die Lache
‘and then touches he the puddle’

035 und dann reißt das Papier auf
‘and then tears the paper’

036 und dann fällt er runter
‘and then falls he down’

The acquisition task for the children lies in finding the appropriate weighting between the importance of making explicit reference to the temporal relation of shift, and a factor in information structure such as ‘topic’ status (Halm, in press, p. 174). Adult (monolingual) German speakers solve this question by reducing the contexts in which the temporal shifter ‘dann’ (in the Vorfeld (the slot preceding the finite verb)) is used explicitly to mark the beginning of a ‘new’ chain of events that are closely connected. In subsequent utterances, this temporal relation is maintained implicitly and the Vorfeld-
slot can be ‘filled’ by the subject/topic role (protagonist), thus creating the conditions that allow ellipsis/topic deletion (see example (2)).

(2) Monolingual German adult

001 die Figur wacht auf
‘the figure wakes up’

002 nachdem sie eben da runtergefallen ist
‘after she just there fallen down has’

003 ø schaut sich um
‘looks around’

004 und ø erkundet erstmal die Gegend
‘and explores at first the surroundings’

005 dann sieht sie sich plötzlich auf einem großen Steinhaufen wieder
‘then sees he himself all of sudden on a great pile of rocks again’

006 und ø kann dann eigentlich nicht mehr runter
‘and can then actually no longer down’

007 ohne sich was anzutun
‘without to himself something to do’

008 ohne sich zu verletzen
‘without himself to hurt’

Halm (in press) found that children up to the age of 13 still have problems in figuring out that temporal shift is a global principle to advance the storyline that can be left implicit and need not be repeatedly marked, thus vacating the Vorfeld-slot and allowing access for other constituents (syntactic subject, for example). The younger children investigated (7/8 year olds-11/12 year olds) show a strategy where ‘dann’ is placed in the Vorfeld and the full subject occurs in the Mittelfeld (middle field). Although the frequency of topic deletion in the 13/14 year old narratives is still somewhat lower than the adult pattern (24.6%), the protagonist can be clearly identified as a global topic. The data illustrate the course of development in acquiring formal means which allow the speaker to assign a special status to a given entity in the narrative—that of ‘topic’ (which is also observed at relatively late ages in L1 acquisition in Berman & Slobin, 1994).
Although speakers of Dutch and German set up similar temporal frames, i.e. temporal shift defined over the right boundary given with the preceding event, and are therefore more likely to select entities and events that accommodate this relation when deciding what to say, (when compared to speakers of English, for example), the analysis shows that they avail of different options in according informational status to the entities mentioned in the story and with this the means used in reference management (reference introduction and reference maintenance).

The next section looks at the extent to which the observed differences between the two monolingual narratives in Dutch and German can serve as a test case for attainment in the bilingual narratives.

8.2.2. Early bilinguals and the question of attainment

A difference in attainment in the two languages of a bilingual speaker is reflected in a higher command of (target) language-specific structuring principles for texts in one language rather than the other. Simultaneous or early bilinguals represent an especially interesting case since differences may be subtle: They have the best chance of achieving a high level of attainment in both languages, given an early age of acquisition, along with a large amount of exposure and use in both cases (on the influence of age effects on ultimate attainment see Bylund, 2008). The investigation of how early bilinguals establish narrative coherence, and how they deal with language-specific patterns in information structure in complex tasks, may reveal in how far their narratives resemble monolingual native speakers of both languages (and whether this is possible at all), or in how far there is evidence for unique bilingual-specific linguistic patterns (in line with Grosjean’s views of the bilingual speaker (1985; 1998)). This last hypothesis ties in with several current findings on bilingual performance in specific (non-) linguistic domains (see e.g. for the categorization of objects Ameel, Storm, Malt & Sloman, 2005; for the categorization of colours Athanasapoulos, Damjanovic, Krajčiova & Sasaki, in press). As mentioned above, it is assumed that bilingual-specific performance patterns as such are not erroneous, but rather represent a specific, highly-proficient and systematic pattern of performance.
8.3. **Present study**

8.3.1. **Participants**

The monolingual\(^3\) native Dutch speakers (N = 19) are students at the Radboud University in Nijmegen\(^4\) and the monolingual German data were collected at the University of Heidelberg (N = 19, all students). The German data are part of a large cross-linguistic corpus of film retellings at the University of Heidelberg.

The bilingual participants all started to acquire both languages in their first four years. Most of them were brought up on the one-parent one-language principle, using both languages on a daily basis, and are enrolled in a bilingual Dutch-German secondary education programme. There are ten early-bilingual speakers who re-narrated the film in German, and ten who carried out the same task in Dutch. Seven out of the ten speakers re-narrated the same film twice, once in each language (with a time span of four months in between to reduce memory effects). The within-subject analyses thus only deal with these seven speakers.

For the purpose of gaining insights into the time course of the acquisition of macrostructural planning principles underlying information structure in narrative texts, the larger part of the sample is adolescent (16 year olds, N = 10) and three participants in the sample are adult (18, 19 and 46 years old). In the Appendix (tables 1-3) there is an overview of all subjects’ responses in a language-background questionnaire.

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\(^3\) The term monolingual should be interpreted in the sense of not being highly proficient in the other language under investigation (either Dutch or German). All speakers did indicate having some knowledge of an L2 (mainly English). Speakers were excluded from the analyses if they had a very advanced knowledge of an L2, or if they had spent a long period of time abroad.

\(^4\) The data were collected by the research group of Marianne Starren at the Radboud University (Dept. of Business Communication). I am grateful to Marianne Starren and Suzan van Ierland for providing me with the data.
8.3.2. Procedure and methods of analysis

Participants were asked to retell a silent film named ‘Quest’ which features only one protagonist, a clay figure, on a quest for water. While searching, the clay figure ends up in 5 different ‘worlds’ in which he has to deal with threatening elements such as sand, winds, rocks and machines. The monolingual German data were collected with a 9-minute version of the film. The Dutch and all the bilingual data were collected with a shortened version of this film (7 minutes). In the shortened version, a specific scene was cut out5. This led to a higher number of clauses in the monolingual German data. No relevant differences were observed, however, in patterns in information structure despite the differences in length of the narratives. As outlined above, the phenomena under investigation concern planning principles in information structure that concern the narrative as a whole and not individual clauses, so no effects for the difference in stimulus length (and consequently narrative length) are to be expected.

Each participant first saw the film as a whole after which the film was restarted and stopped in between episodes (world of sand, world of paper, world of rocks). Participants were then asked to describe ‘what happened’ in the scene they just saw (in Dutch: ‘Wat gebeurde er’, in German: ‘Was ist passiert?’), rather than the entire film, in order to reduce memory load and ensure a higher level of comparability for the analyses. The re-narrations were audio-recorded with a microphone. The narratives were then transcribed and the data segmented into clauses on a propositional basis according to the finite verb and its arguments. Finite clauses also represent the units of analysis. All participants were paid for participation.

Concerning the assessment of attainment of the bilinguals, the comparison looks, first of all, at the patterns found in the bilingual narratives and possible contrasts with the monolingual narratives (monolingual German vs. bilingual German & monolingual Dutch vs. bilingual Dutch). Secondly, in order to address the question of individual subjects’ attainment in both languages, a within-sample analysis was carried out of the bilingual’s narrative in German and the same person’s narrative in Dutch,

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5 The shorter version was mainly used in L2 acquisition studies since the scene at issue contained machines that L2 speakers (and even some L1 speakers) find difficult to name. Since this often led to irritation and a disruption of narrative flow with L2 speakers, the scene was shortened. Information flow was given priority over comparability with respect to clause numbers for the bilingual group as well.
focusing on the areas mentioned above. The aim is to identify whether bilingual participants adhered to different strategies in the narratives in the different languages (and consequently, whether these patterns are target language-specific) or whether they opted for one common (non language-specific) strategy. Specifically, the analyses of reference management focus on the entities encoded as the syntactic subject of a clause: the candidates are the protagonist—the clay figure—and inanimate forces with which he is confronted (huge rocks shooting up out of the ground, sheets of paper, high winds). The first question deals with the extent to which these forces are selected for mention when deciding what to say (information selection) and thereby mapped as subject of a clause. The second relates to their status in information structure and whether they are eligible for mention as subject of a main versus subject of a subordinate clause. Finally, patterns of reference management deal with the means used when referents are mentioned for the first time, and how reference maintenance is marked when the referent is maintained as subject across (adjacent) main clauses (ellipsis, pronoun, full noun phrase). For instance, how many times are references to the protagonist elliptical, or marked by a pronoun when maintained ('he gets up and (...) goes over to the side of the pit', versus 'he gets up and he goes over to the side of the pit'). Differences of this kind are relevant for the analysis in as far as they reflect differences in the status accorded to entities in information structure for the text as a whole.

8.3.3. Results

8.3.3.1. Monolingual native speakers: information selection

Dutch and German follow different principles in the preferred pattern in information structure in two specific areas: the management of entities in reference introduction and reference maintenance, and the frequency with which inanimate agents are mapped as the syntactic subject of a clause. As discussed above, in German narratives the protagonist is assigned a prominent status, as measured by the frequency of occurrence of ellipsis (topic deletion) in reference maintenance, as well as the extent to which mention of other agents as subjects also occurs (inanimate forces).
Although there is no overall difference in the rate at which inanimate forces are selected for mention in Dutch and German (Table 1), there is a significant difference in the status accorded to these entities (Table 2).

Table 1: Occurrence of inanimate forces as syntactic subject in main and subordinate clauses (% of all clauses)

<table>
<thead>
<tr>
<th></th>
<th>Monolingual German (Carroll &amp; Lambert, 2003)</th>
<th>Monolingual Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>349 / 2740</td>
<td>169 / 1073</td>
</tr>
<tr>
<td></td>
<td>12.74%</td>
<td>15.75%</td>
</tr>
</tbody>
</table>

In both groups, the percentage shown in Table 1 is relatively low, which means that speakers are less likely to select inanimate forces for mention in the role of subject of a clause. If we look at subordinate clauses specifically, the Dutch texts show more inanimate forces as syntactic subjects than the German texts (see Table 2) (two-tailed z-test for comparing proportions within two independent samples: $z = 4.475, p<.05$).

Overall, the number of subordinate clauses produced is similar: L1 German 13.30%, L1 Dutch 13.70% of all clauses.

Table 2: Occurrence of inanimate forces as syntactic subject in subordinate clauses (% of all subordinate clauses)

<table>
<thead>
<tr>
<th></th>
<th>Monolingual German (Carroll &amp; Lambert, 2003)</th>
<th>Monolingual Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45 / 366</td>
<td>43 / 147</td>
</tr>
<tr>
<td></td>
<td>12.29%</td>
<td>25.60%</td>
</tr>
</tbody>
</table>

Inanimate entities are selected for mention as subject of a clause to a similar extent in both languages (Table 1) but in Dutch entities are more likely to be accorded the status ‘subject of a subordinate clause’, as the numbers in Table 2 reveal. This can be attributed to the fact that the events in which these forces are involved are more likely to be mentioned within the main structure of the narrative, that is, within the section in which events are located on the time line. This is illustrated in examples (3), (4) and (5).

(3) 001 *uiteindelijk komt hij weer bij zijn plasje water*  
‘eventually comes he again at his puddle of water’

*Z-tests were conducted since they allow for a relatively basic comparison of proportions of a specific phenomenon within two independent samples. The tests can be considered reliable, since the number of data points (clauses) is relatively large and the test does not assume a specific type of distribution of the data (whether normal or differently).*
maar dan komen er machines in de buurt
‘but then come there machines in the area’
die hem verpletteren
‘that him squash’

bij loopt een stukje
‘he walks a bit’
en schrikt telkens van stenen
‘and gets scared repeatedly by rocks’
die vallen
‘that fall’
of ombosch bichten
‘or shoot up’

het mannetje belandt op zijn kop op een plaats
‘the little man lands on his head on a place’
waar de bodem van metalen platen is
‘where the bottom of metal slabs is’
en waar machines bezig zijn de grond van metalen platen te voorzien
‘and where machine busy are the ground of metal slabs to provide’

Their status is downgraded to a higher degree in German since events of this kind that occur as part of the time line are more likely to be presented in the form of a passive, as shown in example (6).

das Sandmännchen landet in einem Blättermeer
‘the sandman lands in a lake of sheets’
es wird von einem großen Blatt umgeschmissen
‘it is by a big sheet pushed over’
ø steht wieder auf
‘gets again up’
ø entdeckt zufällig eine Wasserspitze
This ensures maintenance of the status assigned to the protagonist as the main candidate for ‘subject of the clause’, within events that form part of the time line, and is thus a candidate for topic deletion (ellipsis). This latter context, the status accorded to entities in events that form part of the narrative sequence, constitutes the main difference in information structure between the Dutch and German film re-tellings. In events in which the protagonist and another entity are in competition for mention as subject of the clause, the inanimate entity is downgraded within the narrative sequence in both languages, but the status accorded to the protagonist is higher in German than in Dutch, since inanimate agents are encoded as a passive (‘he is hit by a sheet of paper’), rather than subject of a subordinate clause, as in Dutch. This feature in information structure is also reflected in the means used in both reference introduction as well as reference maintenance in both languages, as will be shown in the following section.

8.3.3.2. Monolingual native speakers: reference introduction and maintenance

In Dutch, inanimate entities are usually introduced in main clauses with the empty subject ‘er’ (see example (7/005)) in the Vorfeld, thus ensuring that mention of the ‘new’ entity is in post verbal position.

(7)  
001 dit keer komt het mannetje in een rotsenwereld terecht  
‘this time lands the little man in a rock world’
002 er vallen rotsen naar beneden  
‘there fall rocks down’
003 en er rijzen rotsblokken uit de grond op  
‘and there rise rocks out off the ground’
In German, inanimate entities are more likely to be introduced in contexts in which the protagonist is the subject of the clause (Er fällt in eine neue Welt mit viel Papier ‘he falls in a new world with a lot of paper’; Er fällt eigentlich in eine neue Wüste / in eine Art Papierwüste ‘he falls actually in a new desert / a type of paper desert’). It is assumed that more prominence is accorded in information structure to entities, such as the sheet of paper, when they alone form the content of a clause, as in the examples with the empty subject: He falls in a new world; there is paper everywhere (see in detail Carroll & Lambert, 2003; Carroll, 2008).

The preferred means in reference introduction are linked to the way in which referents are reintroduced within the time line, the focus of the present comparison. Table 3 below compares reference management in the ‘paper world’, when an inanimate force occurs in an agentive role and is thus in competition with the protagonist as a possible subject of the clause: a sheet of paper flies in the clay man’s face (the inanimate force is the subject) or maintenance of the protagonist as subject in a passive he is hit by a sheet of paper (protagonist centered re-introduction). As the following table shows, the results for German show a clear preference for means that accord prominence in information structure to the protagonist (10/11), while both means occur with almost equal likelihood in the Dutch narratives (5/14 protagonist centered; 9/14 entity centered).

Table 3: Introduction of sheet of paper flying in protagonist’s face (N = 19 both groups)

<table>
<thead>
<tr>
<th></th>
<th>Monolingual German</th>
<th>Monolingual Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protagonist centered:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) inanimates as arguments</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>b) inanimates in passives with protagonist as subject</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
The German speakers tend to mention the inanimate force in clauses that accord prominence to the protagonist: e.g. *Er kriegt ein Blatt Papier ins Gesicht* ‘He gets a sheet of paper in the face’ or a passive, e.g. *Er wird von einem Blatt Papier umgeschmissen* ‘He is knocked over by a sheet of paper’. As the numbers show, the Dutch speakers are also likely to use an empty subject (*There flies a sheet of paper in his face*), in contrast to German speakers.

Moreover, the difference in the status given to the protagonist is also reflected in the extent to which ellipsis is found in reference maintenance to the protagonist as subject in adjacent main clauses. Table 4 below compares the numbers for the occurrence in main clauses with the protagonist as subject.

Table 4: Ellipsis in main clauses with the protagonist as subject

<table>
<thead>
<tr>
<th>Monolingual German (Carroll &amp; Lambert, 2006)</th>
<th>Monolingual Dutch</th>
</tr>
</thead>
<tbody>
<tr>
<td>979 / 1806</td>
<td>152 / 650</td>
</tr>
<tr>
<td>54.21%</td>
<td>23.38%</td>
</tr>
</tbody>
</table>

German speakers use ellipsis in references to the protagonist as subject in main clauses in contrast to Dutch speakers (two–tailed z-test: z = 13.447, p<.05). As described in detail in Carroll & Lambert (2003; 2006) and von Stutterheim & Lambert (2005), this is a reflection of the status accorded to the protagonist in German, since speakers create the conditions in which ellipsis is warranted (see example (8) below). It is important to note that use of pronouns would be non-native-like in the example below.

(8) 001 *und dieses Lebewesen fällt vom Himmel runter*  
‘and this creature falls from heaven down’

002 *und ø platscht auf dem Boden*  
‘and ø splashes on the ground’

003 *und ø rappelt sich hoch*  
‘and ø crawls up’

004 *und ø steht dann langsam auf diesen Blättern*  
‘and ø stands then slowly on these leaves’
and ø stands then slowly on these sheets

and ø starts then to walk

In Dutch mere maintenance of the same entity as subject across adjacent clauses does not warrant use of ellipsis. Ellipsis is considered appropriate when there is a causal or intentional link between the two clauses (see Dutch examples (9), (10)). Furthermore, there are only 2 Dutch subjects (out of 19) who produced more than 3 consecutive clauses with ellipsis, whereas this is the default case in German.

(9)

het mannetje schrikt van de apparaten

‘the little man gets scared by the machines’

en ø rent weg

‘and ø runs away’

opens struikelt hij

‘all of a sudden trips he’

en valt ø op een rooster

‘and falls ø on a raster’

(10)

maar dan hoort hij weer dat gedruppel ergens

‘but then hears he again that dripping somewhere’

ø klimt heel moeilijk naar beneden

‘climbs very hard down’

en ø valt

‘and falls’

en dan gaat hij naar de natte plek.

‘and then goes he to the wet spot’

The example below shows that even in cases where the syntactic structure of clauses are identical, thus allowing ellipsis, and a semantic link between the clauses exists, it is not untypical to maintain reference to the subject in more explicit terms by means of a pronoun (see (11)).
As the comparisons show, these patterns are not random but are established in information structure for the text as a whole. In this sense one can speak of planning principles that have what can be termed a macrostructural status when organizing information for expression in text production. This means that speakers can rely on principles that need not be negotiated for each individual context, but can be implemented, on a default basis, for the text as a whole (see in detail Carroll et al., 2008).

8.3.3.3. The bilingual speakers

The challenge for the bilingual speaker of Dutch and German would seem enormous: despite the similarities between the two languages, bilingual speakers have to learn how to handle two subtly different sets of macrostructural planning principles that determine reference management in narrative texts. The acquisition of language-specific knowledge of this kind is presumably quite difficult. As mentioned above, they present a suitable test case for measuring attainment in Dutch-German bilinguals.

All subjects are very proficient in both languages and produce coherent and readable texts. It should be mentioned that they make a small number of formal errors.
This first stage of analysis relates to the analysis of the bilingual texts as a group. Starting with the status accorded to inanimate agents, in contrast to the protagonist, we see that the bilinguals, re-narrating in both languages, do not typically mention inanimate forces as subjects of a clause (Table 5). These are events that belong to the main structure of the narrative and form part of the narrative sequence.

Table 5: Occurrence of inanimate forces as syntactic subject in clauses (% of all clauses)

<table>
<thead>
<tr>
<th>Monolingual German (N=19)</th>
<th>Bilingual German (N=10)</th>
<th>Monolingual Dutch (N=19)</th>
<th>Bilingual Dutch (N=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>349 / 2740</td>
<td>41 / 486</td>
<td>109 / 1073</td>
<td>45 / 597</td>
</tr>
<tr>
<td>12.74%</td>
<td>8.44%</td>
<td>15.75%</td>
<td>7.54%</td>
</tr>
</tbody>
</table>

When comparing the bilingual proportions to those of the two monolingual groups, the bilingual German narratives show fewer occurrences of inanimate entities as subjects in clauses compared to the L1 German narratives (two-tailed z-test: z = 2.604, p < .05). The same applies for the bilingual Dutch narratives (z = 4.734, p < .05). This means that events that are located on the time line are more protagonist centered, compared to the monolingual speakers.

Let us now take a closer look at the way reference to inanimate entities is managed in one particular scene. In the rock world, a pile of rocks suddenly shoots up out of the ground and pushes the protagonist up, so that he unexpectedly finds himself high up in the air. As shown above, the monolingual Dutch speakers make use of both options in mentioning inanimate forces that act in a dynamic role (e.g. the sheet of paper, see Table 3). The means may be protagonist centered (e.g. passive) or entity centered, where the entity (in the role of agent) forms the subject of a clause, or the clause has the empty subject ‘er’. German speakers, on the other hand, show a clear preference for protagonist-centered means (passive forms as in ‘er wird erhoben von diesem Steinhaufen’ (‘he is lifted up by this pile of rocks’), or they only refer to the pile of rocks.

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3 Most of the participants make a small number of grammatical errors in both languages. However, subject Vp21 makes more errors in his Dutch than his German narrative, whereas Vp13 makes no errors in Dutch but a few in German. Vp12 produced very short narratives in both languages. Note also that the narratives of the bilinguals are more compact (shorter) than the L1 narratives in general.
as an adjunct in a protagonist-centered clause as in 'und plötzlich steht er auf einem Steinhaufen' ('and suddenly stands he on a pile of stones').

Here again, the means used by bilinguals do not clearly reflect the pattern found in the monolingual narratives since they make use of all options available in both languages (see Table 6).

Table 6: Introduction of rocks shooting out of the ground and lifting the protagonist (N=10, both groups)

<table>
<thead>
<tr>
<th>Protagonist centered introduction:</th>
<th>Bilingual Dutch</th>
<th>Bilingual German</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) inanimates as arguments</td>
<td>a) 4</td>
<td>a) 4</td>
</tr>
<tr>
<td>b) inanimates in passives</td>
<td>b) 0</td>
<td>b) 1</td>
</tr>
<tr>
<td>Entity centered introduction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) inanimates as subject</td>
<td>a) 4</td>
<td>a) 3</td>
</tr>
<tr>
<td>b) empty subjects ‘es/er’</td>
<td>b) 2</td>
<td>b) 1</td>
</tr>
<tr>
<td>No mention</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Taken as a group, the bilinguals have opted for the variety of alternatives that is acceptable in narratives in both languages, which is not the preferred procedure for monolingual speakers of the languages. The variety of options used indicates that the bilinguals may be aware of all the means available, but not of the fact that German monolinguals do have a preference for one specific set. Of course, in any assessment of this kind one has to take into account that the sample is small and should be backed up by in depth analyses of principles underlying information structure found for the individual speaker (see section 4.1 below).

The next step in the analysis looks at the means used in reference maintenance. Table 7 shows the extent to which reference to the protagonist is carried out by means of ellipsis across adjacent clauses when the protagonist is maintained as subject of a main clause.

Table 7: Ellipsis in main clauses with the protagonist as subject

<table>
<thead>
<tr>
<th>Monolingual German (N=19)</th>
<th>Bilingual German (N=10)</th>
<th>Monolingual Dutch (N=19)</th>
<th>Bilingual Dutch (N=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>979 / 1806</td>
<td>101 / 313</td>
<td>152 / 650</td>
<td>38 / 353</td>
</tr>
<tr>
<td>54.21%</td>
<td>32.27%</td>
<td>23.38%</td>
<td>10.76%</td>
</tr>
</tbody>
</table>
First of all, we see that in both languages the bilinguals are less likely to use ellipsis in reference maintenance to the protagonist, compared to the respective monolingual speaker groups. When comparing the occurrences in main clauses in the monolingual German narratives to the number of occurrences in the bilingual German narratives, the monolingual German number significantly exceeds that of the bilingual German group (two-tailed z-test: $z = 7.107, p<.05$). The same holds for the Dutch narratives: The Dutch monolingual native speakers use ellipsis more frequently than the bilinguals when re-narrating in Dutch ($z = 4.787, p<.05$), showing again a bilingual-specific pattern in both languages.

Taking a closer look at the organization of the temporal frame used in shifting the time line, it is striking that the narrators rely heavily on the explicit expression of the temporal relation of shift in both Dutch and German (‘and then’). The explicit use of the temporal shifter is a significant factor in information structure since it reduces the options possible in reference maintenance, as discussed above. In the bilingual German narratives, the bilinguals’ frequency of use of ‘und dann’, compared to the monolinguals, is the major contributing factor for differences in reference maintenance: Many utterances start with the phrase ‘und dann’ (‘and then’) (occurrence of ‘(und) dann’ in the paper world: 34.83% of all clauses) and the continued presence of the temporal shifter makes it impossible to use ellipsis with a reference to the protagonist as the subject. It forces the speaker to place the syntactic subject in the Mittelfeld, and thereby use a pronoun, since ellipsis is not warranted, despite maintenance of the referent, in this position (see examples (12)-(14)).

(12) Subject: Vp00

001  **und dann steht er auf**  
‘and then stands he up’

002  **und dann hört er einen Tropfen**  
‘and then hears he a drop’

003  **und dann fängt er an im Sand ein bisschen zu graben**  
‘and then starts he in the sand a bit to dig’

004  **und zu suchen danach**  
‘and to search for-that’
005 *woher das kommt*
‘where-from that comes’
113
006 *und er landet dann eigentlich in einer Sand/ einer Treibsandgrube*
‘and he lands then actually in a quicksand cavern’

(13) **Subject: Vp10**

001 *und dann hört er wieder ein Tröpfeln*
‘and then hears he again a drop’
002 *und dann denkt er*
‘and then thinks he’
003 *dass es von oben kommt*
‘that it from above comes’
004 *aber dann sieht er eine Pfütze*
‘but then sees he a puddle’
005 *und dann fängt er an zu graben*
‘and then starts he to dig’
006 *und dann fällt er wieder runter*
‘and then falls he again down’

(14) **Subject: Vp12**

001 *jetzt kommt er in ein Land (*) von (aus) Stein*
‘now comes he in a land of rocks’
002 *und dann hört er wieder die Tropfen*
‘and then hears he again the drops’
003 *dann kommt er auf einen Stein*
‘then comes he on a rock’
004 *und dann sieht er das Wasser*
‘and then sees he the water’
005 *(dann geht er mit einem anderen Stein) / dann schlägt er in den Stein*
‘then hits he in the rock’
006 *und dann fällt er rein*
‘and then falls he in it’
Re-narrations of this type show the extent to which temporal shift is made explicit in information structure, rather than implicit, as in the monolingual texts. The implicit maintenance of the temporal shifter (dann ‘then’) in monolingual (adult) German narratives creates the conditions that allow ellipsis. Speakers can convey its status as ‘topic’ in explicit terms. This is possible since explicit occurrence of ‘(und) dann’ in re-narrations of the paper world scene amounts to no more than 11.72% of all clauses in the monolingual German texts.

Use of ellipsis is more constrained in monolingual Dutch on a systematic basis, compared to German, despite the fact that occurrence of explicit temporal shifters is also relatively infrequent (occurrence of ‘(en) dan’ in re-narrations of the paper world: 10.15% of all clauses). Monolingual speakers of Dutch could, in theory, mark maintenance of the protagonist via ellipsis, but this option does not fit with the status assigned to other potential referents which occur in the texts within the time line: they are not downgraded to the same extent as in German with events located on the time line but are more likely to be mapped as ‘subject of a subordinate clause’.

In the bilingual Dutch narratives, the bilingual-specific preference in explicitly marking the relation of temporal shift has further consequences, since it means that less causal relations are expressed by the bilinguals, compared to monolinguals (occurrence of ‘(en) dan’ in the paper world: 24.79% of all clauses) (see examples below). In monolingual Dutch texts, events that are tightly linked in causal terms provide the condition for use of ellipsis, in contrast to German.

(15) Subject: Vp10

001  hij komt in een wereld van papier terecht
    ‘he lands in a world of paper’

002  hij hoort het druppelen weer
    ‘he hears the dripping again’

003  en dan ziet hij opeens een plasje water
    ‘and then sees he all of a sudden a puddle of water’

004  en dan begint hij weer te graven
    ‘and then begins he again to dig’
In summary, the bilingual texts, taken as a group, show occurrences of a unique bilingual-specific pattern of reference management (see in detail Table 8 below), given the overall dominance of temporal relations in linking events. There are no direct traces of cross-linguistic influence from the bilingual's other language, and no signs of erroneous performance, indicating a high level of attainment in both languages.

**8.4. Assessing attainment in the two languages of bilinguals**

Concerning the question of attainment, it is important to analyze the data of individual subjects on a qualitative as well as quantitative basis, and to look at the re-narrations in
both languages of the bilinguals. The area of information structure that shows differences between Dutch and German-patterns in reference management - can be readily applied for a within-subject assessment of bilingual speakers. A measure of a difference in levels of attainment (between languages) is given when a bilingual is better able to incorporate the patterns in information structure in one language rather than the other. If a bilingual manages to adhere to the set of macrostructural planning principles in both languages in a target-like fashion, this will provide a basis in assessing attainment as ‘balanced’, i.e. an equally high level of attainment. A third possibility is, as mentioned above, a high level of attainment that results in a specific, systematic pattern, that differs slightly from both monolingual patterns and is applied in both languages (a ‘bilingual-specific’ pattern).

Coming now to the detailed within-sample comparison of reference management in both languages, the focus will be placed on the seven subjects that carried out the narrative task in both Dutch and German (Table 8). It should be emphasized at this point that in all cases the narratives are (mainly) grammatically correct. Bilinguals are assessed by looking at use of ellipsis and how temporal linkage of events (e.g. shift) is expressed (explicitly or implicitly) in narratives in both languages. The following global planning principles were taken into account:

- With respect to reference management:
  - in (monolingual) German narratives, the protagonist has the status of a ‘global topic’ and ellipsis is used in reference to the protagonist (as syntactic subject), when other constraints do not intervene (e.g. syntactic restrictions)
  - in (monolingual) Dutch narratives, the protagonist has a different status and ellipsis is licensed when a closely defined causal link is given between events

- With respect to the temporal frame:
  - in both (monolingual) German and Dutch narratives, narrative progression is established on the basis of temporal shift, and the relation need not be marked explicitly
The above table shows that, even though in all cases the bilinguals’ percentage for use of ellipsis is lower than both monolingual groups, some subjects show monolingual-like patterns of use in the means used in reference maintenance, as well as in the expression of temporal shift in one or in both languages. Looking at an analysis of the whole sample which compares the occurrence of ellipsis in references to the subject in main clauses in the bilinguals' German versus their Dutch narratives, the results of a paired
samples test (Wilcoxon)\(^8\) show that the bilinguals use ellipsis significantly more frequently in German than in Dutch (\(z = -2.023, p<.05\)). Even though this finding reflects use and relative frequency of ellipsis in (monolingual) German compared to (monolingual) Dutch to a certain degree, it is nevertheless overshadowed by the over explicit expression of temporal relations and its consequences for reference maintenance in the bilingual data, as discussed above.

8.4.1. Individual analyses and criteria for assessment of attainment

This final section of the analysis was carried out on the basis of a comparison between the individual bilinguals' patterns of reference management in Dutch and German, and the typical (Dutch or German) monolingual pattern. A fine-grained comparison at the individual level presents the following picture:
- Two subjects (Vp01, Vp13) show that they have managed to acquire the principles relating to reference management and temporal framing in the two languages. This can function as an indication of a high and balanced level of attainment in both languages (at this level of analysis), since the subjects show target language-specific patterns in both languages.
- One subject (Vp21) evidences a pattern which is target language-specific for German, but in Dutch he is over explicit in the means used in reference management and the expression of temporal shift. This result can be used as a criterion for a higher level of attainment for German than for Dutch, in this domain of analysis.
- Similarly, Vp20 shows a pattern in the narratives in Dutch which show similarities with the condition for ellipsis (topic deletion) in German, but not in Dutch. In German, she has a monolingual-like pattern of topic deletion. Temporal shift is, however, referred to consistently, not in the Vorfeld but in the Mittelfeld, which means that it does not interfere with reference management (see (17)). This subject can also be viewed as having a higher level of attainment of German.

\(^8\) For this analysis a non-parametric test was chosen, because of the small number of data points and the high degree of variation within the sample (the data is not normally distributed).
- The remaining subjects, the majority of the sample, show a high attainment of both languages, but their narratives evidence a bilingual-specific pattern, which is applied in both languages. This can be attributed to the core domain of the narrative, the temporal frame, and the way temporal relations are encoded: the relation of temporal shift is encoded explicitly with each event, thus precluding the conditions in information structure that allow ellipsis or topic deletion in either Dutch or German. This type of departure from the monolingual pattern is a tendency to be overexplicit in reference management and in marking the temporal frame.

On the basis of the patterns in reference management and the temporal frame shown in Table 8 above, a preliminary classification with respect to attainment in the two languages gives the following overview (Table 9).

Table 9: Assessment of attainment in the early bilingual speakers: reference management, temporal frame

<table>
<thead>
<tr>
<th>Vp01</th>
<th>(Target) language-specific pattern in Dutch and German: Balanced attainment levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp02</td>
<td>Bilingual-specific pattern in Dutch and German</td>
</tr>
<tr>
<td>Vp10</td>
<td>Bilingual-specific pattern in Dutch and German</td>
</tr>
<tr>
<td>Vp12</td>
<td>Bilingual-specific pattern in Dutch and German</td>
</tr>
<tr>
<td>Vp13</td>
<td>(Target) language-specific pattern in Dutch and German: Balanced attainment levels</td>
</tr>
<tr>
<td>Vp20</td>
<td>(Target) language-specific pattern in German, and not in Dutch</td>
</tr>
<tr>
<td>Vp21</td>
<td>(Target) language-specific pattern in German, and not in Dutch</td>
</tr>
</tbody>
</table>

In summary, the overview of this small sample of speakers provides evidence of both bilingual-specific patterns applied in both languages (3/7) as well as evidence for language-specific adherence to only one set of patterns (2/7) and target language-
specific patterns in both languages (2/7). It indicates that the method may prove to be a useful tool in assessing a bilingual’s degree of balance in attainment, or whether there are differences between languages.

Although one subject (Vp13) has managed to acquire these principles in a balanced form in the two languages (at an equally high level of attainment) by the age of 16, no claims can be made as to whether the observed results constitute the end state in bilingual acquisition for the other subjects in the adolescent group, given the age of the majority of the participants and the time taken to acquire linguistic knowledge of this complexity in monolingual acquisition, with only one language to deal with (up to the age of 13/14). In this sense, the existence of bilingual-specific strategies or systems in this domain of analysis may be a very plausible finding, since the acquisition of two subtly different sets of planning principles may prove to be very difficult. A bilingual-specific pattern of use that amounts to a compromise between the two may be an economical solution for certain stages of acquisition or even as the endstate of acquisition for languages that are typologically similar (which is a realistic possibility—looking at the older participants in the sample, e.g. Vp01).

8.5. Conclusions

The aim of the present analysis was to present a tool which allows the assessment of questions relating to attainment and differences in attainment in the two languages at any stage of bilingual acquisition, ultimate or otherwise. The study of Dutch-German bilinguals is based on planning principles underlying information structure that apply on a systematic basis in narrative texts as a whole. The first section of the comparison focused on monolingual speakers of Dutch and German, giving an outline of the subtle but nevertheless systematic differences in information structure across these two languages. The monolingual analyses show that German and Dutch speakers follow

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8 Work in progress by the author aims at investigating narratives by Dutch-German bilinguals over 25 years of age. A pilot study with 16 year old German native speakers shows that, although the rate of occurrence of ellipsis (topic deletion) is not as high as in the adult narratives, the data clearly indicate that the global planning principle, the protagonist as a global topic and implicit expression of temporal shift, has been acquired (as was also the case for the 14 year olds investigated in Halm, in press).
different principles in information structure in specific domains (temporal linkage, subject/topic assignment, reference management). The findings were used in the present analysis as a tool in the assessment of questions relating to attainment in bilingual speakers-taking the domains in which the two languages, Dutch and German, diverge.

The advantage of this method over those that investigate attainment on the basis of performance on single linguistic items (e.g. vocabulary), or for example MLU (as in Yip & Matthews, 2006) or fluency (naming speed, for example) is that it can be used to investigate ultimate attainment of learners or bilinguals at very advanced levels of attainment. The domain of analysis poses a challenge for L2 as well as bilingual speakers, since the linguistic knowledge at issue relates to sets of principles that are interrelated in a complex form, as the findings show. Acquisition requires a long period of input and exposure to the target language, since monolingual children need a long period of time to acquire this form of linguistic knowledge (up to the age of 13/14). If a learner manages to acquire this knowledge in target-like terms, this means that the learner has gone beyond the acquisition of the formal means available in a language and has learned how to use them appropriately in a complex linguistic task which requires the creation of coherence on a large scale. This provides a measure for a very high level of attainment of the target language in question.

Despite the overall typological similarity between the two languages, and the nature of the differences in handling subject assignment, reference maintenance and temporal linkage, the present tool served in pinpointing differences of a systematic nature for the individual bilinguals. The study of principles underlying information structure of more distant languages will provide relevant points of reference in this regard.
References


326


### Table 1: Overview of early bilinguals that took part in both re-narration tasks

<table>
<thead>
<tr>
<th>Subject code</th>
<th>m/f</th>
<th>Age</th>
<th>Acquisition of Dutch</th>
<th>Acquisition of German</th>
<th>Use of Dutch</th>
<th>Use of German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp01</td>
<td>f</td>
<td>46</td>
<td>Outside the home (&gt;2 yrs)</td>
<td>Parents (birth)</td>
<td>Daily (Workplace, partner)</td>
<td>Daily (father, school)</td>
</tr>
<tr>
<td>Vp02</td>
<td>f</td>
<td>16</td>
<td>Mother (birth)</td>
<td>Father (birth)</td>
<td>Daily (school, mother)</td>
<td>Daily (father, school)</td>
</tr>
<tr>
<td>Vp10</td>
<td>f</td>
<td>16</td>
<td>Father (birth)</td>
<td>Mother (birth)</td>
<td>Daily (school, father)</td>
<td>Daily (father, school)</td>
</tr>
<tr>
<td>Vp12</td>
<td>f</td>
<td>16</td>
<td>Mother (birth)</td>
<td>Father (birth)</td>
<td>Daily (school, mother)</td>
<td>Daily (father, school)</td>
</tr>
<tr>
<td>Vp13</td>
<td>f</td>
<td>16</td>
<td>Outside the home (&gt;2 yrs)</td>
<td>Parents (birth)</td>
<td>Daily (school, friends)</td>
<td>Daily (parents, school)</td>
</tr>
<tr>
<td>Vp20</td>
<td>f</td>
<td>18</td>
<td>Parents (birth)</td>
<td>Outside the home (&gt;1 yr)</td>
<td>Daily (parents, siblings)</td>
<td>Daily (school, friends)</td>
</tr>
<tr>
<td>Vp21</td>
<td>m</td>
<td>17</td>
<td>Parents (birth)</td>
<td>Outside the home (&gt;1 yr)</td>
<td>Daily (parents, siblings)</td>
<td>Daily (school, friends)</td>
</tr>
</tbody>
</table>

### Table 2: Early bilinguals that only took part in the Dutch re-narration task

<table>
<thead>
<tr>
<th>Subject code</th>
<th>m/f</th>
<th>Age</th>
<th>Acquisition of Dutch</th>
<th>Acquisition of German</th>
<th>Use of Dutch</th>
<th>Use of German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp05</td>
<td>f</td>
<td>16</td>
<td>Father (birth)</td>
<td>Mother (birth)</td>
<td>Daily (school, father)</td>
<td>Daily (mother, school)</td>
</tr>
<tr>
<td>Vp14</td>
<td>m</td>
<td>16</td>
<td>Mother (birth)</td>
<td>Father (birth)</td>
<td>Daily (mother, siblings)</td>
<td>Daily (school, father)</td>
</tr>
<tr>
<td>Vp15</td>
<td>f</td>
<td>16</td>
<td>Father (birth)</td>
<td>Mother (birth)</td>
<td>Daily (school, father)</td>
<td>Daily (mother)</td>
</tr>
</tbody>
</table>

### Table 3: Early bilinguals that only took part in the German re-narration task

<table>
<thead>
<tr>
<th>Subject code</th>
<th>m/f</th>
<th>Age</th>
<th>Acquisition of Dutch</th>
<th>Acquisition of German</th>
<th>Use of Dutch</th>
<th>Use of German</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp00</td>
<td>f</td>
<td>19</td>
<td>Parents (birth)</td>
<td>Outside the home (&gt;1 yr)</td>
<td>Daily (parents, siblings)</td>
<td>Daily (school, friends)</td>
</tr>
<tr>
<td>Vp08</td>
<td>f</td>
<td>16</td>
<td>Mother (birth)</td>
<td>Father (birth)</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
</tr>
<tr>
<td>Vp09</td>
<td>f</td>
<td>16</td>
<td>Outside the home (&gt;0 years)</td>
<td>Relatives (&gt;4 years)</td>
<td>Daily (school, mother)</td>
<td>Daily (school, relatives)</td>
</tr>
</tbody>
</table>
Chapter 9: Discussion and conclusions

This thesis reports on six empirical studies that address the question **what it means to have acquired two languages with different patterns of 'seeing and thinking for speaking'** (in line with Slobin, 1996; Nüse, Carroll & von Stutterheim, 2004). New aspects of the framework implemented concern the focus on early bilinguals of two typologically close languages (Dutch and German) and their performance on a variety of complex language production tasks (see 9.1).

The thesis is organized into two parts; the first part reports on studies involving monolingual native speakers of Dutch and German and establishes a point of reference for the comparison with the bilingual speakers. The second part presents analyses of the bilinguals’ performance on the same set of language production tasks.

9.1. **Summary of the framework of analysis**

Studies in the present thesis address questions within the 'thinking for speaking' paradigm (cf. Slobin, 1996), namely the extent to which features of the specific languages acquired influence conceptualization in language production, in the two languages of a bilingual. The underlying question is to what extent it is possible for a bilingual speaker to manage two distinct patterns of seeing and thinking for speaking, and what performance patterns in language production may reveal about language processing by bilinguals and the underlying organization of the bilingual system.

Novel aspects are, first, the focus on **early** bilingual speakers. Language users of this type are expected to show a high level of competence as well as comparable processing capacity (automaticity) in both languages, due to an early age of acquisition. This type of speaker will have experienced the effects of language-specificity on a daily basis from the earliest stages and thus represents an ideal case for investigating the influence of specific linguistic features on conceptualization in language production, when comparing the use of two languages. The question addressed in this thesis is in
how far bilinguals’ conceptualizations resemble or differ from the principles in the conceptualization systems of the two languages.

The second new aspect of the current set of studies is a comparison of two typologically close languages, Dutch and German. For bilinguals, the challenge lies in managing two patterns in thinking for speaking that may overlap in many aspects, but will also show differences across some domains. The present framework approaches this question by comparing how speakers proceed in language production. In linguistic terms, where each language can be viewed as a well-defined knowledge system with its own complex set of interdependencies spanning semantic, syntactic and phonological knowledge, one assumption is that processing by a bilingual of two closely related languages will proceed on the basis of two processing systems that may be comparable in many respects, in particular where the languages overlap. In bilinguals of two typologically distant languages, the level of comparability can be expected to be reduced. This may facilitate the bilingual speaker in keeping apart two distinct patterns of thinking for speaking and with this processes in language production that have to be executed with a high level of automaticity. Close bilinguals thus present a prime case for the investigation of processing strategies in language production given the large degree of overlap for specific processing levels and specific conceptual domains, when thinking for speaking.

The third unique feature is the focus on the linguistic category of aspect in this particular context. For the particular language pair this represents a conceptual representation that is optional for perspective taking in language production. However, significantly for the analysis, Dutch and German monolingual speakers differ in the extent to which selection of concepts associated with progressive aspect occurs, being relatively frequent in specific contexts in Dutch but not in Standard German, where use is very low. Since progressive aspect is not fully grammaticalized in Dutch, speakers have to assess whether specific dynamic features are represented that allow or constrain selection of this concept. This means that a bilingual speaker of Dutch will require processing capacity in order to assess whether selection of the aspectual distinction is appropriate in Dutch, when compared to bilingual speakers of languages in which aspect has become fully grammaticalized (and selectional restrictions are limited in comparison), or speakers of systems in which aspectual distinctions are not relevant at
all in conceptual planning for language production. This means that the empirical findings on factors determining use in monolingual Dutch in part 1 of this thesis allow for an investigation, first of all, of the principles on which use is based in the bilingual aspectual system, in relation to that of monolingual speakers, and secondly, the stability of the bilingual system, in relation to the monolingual system. This latter aspect was investigated by means of a task that involves a form of time pressure for both the monolingual and the bilingual speaker (chapter 7).

Finally, the studies on the bilingual speakers involve a set of complex language production tasks, which cover global conceptual organization and information structure in context. The domains of analyses include choices made during conceptualization in language production in the context of events and narratives.

9.2. Summary of the domains of analysis

The first domain of analysis, aspect and event conceptualization, concerns temporal perspectives that are optional in the two languages of the bilinguals, as mentioned above. Since speakers of German are very unlikely to select an aspectual perspective when talking about events, questions concerning points of convergence or divergence across the two languages cannot be detailed for this domain. The study on aspect focuses therefore on monolingual Dutch speakers’ preferences in event construal, given the same sets of situations, compared to those of bilingual speakers (chapter 6). Despite variability at an individual level in selecting an aspectual perspective, monolingual speakers who do so follow clear patterns that correlate with specific temporal and dynamic properties of the situation types studied. In order to gain insights into the distribution of attention of speakers to certain aspects of the video clips before and during the verbalization task, speakers’ gaze movement was recorded. The underlying question for the study of bilinguals relates to what the identified differences and similarities with monolingual speakers of Dutch tell us about the organization of knowledge and language processing in the bilingual system. This will be discussed in the present section.
The study of factors that lead to the use of an aspectual perspective was followed up by an experiment that focuses on a temporal relation that constitutes a core property of progressive aspect (chapter 7). Roughly speaking, the reduction in time given to answer the question what is happening (from eight seconds to three) induces a greater degree of overlap between perception time and speech time, and thereby speeds up the focus on what can be asserted as ‘being now the case’. In other words, it profiles what aspect of the event can actually be deictically viewed as ongoing at the time of speech. In addition to this factor, the experiment also introduces time pressure for the speaker in the language production task. Time pressure was applied across three different situation types and a comparison with the baseline condition allows insight into the stability with which different event types are represented from an aspectual perspective in a system in which use is evolving, for both the monolingual and bilingual speakers.

In a further study, the way in which bilinguals proceed when there is a certain degree of overlap, paired with divergences between Dutch and German, was investigated with respect to information structure in a complex narrative task. The bilinguals re-narrated a short silent film and their narrations were compared to those of monolingual speakers of both languages who were asked to carry out the same task. The question raised with this comparison was to find out whether bilinguals track down sets of planning principles where differences between the two languages are subtle (as identified in a comparison of monolingual Dutch and German speakers’ narratives) and if and how they manage such differences on a consistent basis in language production. Differences between Dutch and German (monolingual speakers) relate in particular to a specific domain in information structure - reference management in narrative texts. Furthermore, the narrative task was used to assess the overall level of attainment of the bilingual speakers by comparing information organization in general between the monolingual and bilingual speakers.

9.3. Summary of the findings
9.3.1. Chapters 2-5: Monolingual native speakers of Dutch and German: aspect and event conceptualization

The specific research questions addressed in these chapters are:

1) What factors lead to the selection of the aspectual perspective 'event is ongoing' in Dutch and German? How do the available forms for the expression of this aspectual distinction in Dutch and German overlap or differ in function and meaning? (chapters 2, 3, 4, 5)

2) How do language-specific preferences in aspectual perspective taking, with respect to different types of situations, influence direction of visual attention during information intake as well as when preparing information for expression in Dutch and German? (chapter 3, 6)

The general findings of the studies in chapters 2 - 5 are presented below, for two types of analyses separately:

a) Linguistic analyses:
- Monolingual native speakers of Dutch follow systematic patterns when selecting the aspectual perspective 'event is ongoing' that correlate with specific temporal properties of the situation types studied. In Dutch, selection is high for the situation type that is prototypical for expressing 'event is ongoing', i.e. 'no change in state situations' ('activities', cf. Vendler, 1957). Also, there is an equally high frequency of selection for 'change in state situations' (causative actions), showing progression towards the creation of a specific object. Similar findings were found for production as well as acceptability judgement tasks (chapters 4 & 5).
- Motion events that depict a change in place are less likely to lead to the selection of an aspectual perspective in Dutch. Cross-linguistic comparisons (e.g. with Norwegian) show that the constraint may be attributable in part to the semantics of the form available, given the locative component in the linguistic means in Dutch (chapter 5).
- Monolingual native speakers of Dutch speakers make use of different constructions that explicitly express an aspectual perspective. Of the set of options, the *aan het*-construction shows the highest frequency of use (chapters 4 & 5).

- The framework of analysis confirmed that the concept expressed by the *aan het*-construction involves *progressive aspect*. The analysis shows that this does not apply to aspectual posture verb constructions (*zitten/liggen/staan te + V-inf*), however, which are mainly used to present an event as *ongoing*, lacking an explicit progressive component (chapters 4 & 5).

- Monolingual native speakers of German also have the option of using explicit constructions to express an event as ‘ongoing’ but aspectual distinctions play no significant role in event construal. Dutch thus differs from German in the area of aspectual perspective taking in event conceptualization for specific types of events. This does not apply to motion event conceptualization, however, since neither group are likely to select an aspectual perspective in this context (chapter 3).

b) Eye tracking analyses:

- The results of the eye tracking analyses with the focus on motion events with a potential endpoint (chapter 3) show no robust differences between Dutch and German monolingual speakers. Attention to the endpoints in the video clips is comparable in both languages. This correlates with a high frequency of mention of endpoints and no use of aspectual forms for this situation type. Speakers of languages that use an aspectual perspective focus on what can be asserted as *ongoing* for the relevant interval (*what is now the case*). This drives a finer grained segmentation of the event, which means that events are not typically construed with mention of a *possible endpoint*, since this was not presented as taking place during the relevant interval in the video clips (i.e. the phenomenon of phasal decomposition, chapter 3). In contrast to motion events, the analysis of speakers’ attention to certain aspects of change in state situations (*agent versus action*) does reveal differences: Dutch speakers show a higher degree of attention to the action, compared to German speakers. This
correlates with a high frequency in the selection of progressive aspect to describe these situations (chapter 6).

9.3.1.1. Individual variability

Despite a high level of consistency in the findings for the situation types and their specific features that correlate with use of aspect, once speakers decide to use an aspectual perspective, the following Figure (1) shows how the decision to select this concept at all can vary across the individual speakers (% use of *aan het* for 5 different situation types).

![Figure 1: Within-sample variability: frequency of selection of 'aan het' (N=25, stimulus set 4 (48 critical video clips)](image)

The observed pattern underlines the status of this concept in monolingual Dutch as not yet obligatory.

Results for the bilingual group (speaking Dutch) will be presented at this point in order to show the degree of overlap with the monolingual group. Variability with respect to selection of the aspectual perspective can also be observed, but the overall pattern compares to a large degree with the monolingual speakers (see Figure 2 below).
Figure 2: Within-sample variability: frequency of selection of ‘aan het’ (N=12, stimulus set 4 (48 critical video clips))

The results of the studies for bilingual speakers with regard to aspect, event conceptualization and information structure will be outlined and discussed in the next sections.

9.3.2. Chapters 6-8: Dutch-German bilingual speakers: aspect, event conceptualization and information structure

The specific research questions for the bilingual speakers are:

1) How do the bilingual speakers compare with, or differ from, monolingual speakers of Dutch in the principles they rely on when selecting an aspectual perspective, for different types of situations? (chapter 6)
2) How do preferences in aspectual perspective taking influence visual attention during information intake and when preparing information for expression? (chapter 6)

3) How stable are the perspective taking preferences in bilingual event construal when compared to monolingual event construal, under a time constraint condition? (chapter 7)

4) How do bilingual speakers manage a complex narrative task, given the fact that they have to deal with two subtly differing patterns in information structure? (chapter 8)

The general findings of the studies in chapters 6 - 8 are presented below, for two types of analyses separately:

a) Linguistic analyses:
- The study on aspect and event conceptualization in Dutch shows that the bilingual speakers are sensitive to the same situational properties as the monolingual Dutch speakers when expressing aspect. Use is highest in change in state situations, and situations with no change in state, but is low when talking about motion events. For the latter type of event, however, the frequency of use of the bilinguals is significantly higher than the monolinguals (chapter 6). The same was found for change in state situations.
- The bilinguals tend to use the *aan het-* construction almost exclusively, at the expense of other forms (aspectual posture verb constructions) (chapter 6).
- The analysis of event construal in the time constraint condition, in comparison with a baseline condition, shows an enhanced selection of the aspectual perspective by the monolingual speakers. The bilingual speakers do not show an increase in the use the aspectual distinction. Selection decreases slightly, in fact, indicating that bilingual speakers do not sustain access to the aspectual concept to the same extent as monolingual speakers, given this condition (see discussion below) (chapter 7).
- The analyses of monolingual Dutch and German speakers’ narrative retellings reveal differences in patterns in information structure concerning the means
used in reference management. The analyses of the bilingual data show variability of patterns within the sample: some of the bilinguals show target-language-specific patterns in both languages, whereas some show this only in one of the languages. A number of speakers provide evidence of a ‘bilingual-specific’ pattern, which is applied in both languages. This latter pattern is interpreted as a ‘reduction’ strategy with respect to the two monolingual-like patterns (see further discussion below) (chapter 8).

b) Eye tracking analysis:
- The eye tracking study in chapter 6 focuses on patterns of attention distribution to specific aspects of video clips depicting change in state situations, the attractor situation type for use of progressive aspect. The analysis reveals that the bilinguals direct more attention to the action, the dynamic aspect of the video clip, in contrast to the monolingual speakers (see discussion below). This correlates with a high frequency of use of the aan bet-construction.

9.4. Discussion of the findings for the bilingual speakers

9.4.1. Aspect and event conceptualization

The empirical studies presented in this thesis show performance patterns of mono- and bilingual speakers of Dutch and German on a variety of complex language production tasks. The production tasks concern event construal given different types of situations. A general finding across all studies is that the bilinguals’ performance patterns are not simple replications of the observed monolingual speakers’ patterns. This result provides empirical evidence for the often quoted assumption that bilingual speakers are not two monolinguals in one mind (cf. Grosjean, 1998; 2008). The findings of the three experimental studies that explicitly compare bilingual performance patterns with those of monolingual speakers may be discussed in the light of underlying processing mechanisms or strategies, and in particular with regard to accessing specific conceptual representations during conceptualization in language production.
9.4.1.1. Chapter 6

Findings presented in chapter 6 may be interpreted in light of bilingual-specific processing. For specific types of events, we find that the monolingual Dutch speakers and the bilinguals respond in principle in a similar way to the same set of situational features (presented in the video clips), which were systematically controlled for in the experimental design. For both groups of speakers, a clear enhancing situation type for the selection of an aspectual perspective could be identified (change in state situations with a process leading to the creation of an identifiable object). However, differences relate to frequency of use which are found across all situation types—bilinguals show a higher frequency of selection of the aspectual perspective for change in state situations involving causative actions, situations with no change in state, and motion events. Similarly, the bilingual speakers are more likely to use the specific form that can be applied across dynamic situation types, i.e. the aan het-construction, and which is also the preferred form in monolingual usage. There are only few instances of use of the aspectual posture verb constructions in the bilingual data. There thus seems to be a preference for the form which matches the inherent temporal structure of the event described, at the expense of posture verb constructions that are less dynamic in nature. Although the sample is small, this trend may indicate that the bilinguals are tuned into dynamic features of the aspectual concept to a greater degree that the monolingual speakers, given the fact that use is also extended to motion events, in some cases also with mention of their endpoints.

For the monolingual Dutch speakers the course of grammaticalization of progressive markers involves an increasing loss of selectional constraints on use, going from one-state situations (e.g. ‘activities’) (starting point) to two-state situations (change in state situations and change in place situations (motion events)). These constraints may be linked to the fact that the aan het-construction is (still) locative in nature. There is cross-linguistic evidence (see chapter 5) indicating that linguistic means with a locative component give rise to an initial incompatibility with highly dynamic situations (change in state situations followed by change in place situations), and first show a high rate of
occurrence in one-state situations. Given the bilinguals' preference for using the most
dynamic aspectual form in Dutch (the aan het-construction), the bilingual data suggest
that they may be less constrained by the conceptual feature of change in state, and in
particular change in place, which at this point in the evolving Dutch system still plays a
constraining role.

In this sense, the bilingual speakers do not replicate the pattern of use found
for the monolinguals and their bilingual pattern of aspectual perspective taking may be
considered 'unique' for the given point in development in Dutch. With respect to the
semantics of the specific forms used, we may infer that the bilingual speakers opt for
one specific form out of the variety of forms available that are suitable for expressing
aspect-this form, the aan het-construction, is more likely to be used in contexts that no
longer reflect the lexical (locative) meaning, on which usage of the form is still to some
extent dependent at this stage of development in the monolingual Dutch data. The
bilinguals seem to focus on the core meaning of the evolving progressive, i.e. its
dynamic component, rather than its locative roots and its associated constraints. This
extension has a slight edge over a possible similar trend in monolingual usage.
Combined with the lower focus on posture-related forms, these two factors can be
viewed as bilingual-specific.

The eye tracking data provide relevant insights into bilingual processing
(chapter 6). The patterns in direction of attention while viewing the video clips reveal a
higher degree of attention to the causative action, whereas less attention is paid to the
agent, compared to monolingual speakers. This again reflects the relevance of the
dynamic component of the situation and a sensitivity to the fact that the aspectual
concept of progression is highly dynamic in nature.

Monolingual Dutch speakers pay less attention to the action, compared to the
bilinguals, and show a higher degree of attention to the agent. Monolingual German
speakers display an even higher degree of attention to the agent. The level of attention
directed to the causative action by the bilingual speakers corresponds to that found for
speakers of English in the same task (Carroll, Flecken & von Stutterheim, 2009). Also,

\footnote{The eye tracking study in Carroll et al. (2009) compares monolingual speakers of Dutch,
German, Italian and English and shows that speakers of English, a language with a fully fledged
and highly grammaticalized progressive form, allocate a high degree of attention to the action}
an analysis of Italian speakers’ distribution of attention to the agent versus the action shows a high degree of attention to the action (similar to English and Dutch); Italian is also a language in which a similar aspectual concept (expressed through stare + gerund, where ‘stare’ has an original meaning similar to ‘stand’) shows increasing frequency in use (even more so than in Dutch), and change in state situations with causative actions are also a very high attractor area for selection of this concept in Italian (see Natale, 2009). This cross-linguistic comparison suggests that the increased degree of attention to the action is related to the function and meaning of the progressive aspect, i.e. dynamics and progression.

However, the fact that the bilingual speakers ‘take longer’ to assess the nature of the action may also (partly) be driven by the requirement for extra time in processing visual input for event conceptualization, compared to monolingual speakers in general. The observed difference could partly be caused by an extra processing load for the bilingual speakers, when dealing with the choice of selecting a specific conceptual representation and the form(s) that express the concept, versus an unmarked form. In Dutch, however, the selection of an aspectual perspective requires the checking of specific features, so all speakers would have to consider these options when deciding to select an aspectual perspective or not. Both groups of speakers have to take into account specific subtle features of dynamic situations, such as homo- versus heterogeneity of the sub-events, duration (see chapters 4, 5), when making a decision of this kind. The question thus remains as to whether a general processing difference is nevertheless given for the bilingual group, and would explain the differences in fixation time when measuring direction of attention to the action.

9.4.1.2. Chapter 7

These questions were considered further in the context of a time constraint experiment, which also entails time pressure for the speaker in executing the task. In this context we can test whether processing difference between the bilingual and monolingual speakers can be attributed to factors such as automaticity in accessing and selecting relevant (more so than monolingual Dutch speakers, and more in line with the bilingual Dutch speakers) and less to the agent.
concepts in language production, given possible processing constraints which may be bilingual-specific. The decrease in the selection of aspect for the bilinguals, compared to an increase in use for the monolingual speakers, points to the relevance of processing time. Under time pressure, the bilinguals are more likely to choose the unmarked simple verb form, the form that does not explicitly express ongoingness, in contrast to the monolingual group. For the monolinguals, on the other hand, the time constraint enhances the selection of the aspectual perspective, so that this perspective on the event now becomes a clear preference. It is important to state again that the time constraint profiles a core temporal concept for use of an aspectual perspective in this particular task. The narrower time span focuses what holds for a deictic ‘here and now’, given the induced overlap between ‘time for which the assertion holds’ and ‘speech time’, thus enhancing the likelihood that the relevant aspectual concept will be activated. The monolingual data do indeed show an increase of selection, similar to monolingual speakers of Italian carrying out a similar task (see Natale, 2009). The findings for the bilinguals may thus indicate a processing effect in that accessing the aspectual concept may be less automatized when less time is given to execute the processes involved in language production in a bilingual system. Importantly, conceptualization does not breakdown, however, since the event descriptions produced by the bilingual speakers in the three second time span are still grammatically well formed and are also acceptable solutions to the task at hand.

Furthermore, the comparison between the two groups under the baseline condition indicates that the findings cannot be attributed to differences in linguistic competence on the part of the bilingual speaker. Both monolinguals and bilinguals have a similar response to relevant variables, i.e. change in state situations attract a high frequency of use of aspect and motion events represent a (relative) constraint (though not to the same extent in the two groups) in the baseline condition. The selection of the aspectual concept thus proceeds with the same ease of access in the baseline condition.

We can only hypothesize as to the reasons for the effect of time constraints on event construal in the bilingual data. It is useful at this point to briefly look at the results for aspectual perspective taking in bilingual German (the same experiment
performed by the same bilingual sample, this time in German2). Here we find that selection does not differ from the monolingual German pattern (Flecken, 2009). In general, the bilingual performance pattern in German does not show any form of cross-linguistic influence from Dutch. This finding can be interpreted as showing that the bilinguals keep the two systems apart in the domain of aspectual perspective taking in event construal. Nevertheless, hypotheses concerning the cause of the processing effect under time pressure may be considered on the basis of possible influences between the two languages of the bilinguals given the unmarked option (the absence of an aspectual perspective, ‘- ongoing’), as well as the range of features that have to be processed in Dutch before deciding whether use of aspect is appropriate or not.

Figure 3 below presents the options in perspective taking available in Dutch and German, as well as for the bilinguals (G-Bil; D-Bil), and the frequency of selection found in the different datasets—an overview of all findings. It illustrates how G-Bil and G-M converge on the absence of an aspectual perspective3.

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2 The data of the bilinguals performing the time constraint experiment in German were not included in any of the articles in the thesis. They are presented at this point, in order to provide a discussion and point of comparison with the bilingual Dutch findings. The data were collected with stimulus set 5 (see appendix).

3 The findings indicate that the ‘+ ongoing’ option for perspective taking in German is not a viable solution during conceptualization. For this reason, the box containing this option is printed with dashed lines. Also, the arrows indicating the mono- and bilingual German proportion of selection of that option are presented in the same fashion. On the Dutch side, the arrows indicating a proportion below 50% are also dashed, meaning that these proportions do not indicate a preference for the respective option for perspective taking.
The Figure depicts the **between**-sample range of variation for the monolingual Dutch as well the **between**-experiment range for the sample of bilingual speakers (Dutch experiments). It is important to state again that this type of variability is a phenomenon which is also observed in other languages in which aspectual concepts represent an option for event construal, i.e. cases in which the linguistic category aspect has not become grammaticalized, and is thus not obligatory (see for further evidence on Dutch van Ierland, 2009; for other languages Natale, 2009; Leclerq, 2008).

Following the German monolingual baseline, we assume that in German the aspectual concept to represent an event as ongoing is not active and is mainly a lexical option, which may be used for emphasis or as a specific dialectal variant\(^4\). The bilinguals when construing events in Dutch have to choose between the explicit expression for ‘event is ongoing/in progression’ - by means of an aspectually marked verb (the *aan het*-construction, for example) - or an unmarked verb form. If they decide

\(^4\)The German expressions of ongoingness are part of a dialectal variant of German, labelled the ’Rheinische Verlaufsform’. Even though, in colloquial language use the forms are not in-active, indepth analyses show that they are not frequently used in standard German (see e.g. van Pottelberge, 2004).
not to take an aspectual perspective, or if there is no question of doing so, they choose the unmarked verb form, which does not encode an aspectual concept. Both options are active as viable options in language production and responses with either form and their associated concepts are equally acceptable in the tasks studied: the monolingual Dutch data show an almost equal distribution of aspectually marked predicates and aspectually unmarked predicates (see Figure 3-baseline condition). Unlike the aspectual *aan het*-construction, simple tense forms are universally applicable in Dutch, as well as German, so it may be more readily accessible under time pressure for the bilingual speakers. If one can consider the hypothesis that a bilingual’s two languages may both be to some extent ‘highly accessible’ (or activated, if you will) in language production, which the findings on lexical access to date suggest (see 1.2.4.), the bilingual may also experience activation of the German options for perspective taking at the level of conceptualization. In deciding on the perspective the bilingual would have the well anchored option (for German) of not selecting the aspectual concept (‘- ongoing’), which is acceptable for Dutch also, along with the option of taking the aspectual perspective (‘+ ongoing’). The option of not taking an aspectual perspective may be more accessible under time pressure if knowledge stores of bilingual speakers become permeable.

In the baseline condition, by contrast, the bilingual is given sufficient time to process the range of options and select the appropriate option in Dutch, which, as we know is dependent on properties of the specific situational context and may thus require more effort, compared to the unmarked form. Given a time constraint, these selection processes may suffer and the bilingual may access the alternative that converges in both languages, since it also represents a highly appropriate solution for the task at hand. The observed patterns can in this case be attributed to a bilingual processing effect under time pressure, ‘caused’ by a speaker’s bilingualism and the accompanying processing load having to do with control (activation and inhibition) of the two languages in selection processes during language production.

There is finally the fact that the selection of an aspectual perspective in Dutch can be expected to require more cognitive effort, and more linguistic processing resources in general, since one has to identify and process specific features of the visual input in order to decide whether accessing an aspectual concept is an appropriate
solution or not, irrespective of other options. Looked at in this way, accessing the aspectual concept may be less automatized in general, since the language is also evolving in this domain, and access may not be sustainable to the same extent under a form of pressure due to the extra processing load for the bilinguals.

In general, the data across the set of tasks can be interpreted as showing that bilinguals are not in any sense ‘on the road to monolingual processing’ (Hernandez, Bates & Avila, 1994, p. 441). The findings present insights into how bilingual language processing may be organized in order to proceed in optimal terms, for what may be viewed as unique conditions in language production, compared to monolingual speakers. Bilingual speakers require compromise or otherwise bilingual-specific solutions that differ from monolingual patterns. Settling on the emerging semantic component of a form (the dynamic/progressive component of the aan het-construction, for example), at the expense of one that is slowly loosing ground (locative component), may be evidence of bilingual-specific solutions in dealing with change and language development. In this sense it can be understood as a form of simplification with reliance on a core component which is emerging (dynamics), as also reflected in the visual attention to actions in the eye tracking experiment, at the expense of the agent. Further studies are required, however, since the present set cannot generate further insights with regard to these questions.

The analyses of information structure identified other possible processing strategies (chapter 8). The findings will be discussed in the following section.

9.4.2. Information structure

9.4.2.1. Chapter 8

In contrast to the domains of event conceptualization the study of information structure relates to an area in which there is a large degree of overlap between Dutch and German. In chapter 8 we have seen that although there is overlap in patterns in reference management in narrative tasks, the languages differ in the following respects. In reference maintenance the conditions that allow ellipsis when maintaining reference to the entity encoded as the subject of a main clause, across adjacent clauses, are
different in the two languages. Ten bilingual speakers were given the narrative task in both languages of retelling the content of a silent film, and their narratives were compared to the monolingual baselines. Some speakers have target-like patterns in both languages, and exhibit full mastery with regard to the complexity of the two systems. Other speakers within the sample have acquired principles which are fully target-like only in one of the two languages, with transfer patterns in the other language. Another subpart of the sample shows a pattern that can be labelled ‘bilingual-specific’. This pattern in reference management is based on the existence of sequencing principles in information structure that are found in both the Dutch and German systems. In this case the relation of temporal shift is maintained in explicit terms in the narrative by continuing mention of the shifter ‘then’ in narratives in both languages, with clear consequences for options then available in reference management: the speakers in question mark the relation of temporal relation explicitly for nearly each utterance when advancing the story line, and this interferes with the subtle language-specific principles of reference management found in the monolingual Dutch and German speakers. The persistent mention of the shifter ‘then’ leads therefore to one common pattern in both languages of the bilingual speakers in question. Reliance on these core principles is the core re-narration strategy of younger (monolingual German) speakers (see Halm, in press). The bilingual data suggest that some of the speakers have maintained these as the basis for re-narration, but other speakers in the bilingual sample indicate that they are not maintained over time. The question whether the findings are thus in any way age-related remains open.

The pattern may be interpreted as the result of an active information processing strategy, in which one option is chosen that is highly reliable for both languages. As a consequence, language-specific differences are dropped. This interpretation resembles studies on language processing in early or simultaneous bilinguals (e.g. Ameel, Storm, Malt & Sloman, 2005; Ameel, Storms, Malt & van Assche, 2009; Hernandez et al., 1994), who reach a similar conclusion, though in very different tasks and domains of analyses. Due to the observed variability with respect to bilingual-specific versus target-language-specific patterns within the bilingual sample, one can only speculate at this point. It is important to state that, although the pattern simplifies the information structure of the narratives, the data do not evidence a reduced level of
linguistic competence: All narratives show complex linguistic structures required when organizing information for expression, such as subordination of information to mark differences in hierarchy, or use of passives, as in expressing topichood. The bilingual-specific pattern in information structure may thus be interpreted as a reduction strategy to make the task of dealing with two complex and subtly differing language-specific patterns more ‘do-able’. With this pattern a core aspect of both Dutch and German information structure is adhered to in systematic terms.

9.5. Some considerations for future research

One of the central questions that remain can be formulated as follows: What does the ‘blueprint of the speaker’ (Levelt, 1989) look like for a bilingual speaker? Although many studies have dealt with the question of whether language processing is selective or non-selective, there have been few attempts to provide a model of bilingual speech production. Speakers dealing with two distinct patterns of ‘seeing and thinking for speaking’ have access to language-specific knowledge in the conceptualizer, while preparing information for expression (as the findings of the present set of studies show), and they have to be able to manage control over the two systems during language production. The bilingual speakers do seem to manage this for event conceptualization, given a presence versus absence situation, roughly speaking, for the likelihood of selecting aspectual concepts in language production in the baseline condition. A certain form of processing load affects monolingual and bilingual speakers in different ways, and although the consequences are not marked, they are nevertheless revealing, since the bilingual speakers are unable to exploit a temporal feature (deixis) that enhances the likelihood of selecting aspect in the time constraint condition.

De Bot (1992; 2000) presents a first attempt to adapt the above model to incorporate speech production processes in bilinguals. He argues for non-language-specific macroplanning processes, a proposal which is not confirmed by variety of empirical findings on monolingual speakers as well as L2 users (see e.g. von Stutterheim & Nüse, 2003 and the chapters of this thesis). Green (1998), who also addresses the topic, also emphasizes the benefits of modeling language-specificity explicitly at the
level of the conceptualizer. Van Ierland (2009), looking at information structure in very advanced L2 users in comparison with monolingual speakers, provides empirical evidence for language-specific effects in macro- as well as microplanning. On the other hand, Bylund (in press) finds that early Spanish-Swedish bilinguals do show convergence of two sets of language-specific principles in macroplanning, but language-specificity during microplanning, in particular the process of structuring of information during conceptualization. The findings in the present set of studies on bilinguals suggest that certain decisions made at the level of macroplanning may be sensitive to a type of convergence system as well, in case of a great deal of overlap between the systems; the principles of information selection with respect to the entities that are eligible for mention as subject in clauses when constructing a narrative (see chapter 8) suggest a pattern that is acceptable in both languages, but which does not show the respective language-specific subtleties that are found for the monolingual speakers. The findings on the use of aspect in event conceptualization do suggest that bilinguals follow language-specific macro- as well as microplanning principles, but the system follows a slightly different logic, when compared to monolinguals (chapter 6 & 7). The findings in chapter 7 in particular suggest an indirect processing effect of the other language of the bilinguals (German) when dealing with aspectual perspective taking in language production given time constraints. Nevertheless, the findings of all studies do support the hypothesis that decisions made during macro- and microplanning in language production are language-specific for bilingual speakers (these findings would extend the L2 models proposed in de Bot, 1992; 2000; Bylund, in press). A relevant line of follow-up research could look at more carefully controlled production experiments with the aim of establishing the degree of (non-) selectiveness of activation of the two languages at the level of the conceptualizer, with a specific focus on macroplanning principles.

Further research would also benefit from using similar tasks and a focus on bilinguals of more typologically distant languages, since there is the question whether the observed patterns are specific for bilinguals of close languages, or whether they can be generalized to other types of bilingual speakers as well. In the present study the languages can be viewed as ‘close’ for the domain of information structure, but not so much for event conceptualization, given the domain studied (aspect). With regard to

349
information structure, the results provide a wider panorama for questions relating to dominance and balance: There is evidence for bilingual speakers that show selectivity of two systems, as well as evidence for selectivity with respect to one language, and a bilingual-specific system in the other, followed by bilingual-specific solutions. The latter case provides evidence of a reduction strategy that relates to the common structure of both languages at a fundamental typological level.

The present study of Dutch-German bilinguals shows that it is not the case that bilinguals of typologically close languages somehow face an ‘easier’ task. In for example van Ierland (2009), it is hypothesized that linguistic proximity of two languages may be beneficial in the acquisition of specific elements of a language such as the lexicon or parts of the grammar, but that the acquisition of global language-specific planning principles remains difficult.

Furthermore, other types of tasks aimed at observing linguistic processing mechanisms or patterns could benefit from including time constraint conditions. This method has proven to be a valuable tool in, first of all, assessing bilingual performance and also underlying processing strategies or patterns, as shown in chapter 7.

A follow-up study with bilinguals of a slightly older age could provide insights as to whether the observed patterns are in any way age-related or not. The findings on the narrative retelling task in particular suggest that the course of acquisition for bilingual speakers of typologically close languages may be slightly delayed, when compared to monolingual acquisition. The observed simplification or reduction strategy in some of the speakers within the sample could (hypothetically) be part of a late stage in bilingual acquisition, and may change over time. Longitudinal studies on bilinguals performing on a variety of complex tasks would be relevant in this regard, since the present tasks used naturally have their own set of limitations. Nevertheless, the sample investigated consisted of speakers at adolescent age as well as adult speakers-qualitative analyses and the study on information structure (chapter 8) do not reveal clear age-related differences.

Also, in the present thesis, several bilingual participants within the larger sample took part in the different studies, with an appropriate time span in between recording sessions. Nevertheless, future studies might certainly profit from including a larger sample of speakers, thus avoiding potentially confounding issues such as
351
differences in age, educational background, and other variables that may play a role for
the functioning of the bilingual system during the lifespan. Particularly, the issue of
‘language dominance/balance’ could be more carefully controlled for in future studies
as a dependent variable in the experimental design. This way, it is possible to find out
what role factors such as level of attainment, extent of language use and exposure,
country of residence, etc. play in determining conceptualization preferences, as opposed
to age of acquisition, which was taken as the central principle according to which
participants were selected in the present studies. One of the languages of a bilingual
speaker may be more ‘present’ or ‘active’ (in whatever sense) than the other in both
specific as well as general terms. The ‘strength’ of a language of a bilingual speaker can
be related to issues such as linguistic exposure and input, practice and other socio-
linguistic factors (motivation, contexts for use of the two languages) - age of acquisition
of the two languages may not always be decisive.

9.6. General conclusions

Early bilingual speakers represent an ideal case for answering the question whether it is
possible to have two patterns of ‘thinking for speaking’ at one’s command. This was
investigated for bilinguals who have acquired two typologically similar languages, Dutch
and German. The empirical findings over a range of language production tasks suggest
that it is not always possible to fully separate (in terms of activation) two sets of
language-specific preferences in event conceptualization and to adhere to both of them
in a monolingual-like fashion. In other words, the identified patterns are not simple
replications of the ones found for monolingual speakers. The linguistic domain under
investigation, event conceptualization and the selection of aspectual distinctions,
involves planning processes in the conceptualizer when talking about events. Core
differences between the two languages relate to the fact that the selection of an
aspectual perspective is optional in Dutch and German to markedly different degrees,
being rare in German but highly frequent in specific contexts in Dutch. This constitutes
the basis for differences in event conceptualization in context between monolingual
speakers of the two languages.

351
For this particular investigation the question was not whether the acquisition of two languages can change the way one thinks for speaking in general, but rather whether it is possible, after a large and relatively equal amount of exposure to both languages, to identify (become aware of), manage, and control two patterns in thinking for speaking, as evidenced in context by language production tasks. In this sense, the present study does not attempt to contribute to the linguistic relativity debate as such.

The bilingual speakers select aspectual concepts when thinking for speaking, but the difference to monolingual speakers is that they are not accessed to the same degree across all conditions of use. The observed patterns indicate that early bilinguals have developed specific, and probably unconscious, strategies or solutions in language processing that makes it possible to manage the two systems. This results in performance patterns that can be labelled bilingual-specific, in the sense of a reliance on core (and sometimes converging) principles of the system, which in some cases may be viewed as simplification. In the event elicitation eye tracking study (chapter 6) we observed less conservative performance with respect to accessing aspectual concepts, which occurs given prominence of the core feature of progressive aspect, i.e. change in state dynamics. The presence of this core feature outweighs others in deciding activation, compared to monolingual speakers. Considering the complexity of dealing with a temporal concept that is optional, but where the possibility for use is defined on the grounds of systematic features which have to be checked for applicability (as the analysis of monolingual speakers show—there are clear preferences as well as constraints), the profiling of the ‘core domain’ in deciding whether to activate an aspectual concept or not can be interpreted in terms of an economical solution in simplifying decision-making processes when constructing the pre-verbal message.

The event elicitation task under a time constraint (chapter 7) also evidences a tendency to opt for a core-domain solution. The bilingual speakers select the temporal concept that applies in all contexts of use—in both languages—the representation of the event without an aspectual distinction, in marked contrast to the preference found for monolingual speakers. These differences in accessing and establishing specific patterns in conceptualization may be attributed to the general effect of processing load, being bilingual and put under time pressure, as well as to the possible influence of the specific other language of the bilingual speaker. This interpretation implies non-selective
activation of perspective taking options during conceptualization and the reliance on core-domain converging solutions in decision making processes.

The findings reveal how identified patterns are not always simple replications of the ones found for monolingual speakers of both languages. The observed differences represent different types of outcomes for conceptualization preferences in bilingual speakers as the ones listed in, for example, Jarvis & Pavlenko (2008), as well as the empirical findings in studies on L2 users at different levels of proficiency (Athanasopoulos 2006; 2007; Hohenstein, Eisenberg & Naigles, 2006, etc. (see 1.2.4)). These studies diverge as to whether the learners tested were able to incorporate target-language specific conceptualizations (in different types of language production as well as non-linguistic tasks). As has been suggested by other researchers as well, the diverging evidence could depend on differences in the types of speakers investigated (see 1.2.4).

The study on information structure also points in some cases to a reliance on core, converging principles. However, there is also evidence of performance showing target-language specific principles in both languages, as well as transfer patterns. The question that remains for this area of investigation is whether the observed patterns constitute the endstate of bilingual acquisition for speakers who do not show target-like specific principles in organizing and according informational status to the referents they refer to in a narrative context, or whether the observations are again an economic solution for the task at hand, which may remain stable in the long term.

In conclusion, there is evidence for bilingual-specific principles in ‘seeing for speaking’ and ‘thinking for speaking’ for the contexts studied in the present language production tasks. The empirical findings provide insights into the way processes in language production differ across monolingual and bilingual speakers by shedding light on factors that drive decision making at the level of the conceptualizer.
References


Summary

This dissertation focuses on conceptualization processes in language production of early bilingual speakers, as compared to monolingual speakers of both languages. The dissertation makes an in depth study of how mono- as well as bilingual speakers of Dutch and German construe different types of events in complex language production tasks, and the focus is on temporal-aspectual perspective taking in the conceptualization of events. The general aim of the empirical studies presented in this thesis is to see in what way bilingual speakers’ preferences in event construal relate to those of monolingual speakers, and to find out what it means to have acquired two languages with different patterns of ‘thinking for speaking’ (cf. Slobin, 1996) as well as ‘seeing for speaking’ (cf. Nüse, Carroll & von Stutterheim, 2004).

Conceptualization is used here to refer to the mental processes involved in preparing information for expression through language, i.e. the selection, segmentation, structuring and linearization of information about situations in the world around us (cf. Levelt, 1989; von Stutterheim & Nüse 2003). One of the core hypotheses tested in studies is that (specific) grammaticalized concepts, such as aspect, play a special role in conceptualization. Grammaticalized aspectual concepts create a certain perspective on the state-of-affairs or event. One such perspective is that of the event is ‘ongoing’, as is given with progressive aspectual markers for example (cf. Carroll, von Stutterheim & Nüse, 2004; von Stutterheim, Carroll & Klein, 2009). Grammar is taken as a set of abstract concepts which have gained status through grammaticalization. Access to concepts or meanings that are grammaticalized will be highly automatized in conceptualization processes, since use will be obligatory in specific contexts. The type and number of concepts that have become grammaticalized will differ between different languages (in line with Talmy, 1988; 2000).

General findings in cross-linguistic studies show that the degree of grammaticalization and the frequency of use of progressive/imperfective aspectual constructions in a language determines the extent to which an ‘ongoingness’ perspective on an event will be selected in given contexts. If this type of perspective taking is frequent and can be established on an empirical basis for a group of speakers, we can refer to the established pattern in event conceptualization as a preference for the
specific language community. Preferences, however, always represent a specific choice, from a set of options available for structuring information (chapter 2).

Dutch is an interesting language in this regard. Experiments carried out with Dutch native speakers show that speakers have clear usage preferences as well as constraints on taking a perspective of ‘ongoingness’ by means of the progressive *aan het*-construction in certain defined situational contexts. The hypothesis that the construction is at present becoming grammaticalized in the language is empirically tested by means of acceptability judgment and event elicitation tasks with native speakers in the present thesis (chapters 2 - 5). Specific preferences in event conceptualization are similar to those found in other languages in cross-linguistic comparisons, in which overall use of an aspectual perspective occurs to a similar degree (e.g. Italian and French). In this respect, Dutch differs from its typologically similar neighbour, German (chapter 5), although in Dutch selection of the aspectual perspective still represents an option, which means that event conceptualizations without an aspectual perspective are always acceptable.

Findings nevertheless show that systematic use of the form affects event conceptualizations by native speakers of the language. Analysis of Dutch native speaker event elicitation data establishes clear attractor variables and identifies constraining features in dynamic situations on a systematic basis. Furthermore, in narrative accounts, a more complex production task, subtle but global differences are found in the preferred patterns in information structure as followed by Dutch and German native speakers. These differences centre around global planning principles in specific domains (temporal linkage, subject/topic assignment, reference management), and lead to differences in the macro- and microplanning of information (chapter 8).

In a second step the same language production experiments are performed on early bilingual speakers of Dutch and German (chapters 6 - 8). The goal of these experiments is to find out in what way the preferences identified for the monolingual speakers are ‘replicated’ by the monolingual speakers, or to what extent differences occur. The nature of the differences are subsequently interpreted as indicating differences in underlying processing strategies/mechanisms. The first experiment is the event elicitation task (description of events shown in video clips). The analysis in chapter 6 focuses on the bilinguals’ Dutch data, which include
linguistic as well as eye tracking data, recording the informants' direction of visual attention to certain aspects of the clips in the experimental setting. The language patterns of the bilinguals differ from the patterns in the monolingual Dutch data: the bilinguals extend the concept of ongoingness in the sense of usage in situations that represent an untypical domain for use for the monolinguals. Furthermore, with regard to the means used, the bilinguals single out the *aan het* form at the expense of other means/options which are available in the language and which are also chosen to some extent by the monolinguals. Differences in perspective taking are also reflected in the eye tracking data, underlining the relationship between decisions made in the conceptualization process and allocation of attention. It is argued that the data show unique 'bilingual-specific' performance patterns, manifesting extension of a conceptualization pattern in the sense of aspectual perspective taking with an increased focus on core aspects of the developing aspectual marker and its underlying concept: *dynamics* and *changes in state*. The analysis of the bilinguals’ event descriptions in German (chapter 9) shows that the bilinguals’ patterns are on the whole target-like. The findings are interpreted as a possible manifestation of a processing strategy, which is adhered to in order to manage two different preferences in event conceptualization relating to aspectual perspective taking: selection of an aspectual perspective is absent in German, but active, and selection is dependent on specific situational features, in Dutch. The bilingual German and Dutch data indicate that the bilinguals indeed manage to keep the two systems apart in event conceptualization, in this domain of analysis.

The second production experiment relates to the question whether patterns of aspectual perspective taking change when the time span for expressing what is happening in the video clips is narrowed (the time span between the video clips is shortened). The reasoning behind this is that if the speaker is forced to speak earlier, thus increasing the overlap between speech time and the time for which the assertion holds, the deictic temporal perspective of ‘now’ may be enhanced. This temporal perspective represents a prime condition for use of the Dutch progressive marker. The question is what happens to the extent to which aspectual means are used, in comparison to a baseline condition. Differences were found between the monolingual and the bilingual Dutch speakers: whereas in the baseline condition the frequency of selection is similar in both groups, given the time constraint there is an increase in selection of the aspectual concept
only for the monolingual group. On the other hand, for the bilinguals the time constraint does not enhance selection of the aspectual concept, but rather selection decreases and the neutral perspective (simple verb form) now represents a preference. The differences given the time constraint may indicate that access to the aspectual concept is less stable and less automatized in bilinguals when compared to monolingual speakers of Dutch. Reasons for this processing effect may lie in a general increased processing load under pressure for bilingual speakers when compared to monolinguals, or it may be caused by co-activation of the options for perspective taking in the other language of the bilinguals, German. Both languages converge on the neutral perspective (as expressed by the simple verb form) which is universally applicable in both Dutch and German, and this option may become more accessible given processing constraints, as under time pressure when executing a language production task (see for more detail chapter 7 and 9).

The last experiment involves a test which allows an assessment of level of attainment of the two languages of the bilinguals. Attainment is measured with respect to the way in which information is organized and structured in a narrative retelling task in both Dutch and German (chapter 8). A complex task of this kind involves the creation of coherence on a large scale. The patterns identified in information structure in the bilingual narratives indicate variability within the sample. Whereas some speakers manage to adhere to two subtly differing patterns in information structure in the two narratives, others show language-specific subleties in only one language. A third group evidences a bilingual-specific pattern which may be a processing strategy to make the task of managing two close systems more 'do-able'. The bilinguals rely on a specific, core principle in information structure (the principle of 'temporal shift', see chapter 8) that is reliable in both languages, when re-narrating in Dutch and German.

Chapter 9 summarizes and discusses the overall findings of the set of empirical studies. The results are interpreted as showing that bilingual speakers, having a high level of proficiency, show patterns in conceptualization in language production that are not mere replications of those found in monolingual speakers. Their performance can in no way be treated as ‘erroneous’, but it indicates preferences in language production that differ from monolingual speakers of both languages, which could be due to bilingual-specific language processing effects and systematic processing
strategies. Since the present studies deal with performance patterns, conclusions concerning the organization of linguistic knowledge in bilingual memory can only be speculative.

References


Samenvatting


Een van de centrale hypothesen die getest wordt in deze dissertatie is dat bepaalde concepten die in de grammatica van een taal aanwezig zijn, bijvoorbeeld grammaticaal aspect, een speciale rol spelen tijdens de conceptualisatie. Grammaticale aspectuele concepten bieden namelijk een bepaald perspectief op een stand van zaken of een gebeurtenis. Een voorbeeld van zo’n perspectief is het beschrijven van een gebeurtenis als “ongoing”, of “in progress”, door middel van de progressieve vorm (cf. Carroll, von Stutterheim & Nüse, 2004; von Stutterheim, Carroll & Klein, 2009).

Grammatica wordt in dit verband gezien als een verzameling abstracte concepten of betekenissen die status hebben gekregen door het proces van grammaticalisatie. Toegang tot deze concepten of betekenissen tijdens het conceptualisatieproces is
hoogst geautomatiseerd aangezien het gebruik ervan verplicht is in bepaalde contexten. Het type en het aantal concepten dat gegrappicaliseerd is verschilt tussen talen (Talmy, 1988; 2000). Resultaten van taalvergelijkingen studies tonen aan dat de graad van grammaticalisatie van progressiefvormen in verschillende talen bepaalt in hoeverre een “ongoing” perspectief op een gebeurtenis een voorkeur voorstelt voor sprekers van deze talen. Als dit type perspectief vaak en systematisch gekozen wordt door een groep van sprekers van een bepaalde taal, kunnen we deze perspectief-keuze als een “voorkeur” van de betreffende sprekersgroep beschouwen. Deze voorkeuren blijven nog altijd wel een specifieke keuze uit een variëteit aan opties die ook mogelijk zijn in de informatiestrukturen (zie hoofdstuk 2).

Het Nederlands is een interessante taal in dit opzicht. Experimenten die uitgevoerd zijn met sprekers met Nederlands als moedertaal in het eerste deel van dit proefschrift laten zien dat deze sprekers voorkeuren hebben voor het gebruik van progressiefvormen in bepaalde contexten, maar aan de andere kant ook duidelijke grenzen stellen aan het gebruik van de vormen in andere contexten. De hypothese dat de progressieve aan het –constructie op het moment aan het grammaticaliseren is, wordt empirisch getest met een zogenaamde “acceptability judgement” taak en met elicitation experimenten met native speakers, waarin gebeurtenissen moeten worden beschreven (hoofdstuk 2 – 5). Van bepaalde gebruiksoverkeuren kan worden aangetoond dat zij in dezelfde hoeveelheid overeenkomen met voorkeuren van sprekers van andere talen met vergelijkbare progressiefvormen (bijv. het Italiaans). In dit opzicht verschilt het Nederlands dus van het typologisch verwante Duits (hoofdstuk 5), hoewel in het Nederlands het gebruik van progressiefvormen nog steeds een optie is, en in geen enkele context verplicht is. De elicitation data tonen duidelijke variabelen die de vorm aantrekken, maar ook variabelen die een “constraint” zijn voor het gebruik van de vorm. Dit betekent dat ook conceptualisaties zonder het aspectuele perspectief acceptabel zijn. De resultaten van de experimenten met de native speakers laten zien dat het systematische gebruik van de vormen in bepaalde contexten de conceptualisatieprocessen (de processen van het segmenteren en selecteren van informatie) beïnvloedt. In gebeurtenisbeschrijvingen en in langere verhalen, ook wel narratieve genoemd, zijn er subtieke maar toch globale verschillen in de macro- en microplanning van de informatiestructuur van het Nederlands en het Duits, gerelateerd
aan bijvoorbeeld temporele linking, onderwerpkeuze en –management (zie hoofdstuk 8).

In het tweede deel van het proefschrift worden de resultaten van dezelfde taalproductie experimenten gepresenteerd, dit keer gedaan door een groep vroeg-bilinguale sprekers van het Duits en het Nederlands (hoofdstuk 6 – 8). Het doel van deze experimenten is het onderzoeken of de gevonden voorkeuren in de informatiestructuur van Nederlandse en Duitse native speakers verschillen of overeenstemmen met de voorkeuren van deze bilinguale sprekers. De resultaten worden vervolgens geïnterpreteerd als het aantonen van verschillen in onderliggende language processing strategieën of -mechanismen.

Het eerste experiment is een elicitation experiment, waarin de proefpersonen gebeurtenissen die getoond worden in videoclips beschrijven. De analyse in hoofdstuk 6 richt zich alleen op de Nederlandse data van de bilinguale sprekers, en de data bestaat uit taalproductie en eye tracking gegevens. De eye tracking analyse analyseert de interesse die de sprekers tonen in verschillende aspecten van de gebeurtenissen in de videoclips die te zien zijn in verschillende delen van het videoscherm. De linguïstische analyse laat zien dat de voorkeuren met betrekking tot het gebruik van progressiefvormen verschillen tussen de bilinguale sprekers en de monolinguale sprekers: de bilinguale sprekers breiden het concept van de progressiefvorm uit, doordat ze de vormen ook gebruiken om gebeurtenissen te beschrijven, waarbij het gebruik ervan door monolinguale sprekers erg ontypisch is.

Ook de analyses die zich richten op de gebruikte linguïstische middelen tonen andere voorkeuren: de bilinguale sprekers prefereren de aan het-vorm, waardoor andere vormen niet gebruikt worden, terwijl die wel ook door de monolinguale sprekers gebruikt worden. De verschillen worden nog eens onderstreept door de eye tracking analyse, die de relatie tussen conceptualisatieprocessen in taalproductie en blikbeweging bevestigen. De verschillen worden geduid als “bilinguaal-specifieke” gebruiksovervluistering, die het resultaat zijn van de extensie van een bepaald conceptualisatiepatroon. Het gebruik van het “ongoing” perspectief gaat hand in hand met een verhoogde focus op basale aspecten van het concept, namelijk dynamiek en “change in state” (toestandsverandering) als eigenschappen van de gebeurtenissen die te zien zijn in de videoclips.
De analyse van de elicitiatiedata in het Duits van de bilinguale sprekers (hoofdstuk 9) laat zien dat er geen grote verschillen zijn met de monolinguale sprekers van het Duits. De resultaten kunnen vervolgens geïnterpreteerd worden als een *language processing* strategie, die gebruikt wordt om het handhaven van twee verschillende conceptualisatiepatronen makkelijker te maken: in het Duits is het gebruik van progressievormen zeer atypisch, terwijl in het Nederlands de vormen zeer actief zijn, maar het gebruik ervan hangt af van bepaalde kenmerken van gebeurtenissen. De bilinguale taalproductie data in het Nederlands en het Duits tonen aan dat het wel mogelijk is om deze twee patronen apart te houden.

Het tweede productie experiment gaat in op de vraag of deze voorkeuren voor het gebruik van aspectuele perspectieven veranderen als de tijd voor het beantwoorden van de vraag “wat gebeurt er?” in de videoclips wordt verkort (de tijd tussen de videoclips is korter). De logica achter dit experiment is dat als de spreker gedwongen wordt om eerder te spreken, waardoor de overlap tussen spreektijd en assertietijd groter wordt, het deictische temporele interval van het “hier en nu” versterkt wordt. Dit temporele interval is een basale conditie voor het gebruik van de Nederlandse progressievorm. De vraag is dus wat gebeurt met het gebruik van de aspectuele vormen in deze conditie in vergelijking met een baseline conditie. De analyses tonen aan dat er in de tijdstdruk conditie verschillen ontstaan tussen de monolinguale en de bilinguale sprekers, terwijl beide groepen de vormen in dezelfde mate gebruiken in de baseline conditie. Onder tijdstdruk worden de vormen vaker gebruikt door de monolinguale groep in vergelijking met de baseline conditie, maar in de bilinguale groep is er een afname in gebruik. Nu hebben de bilinguale sprekers een voorkeur voor de neutrale werkwoordsvorm (zonder aspect markering). De verschillen onder tijdstdruk tonen mogelijk aan dat toegang tot het aspectuele concept minder geautomatiseerd is voor de bilinguale sprekers in vergelijking met de monolinguale sprekers. De reden voor dit verschil kan een algemeen verschil in “*processing load*” zijn, namelijk dat voor de bilinguale sprekers deze load groter kan zijn onder tijdstdruk dan voor de monolinguale sprekers, of het kan zijn dat er een mede-activatie van de opties voor conceptualisatie in de andere taal van de bilinguale sprekers, het Duits, plaatsvindt. De twee talen komen overeen in het bestaan van de neutrale, niet-aspectuele vorm die universeel inzetbaar is in beide talen. Deze optie kan toegankelijker worden voor de bilinguale sprekers onder
Het laatste experiment is een test voor de graad van taalbeheersing van de twee talen van de bilinguale sprekers. De taalbeheersing wordt beschreven in relatie tot de wijze waarop de informatiestructuur in narratieve opgebouwd in zowel het Nederlands als het Duits van de bilinguale spreker (hoofdstuk 8). Deze complexe taak houdt in dat de spreker coherente op grote schaal moet kunnen creëren. De voorkeuren in de informatiestructuur in de narratieve van de bilinguale spreker tonen een grote graad van variatie binnen de groep. Sommige sprekers houden zich volledig aan de twee verschillende informatiestructuurpatronen van het Nederlands en het Duits, terwijl andere sprekers dat alleen in een taal doen. Een derde groep toont zogenaamde “bilinguaal-spiegelende” patronen, die wederom duiden op een processing strategie, met als doel het makkelijker maken in de omgang met twee verschillende systemen. De bilinguale sprekers in deze derde groep houden vast aan specifieke basale principes, die in de informatiestructuur van zowel het Nederlands als het Duits (het principe van temporele “shift”, zie hoofdstuk 8) prominent aanwezig zijn.

Hoofdstuk 9 vat alle resultaten samen en bespreekt deze. De resultaten worden geënteerde als bewijs dat bilinguale sprekers, die over een zeer hoge graad van taalbeheersing beschikken in beide talen, conceptualisatiepatronen in taalproductieprocessen tonen die afwijken van deze van monolinguale sprekers van beide talen. Hun taalgebruik kan zeker niet als foutief worden beschreven. Het toont andere voorkeuren in taalproductie en conceptualisatie, die het resultaat zijn van bilinguaal-spiegelende language processing effecten en systematische processing strategieën. Aangezien de studies in deze dissertatie alleen productie omvatten, kunnen deze verklaringen slechts als speculatief worden beschouwd.

Referenties


### Appendix A: Overview of stimulus sets

Table 1: Stimulus sets used for the event elicitation tasks

<table>
<thead>
<tr>
<th>Stimulus set</th>
<th>Situation types</th>
<th>No. of video clips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stimulus set 1, 60 video clips, 8 secs blank</td>
<td>a) Motion events, endpoint not reached</td>
<td>a) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>b) Motion events, endpoint reached</td>
<td>b) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>c) Static distracters</td>
<td>c) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>d) COS, effected object</td>
<td>d) 15 video clips</td>
</tr>
<tr>
<td></td>
<td>e) COS, affected object</td>
<td>e) 15 video clips</td>
</tr>
<tr>
<td>Stimulus set 3, 66 video clips, 8 secs blank</td>
<td>a) Motion events, endpoint not reached</td>
<td>a) 12 video clips</td>
</tr>
<tr>
<td></td>
<td>b) Motion events, endpoint reached</td>
<td>b) 12 video clips</td>
</tr>
<tr>
<td></td>
<td>c) COS, effected object</td>
<td>c) 9 video clips</td>
</tr>
<tr>
<td></td>
<td>d) COS, affected object</td>
<td>d) 5 video clips</td>
</tr>
<tr>
<td></td>
<td>e) COS, low scale transformation</td>
<td>e) 5 video clips</td>
</tr>
<tr>
<td></td>
<td>f) No COS situations</td>
<td>f) 9 video clips</td>
</tr>
<tr>
<td></td>
<td>g) Distracters</td>
<td>g) 14 video clips</td>
</tr>
<tr>
<td>Stimulus set 4, 65 video clips, 8 secs blank</td>
<td>a) No change in state situations</td>
<td>a) 8 video clips</td>
</tr>
<tr>
<td></td>
<td>b) COS, effected object</td>
<td>b) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>c) COS, affected object</td>
<td>c) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>d) COS, 2 levels of event representation</td>
<td>d) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>e) Motion events, endpoint not reached</td>
<td>e) 10 video clips</td>
</tr>
<tr>
<td></td>
<td>f) Distracters</td>
<td>f) 17 video clips</td>
</tr>
<tr>
<td>Stimulus set 5, 44 video clips, 3 secs blank</td>
<td>a) COS, effected object</td>
<td>a) 7 video clips</td>
</tr>
<tr>
<td></td>
<td>b) COS, affected object</td>
<td>b) 7 video clips</td>
</tr>
<tr>
<td></td>
<td>c) Motion events, endpoint not reached</td>
<td>c) 7 video clips</td>
</tr>
<tr>
<td></td>
<td>d) Distracters</td>
<td>d) 23 video clips</td>
</tr>
</tbody>
</table>
Example screenshots for each situation type

Motion events-endpoint not reached

Motion events-endpoint reached
Change in state situations-effected object

Change in state situations-affected object
Change in state situations-2 levels of event representation

No change in state situation
Low scale transformation situation

Static distracter
Dynamic distracter
Appendix B: Overview of bilingual participants

Table 2: An overview of data from a language background questionnaire by the bilingual participants: the data in the ‘prof.Ger/Dut’ and ‘confidence Ger/Dut’ columns represent self-assessed ratings of proficiency level and confidence in the two languages, on a 5 point scale (1 = excellent, 5 = very poor). Ratings were assessed for speaking, understanding, writing, reading, grammar and pronunciation separately. The table gives the ratings calculated as an average of all 6 areas.

<table>
<thead>
<tr>
<th>Sub</th>
<th>use of German</th>
<th>use of Dutch</th>
<th>preferred language</th>
<th>prof. Ger</th>
<th>prof. Dut</th>
<th>confidence Ger</th>
<th>confidence Dut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vp00</td>
<td>Daily (school, friends)</td>
<td>Daily (parents, siblings)</td>
<td>German</td>
<td>1.00</td>
<td>2.17</td>
<td>1.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Vp01</td>
<td>Daily (work, child)</td>
<td>Daily (work, partner)</td>
<td>German</td>
<td>1.00</td>
<td>1.17</td>
<td>1.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Vp02</td>
<td>Daily (father, school)</td>
<td>Daily (mother, school)</td>
<td>German</td>
<td>1.17</td>
<td>1.67</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp03</td>
<td>Daily (father, school)</td>
<td>Daily (mother, school)</td>
<td>Dutch</td>
<td>1.83</td>
<td>2.50</td>
<td>1.67</td>
<td>2.00</td>
</tr>
<tr>
<td>Vp04</td>
<td>Daily (father, school)</td>
<td>Daily (mother, school)</td>
<td>Dutch</td>
<td>2.83</td>
<td>1.17</td>
<td>2.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp05</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
<td>Dutch</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp08</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
<td>German</td>
<td>1.00</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp09</td>
<td>Daily (relatives, school)</td>
<td>Daily (mother, school)</td>
<td>Dutch</td>
<td>2.00</td>
<td>1.67</td>
<td>1.67</td>
<td>1.33</td>
</tr>
<tr>
<td>Vp10</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
<td>Dutch</td>
<td>1.17</td>
<td>1.17</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp11</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
<td>Dutch</td>
<td>1.67</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp12</td>
<td>Daily (father, school)</td>
<td>Daily (mother, school)</td>
<td>Dutch</td>
<td>3.17</td>
<td>2.17</td>
<td>1.67</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp13</td>
<td>Daily (parents, school)</td>
<td>Daily (friends, school)</td>
<td>Dutch</td>
<td>1.25</td>
<td>1.08</td>
<td>1.33</td>
<td>1.33</td>
</tr>
<tr>
<td>Vp14</td>
<td>Daily (school, father)</td>
<td>Daily (mother, siblings)</td>
<td>German</td>
<td>1.50</td>
<td>1.83</td>
<td>2.00</td>
<td>2.00</td>
</tr>
<tr>
<td>Vp15</td>
<td>Daily (mother, school)</td>
<td>Daily (father, school)</td>
<td>Dutch</td>
<td>1.67</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp20</td>
<td>Daily (school, friends)</td>
<td>Daily (parents, siblings)</td>
<td>German</td>
<td>1.00</td>
<td>2.17</td>
<td>1.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Vp21</td>
<td>Daily (school, friends)</td>
<td>Daily (parents, siblings)</td>
<td>German</td>
<td>1.00</td>
<td>2.33</td>
<td>1.00</td>
<td>1.33</td>
</tr>
<tr>
<td>Vp22</td>
<td>Weekly (mother, relatives)</td>
<td>Daily (school, friends)</td>
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<td>1.00</td>
<td>2.33</td>
<td>1.00</td>
</tr>
<tr>
<td>Vp23</td>
<td>Daily (school, friends)</td>
<td>Daily (mother, siblings)</td>
<td>Dutch</td>
<td>1.25</td>
<td>2.00</td>
<td>1.00</td>
<td>1.33</td>
</tr>
</tbody>
</table>