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Bogaards, M.P.M.

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A Mandarin map for Dutch durativity*

Parallel text analysis as a heuristic for investigating aspectuality

Maarten Bogaards

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Abstract

The linguistic expression of aspectuality poses a challenge for linguistic research of Dutch, because the language does not have a grammaticalized means of expression exclusively for this purpose. Instead, its expression appears to be highly diffuse. This study investigates the expression of one type of aspectuality in Dutch, namely durative aspect, which is highly grammaticalized in Mandarin Chinese. Through the method of parallel text analysis, this feature of Mandarin is employed instrumentally in mapping out the expression of durative aspect in Dutch both quantitatively and qualitatively, in terms of Construction Grammar. Theoretical and methodological considerations are also explored: it is proposed that the present method is best termed *heuristic* parallel analysis, differentiating it from *conceptual* parallel approaches; and it is argued that a quantitative overview should be complemented by a qualitative component. Finally, the results – expressional categories notated as (partially) schematic constructions – are compared with existing models, specifically that of the *Algemene Nederlandse Spraakkunst*

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(ANS), concluding that the durativity of posture constructions, the perfect, and pluractionality should be integrated into its account.

Keywords: parallel text analysis, heuristic parallel analysis, translation mining, aspectuality, durative aspect, durativity, Dutch, Mandarin, construction grammar, corpus linguistics

1 Introduction

The linguistic expression of aspectuality poses a challenge for linguistic research of Dutch, as the language does not have a coherent, clear-cut set of (grammaticalized) means of expression for this purpose. The expression of aspectuality appears to be highly diffuse, spanning different levels of linguistic abstraction. For instance, Lemmens (2015) situates Dutch progressive aspect in partially schematic constructions like [*aan het* INF *zijn*] ‘to be INF-ing’, and Hanegreefs (2004) points to copulative use of the verb *worden* ‘become’ for change-of-state aspect. Mapping out Dutch aspectuality systematically, and gaining a bird’s-eye view of the category, is therefore not a straightforward enterprise.

To illustrate aspectuality – which can be defined as the internal-temporal characteristics of states of affairs (Comrie 1976) – consider (1) and (2). According to the Dutch reference grammar *Algemene Nederlandse Spraakkunst* (ANS; Haeseryn et al. 1997), (1) has terminative, and (2) durative aspect. Here, *terminative* means that for the statement to hold true, some temporal endpoint inherent to the action expressed by the clause’s main verb must have been reached. In (1), *plakte de sticker* ‘stuck the sticker’ has the inherent endpoint of the sticker sticking to the page. ‘Durative’, conversely, means that no inherent endpoint is evoked, and none has to be reached for the sentence to be true. In (2), *zwom in het meer* ‘was swimming in the lake’ requires no endpoint to be considered in understanding the *swimming*; it is simply going on.

- (1) *Rosana plakte de sticker in haar agenda.*
‘Rosana stuck the sticker in her planner.’
- (2) *Jordy zwom in het meer.*
‘Jordy was swimming in the lake.’¹

¹ Depending on context, an instance of Dutch imperfect past (e.g. *zwom*) might correspond to an English past simple (*swam*) or progressive (*was swimming*). That is, the Dutch

The expressional diffuseness mentioned earlier raises the question whether overviews of Dutch aspectuality capture all relevant means of expression. The ANS (Haeseryn et al. 1997: 1662-1677), for instance, presents a lexical model based on the interaction between actionality and clausal properties, without integrating any partially schematic constructions. Broekhuis et al. (2015) provide a more comprehensive treatment, discussing not only actionality (Broekhuis et al. 2015: 36-54), but also aspect ‘encoded [...] by means of inflection and non-main verbs’ (Broekhuis et al. 2015: 102, 105-158). However, since Broekhuis et al. (2015) rely on constructed sentences, not actual usage, the question remains whether they have captured *all* relevant constructions.

This article aims to answer part of this question, expanding on these accounts. More specifically, it takes the ANS as a point of departure: the ANS account serves as a benchmark for interpreting the findings, which in turn potentially extend the ANS account. This is done by investigating the Dutch means of expression for one aspectual subdomain through corpus data, in terms of Construction Grammar (Goldberg 1995; Hilpert 2014; cf.

form itself is relatively underspecified; at the same time, the English progressive is less marked than its Dutch progressive counterpart *aan het INF zijn* (*was aan het zwemmen*) (cf. Boogaart 1999). So, the English progressive overlaps functionally with *both* the Dutch imperfect past and progressive. I have opted, in contextually ambiguous cases, to consistently use the progressive for the English translations.

One anonymous reviewer argues that this is problematic, because the English progressive cannot be equated with imperfectivity or durativity; additionally, (over)use of the English progressive in contrastive aspectual analyses of imperfective forms – such as Mandarin *zhe* – can be misleading, as the specific properties of the English progressive might obfuscate the more general properties of crosslinguistic imperfective forms.

While I fully agree with this criticism on a general level, I argue that using the progressive in English translations where it is (not un)licensed by context, is useful and not problematic for the purposes of this study. I have three reasons for this. First, the relative underspecification of the Dutch imperfect past has to be pinned down in the English translations anyway; in cases where both readings corresponding to the two English forms are warranted, selecting either English form is valid. Second, employing the progressive as the unmarked standard form allows for using the past simple to distinguish sentences where an ‘English progressive reading’ is impossible, most notably pluralional and zero-delimitational readings (see section 4.2.5). In this way, a relevant aspectual distinction within the Dutch imperfect past form is manifested systematically in the English translations, which is useful for the present purposes. Finally, the English translations only serve as an aid for readers with a limited command of Dutch; they do not otherwise play any meaningful role in the linguistic analysis, which is based exclusively on the properties and distribution of the Dutch forms (in relation to the original Mandarin material). When treated as such, I would argue that the tension between the Dutch and English verbal forms that the reviewer rightly points out, is not at odds with the aim of this study.

Verhagen 2005 for an overview). Construction Grammar assumes a continuum between lexically specified and schematic patterns of language; as such, it can provide a unified account for this diffuse category, as all means of expression can be related in an equivalent notation.

Gaining new insights into the functional inventory of a language requires a powerful heuristic. This is provided by the research method of *parallel text analysis* (Tabakowska 2014; Lu & Verhagen 2016; Beekhuizen et al. 2017; Van der Klis et al. 2017; Lu et al. 2018, among others). In this article, parallel text analysis involves aligning a text with its translation(s) for the purpose of illuminating and analyzing particular linguistic tools in the translation's language. In this way, crosslinguistic differences can be employed instrumentally: if the expression of a linguistic category is highly grammaticalized or otherwise conventionalized in one language, this feature can be used to illuminate its expression in a language in which the means to that end are diffuse or unclear.

One such crosslinguistic feature is the grammaticalization of aspectuality in Mandarin Chinese. Mandarin has a range of grammatical affixes that attach to a predicate, endowing its clause with a particular aspectual value. One of these is the suffix 着 *zhe*,² which in grammatical descriptions of Mandarin is widely dubbed the marker of 'durative aspect'. *Zhe* is highly suitable for the present method, as it is semantically light³ and frequent in Mandarin language use, as well as productive. Moreover, the aspectual domain expressed by *zhe* is well researched, and can be related to the existing body of work on Dutch aspectuality. As indicated above, the ANS account – which presents a finite and comprehensive model of aspectual conceptualization in Dutch – will serve this purpose.

The goal of this article is thus to contribute to the knowledge of aspectuality in Dutch by mapping out the expression of durative aspectuality in terms of Mandarin *zhe*. Its purpose is equally, however, to be a test case for parallel text analysis as characterized here. For that reason, I start out by discussing some theoretical considerations pertinent to the research method (section 2). Next, section 3 describes the concrete methodological procedure, which follows directly from the considerations in section 2. Then I present the parallel corpus and the results of its analysis (section 4), and discuss their implications (section 5).

2 Following the corpus material, I use simplified characters.

3 This is not to say *zhe* has only *one* meaning; *zhe* is at the very least polysemous, the methodological implications of which will be discussed in section 3.3.

2 Parallel text analysis

Parallel text analysis involves systematically comparing an original text and its translation(s), aligned sentence-by-sentence, for the purpose of analyzing a (set of) linguistic tool(s) in the language of the translation (Lu & Verhagen 2016). In this definition, it is a heuristic, meaning that it points the researcher towards elements in the target language ‘that would otherwise easily remain below the level of conscious awareness’ (Lu & Verhagen 2016: 12). In this section, I explore four descriptive, methodological, and theoretical assumptions and considerations, aiming to further position and refine the research method, and to directly motivate the method’s design. First, I discuss the position of the method in the current field; then I discuss the issues of sensibility, crosslinguistic heterogeneity, and text type. The methodological consequences that follow from this discussion are laid out in section 3.

2.1 Position in the field

This method differs considerably from more conventional comparative research on Dutch aspectuality (e.g. Krause 1997; Boogaart 1999; Hanegreefs 2004; Lemmens & Slobin 2008; Mortier 2008; Behrens et al. 2013; Geleyn & Coleman 2014; Breed et al. 2017). What these studies have in common, is that they start from the assumption that some conceptual content is expressed by a presupposed (set of) construction(s) in each language, which are subsequently compared. In the present analysis, expressional means are assumed for only one of the languages; for the other, either no assumptions are made, or explicitly non-exhaustively. Put differently, there exists a strict division of labor between the two languages, of which the former can be called *source language* – or perhaps more fittingly, *instrument language* – and the latter *target language* (König 2012).

In addition to the comparative research mentioned above and the method under discussion here, there have also been studies employing ‘parallel texts’ that do not apply this labor division (e.g. Verkerk 2014; Beekhuizen et al. 2017; Van der Klis et al. 2017; Van der Klis 2019). Instead, they work independently of one specific language, defining conceptual content in terms of the expressional means of all languages involved, e.g. English *since*, Dutch *sinds*, and German *seit* in Van der Klis (2019). The goal of such research is not to construct a heuristic catered to one language, but to investigate the crosslinguistically varying ways of expressing a conceptual category. For example, Beekhuizen et al. (2017) and Van der Klis et al. (2017) employ parallel texts to examine variation in the expression of pronominal and perfective

functions, respectively, visualizing their findings by means of a ‘semantic map’. Van der Klis et al. (2017) coin the term ‘translation mining’ for this method.

These parallel analyses thus differ from the present one in at least three ways: in that conceptual content is defined in terms of linguistic elements *across* languages instead of (an) element(s) *within* one language; in that their goal is not heuristic; and in that analysis is not a ‘one-way street’. However, the question is how fundamental these differences are: a one-way, heuristic parallel study could conceivably be expanded by adding languages as well as directions of analysis. The focus then shifts from mapping out expressional means in one language through one linguistic definition of a conceptual category, to mapping out the conceptual category itself through many of its linguistic manifestations. When enough languages have been compared, the strict instrument-target division of labor might be dropped, but I would argue that this division is pivotal in the initial stages of building any parallel analysis.

While these types of parallel analysis and the present one can be related in this way, the differences in aim and procedure are significant enough to distinguish them terminologically. I propose the distinction *conceptual parallel analysis* versus *heuristic parallel analysis* – both, in turn, subtypes of *translation mining* (Van der Klis et al. 2017). In these terms, this study investigates Dutch durativity by means of a heuristic parallel analysis.

2.2 Sensibility and scale

The present method’s central assumption pertains to the descriptive status of the parallel texts’ writer(s) and translator(s). They are taken to be ‘sensible text producers’ (Lu & Verhagen 2016: 1), meaning that their linguistic output is representative of and generalizable to both instrument and target language. The presupposed meaning of a linguistic unit in the instrument language will thus be expressed sensibly by the translator(s) with the linguistic tools at their disposal in the target language, as both pursue successful communication.⁴ As such, it is a powerful heuristic, not only pointing

4 As one reviewer rightly remarks, translated and non-translated discourse have been shown to differ both structurally and semantically (cf. Vandevoorde et al. 2016). In other words, text producers producing a non-translated text and text producers producing a translated text do not make use of the same set of linguistic tools in the same way. While it is certainly good to be aware of this, I would argue that this property is quite compatible with a *heuristic* parallel analysis, since its outcomes are hypothetical and thus as a rule have yet to be explored in a larger, more varied collection of non-translated language (cf. also the discussion in section 5).

to relevant parts of the linguistic inventory, but also yielding a wealth of attested material to base further claims on.⁵

However, even under the sensibility assumption, it seems unsatisfactory to base an analysis on the output of a single author-translator pair. Involving different text producers provides the analysis with a more convincing empirical foundation, counterbalancing potential idiosyncracies in the language output of an author or translator. I see two ways to go about this. The first is taking one source work, and putting it alongside multiple translations by different translators, for which Cysouw & Wälchli (2007) coin the term *massively parallel text*; Lu et al. (2018) dub this a *multi-parallel-text approach*. Tabakowska (2014) and Lu & Verhagen (2016) work at this scale with Lewis Carroll's *Alice's Adventures in Wonderland*. A practical drawback to this approach is the plain fact that not many texts are translated more than once, especially not to smaller languages. Therefore, while having several alternative translations available certainly adds analytical depth, I would suggest that the *massive* or *multi* approach is not feasible for many languages.

A viable alternative is turning to a parallel corpus, consisting of multiple source texts and their translations, ideally by different authors and translators (Dahl 2007; Barlow 2008). The largest parallel corpus containing Mandarin and Dutch aligned material is OPUS,⁶ which draws upon a variety of sources, e.g. user-provided subtitles (Tiedemann 2016). Its size is certainly impressive: the OpenSubtitles2018 subcorpus alone contains roughly 57 million Mandarin-Dutch tokens. The automated compilation process brings with it its own problems, however, such as imprecise alignment, amateur translation, and uncertainty about linguistic sources.

Furthermore, working at this kind of scale is not always realistic – depending on the conceptual content under investigation. In the present case, assessing how something as abstract and subtle as ‘durative aspectuality’ is expressed in a given sentence cannot be delegated to a computer. Yet, a researcher cannot assess millions or even thousands of tokens within any reasonable timeframe. It is therefore not necessarily beneficial to work

5 The sensibility assumption constitutes a general rule with exceptions, like avant-garde literature playing with language in unconventional ways, e.g. *Finnegans Wake* by James Joyce. Although a Dutch translation of this particular example exists, the findings of its parallel analysis would be ungeneralizable. The striking subversivism of such works only serves to highlight the conventionality (i.e. suitability) of texts in general.

6 Accessible at <<http://opus.nlpl.eu/>>.

with a large parallel corpus in studies like this one; a smaller corpus can then suffice.

2.3 Crosslinguistic heterogeneity

A complicating theoretical factor pointed out by Verhagen (2012) concerns the observation that linguistic inventories differ crosslinguistically; Mandarin *zhe* is a prime example of this, lacking any equivalent ‘tool’ in Dutch. The corollary is that linguistic expression might differ crosslinguistically, due to the varying construals inherent to the items in heterogeneous linguistic inventories (Verhagen 2012: 5).

In a general sense, this entails that the conceptual content captured by a heuristic element in the instrument language need not be expressed overtly in the target language. For this study specifically, it means that Mandarin durative suffixation need not be construed ‘duratively’ in a Dutch translation. Consequently, it must be considered an option that the *zhe*’s conceptual content is not marked explicitly in the Dutch text by linguistic means, in which case the Dutch reader might infer the durativity from context – or not at all. Still, the possibility that durativity is linguistically unmarked in some cases does not preclude it being overtly expressed in others.

2.4 Text type

Finally, the nature of the research object itself deserves some consideration. The main question here is what the implications are of employing a given text type. Selecting a type for parallel analysis is constrained by practical matters: many are not translated by human translators.⁷ Consequently, much parallel research has focused on narrative texts, e.g. the New Testament (Wälchli & Von Waldenfels 2013) and *Alice’s Adventures in Wonderland* (Tabakowska 2014; Verkerk 2014; Lu & Verhagen 2016), but also corpora comprising various different narrative texts (Simon-Vandenberghe & Aijmer 2007; Mortier & Degand 2009). Focusing on narrative texts allows for assembling an adequately sized and varied corpus, with clear linguistic origins.⁸

7 A solution could be hiring translators to translate texts belonging to different, generally untranslated, discourse modes. Theoretically, this method is closer to elicitation than drawing on existing texts, but this need not be a problem if the translators are not informed about the purpose. It might be an interesting avenue for future research.

8 Narrative texts are not the only practically feasible source material. The OPUS subtitle subcorpora promise to be good candidates, provided their linguistic origins are clear. Subtitles would make for a good addition to written narrative material, as direct conversations

A prominent feature of narrative texts is the inclusion of both a narrator's voice and that of the story's characters – in narratological terms: *primary* and *embedded text* (Bal 2014). These levels differ linguistically, as the narrator relates tense and aspect to the narrative sequence, and actors to the narrative world. To prevent this variance from complicating the results, an analysis should take place at only one narrative level.

3 Methodology

Having discussed several pertinent descriptive, methodological, and theoretical issues, this section describes the heuristic parallel method as applied in this study. First, the methodological consequences following from the discussion in section 2 are presented (section 3.1). Then the theoretical benchmark (the ANS-model) and the heuristic element (Mandarin *zhe*) are characterized for the purpose of their methodological application (sections 3.2 and 3.3). Combining the methodological decisions from these sections, section 3.4 presents the corpus compilation and labeling procedures that produce the empirical ground for the analysis in section 4.

3.1 Methodological consequences

From the discussion in section 2, I derive seven methodological consequences. First, following from the method's heuristic nature, the conceptual content – i.e. 'durative aspect' – is defined exclusively and explicitly in terms of Mandarin *zhe*, and as such projected onto Dutch. Second, since linguistic inventories differ crosslinguistically, this way of defining conceptual content does not necessarily imply that it is marked overtly in the Dutch translation. This theoretical insight is operationalized in the labeling procedure through a label 'unmarked'. Third, motivated by the discussion of scale, a small parallel corpus of narrative Mandarin and Dutch is selected as the research object. Since to my knowledge this does not yet exist, a corpus is compiled consisting of 500 sentences containing *zhe* aligned with Dutch translations, drawing on five novels (100 items per novel-translation pair). Fourth, the selected pairs are by different authors and translators, to mitigate potential idiosyncrasies. The fifth consequence is that of this

are much more prominent in this genre, although they are usually highly scripted (but not exclusively, e.g. improvisational series like Larry David's *Curb Your Enthusiasm*). Subtitles do have their own drawbacks, e.g. the constraints of limited screen space and time.

material, only the primary text is used, as the aspectual properties of primary and embedded text diverge. Sixth, the complexity of the analytical task following from the crosslinguistic heterogeneity of linguistic inventories, in my view requires not only a quantitative, but also a qualitative component. Quantitatively, a heuristic parallel corpus analysis provides an overview of the distribution of expressional categories for the investigated conceptual content. What these categories mean should then be explained qualitatively. Additionally, I would argue that the type of linguistic reflection entailed by a qualitative component is a worthwhile linguistic enterprise in and of itself. The concrete procedure for these analytic components is presented in section 3.4.

Last, the heuristic purpose of a parallel study implies that the expressional categories for the conceptual content in the target language cannot be given *a priori*: which categories will be relevant, at what level of abstraction they operate, and how they relate to each other, should in some way follow from the quantitative analysis, not vice versa. At the same time, some basic assumptions about the target language structure are useful as a starting point. Since the ANS is used as a theoretical benchmark for aspectual distinctions (cf. section 3.3), I also employ its division of Dutch sentence parts into five constituents as a basic categorizational template: the nominal, adjectival, adverbial, prepositional and verbal constituent (Haeseryn et al. 1997: 791). These function as a basic feature, serving as a springboard for more specific labels.

Such labels – and ultimately a final list of expressional categories – can only be arrived at through the researcher's interaction with the corpus material. That is, only after the researcher has processed a good chunk of it, can they recognize the patterns that warrant (sub)categories. At that point, they may return to the processed material and recategorize. An adequate system is thus established through a 'back-and-forth' process: from a basic categorizational template to the material, back to the categories, on with the material, et cetera.

This back-and-forth procedure, along with the division into quantitative and qualitative components, in my view forms the backbone of this methodology. These two dimensions also reinforce each other: an adequate (not *a priori* established) quantitative overview follows from an adequate back-and-forth procedure, while the qualitative analysis documents and underpins this procedure by making explicit what each of the categories mean. The procedure is applied more concretely to this study in section 3.4. Before that, two crucial parts of the methodology are discussed: the theoretical benchmark, and the heuristic element.

3.2 Theoretical benchmark: ANS-model

Including an aspectual model of Dutch as a benchmark facilitates applying the findings of the heuristic parallel analysis to Dutch. The ANS (Haeseryn et al. 1997) is a good candidate because it presents a comprehensive and finite system of aspectual distinctions. This allows for a clear comparison with the results, and has an additional advantage: the model points out exactly which sentences are expected to carry what aspectual value.⁹

The ANS aspectual model is based on the assumption that the interpretation of aspectuality is compositional, i.e. a lexical-semantic approach (Verkuyl 1993). From the relevant sections (Haeseryn et al. 1997: 1662-1677), a set of four binary properties can be distilled, which cumulatively determine the aspectuality of a Dutch sentence to be either *durative* or *terminative*. These terms are defined based on the concept of *temporal delimitation*, referring to ‘whether a situation has an inherent endpoint that must be reached for this situation to be what it is assumed to be’ (Haeseryn et al. 1997: 1662; my translation). If so, a situation is terminative; if not, it is durative. According to the ANS, four properties determine a sentence’s temporal delimitation. Table 1 presents the four properties and the binary options relevant to each.¹⁰

Table 1 Binary properties underlying the ANS-model

Property	Options	
	+	–
1 Dynamicity ¹¹	Dynamic verb	Static verb
2 Quantification ¹²	Both object and subject specified for quantity	Object <i>or</i> subject, or neither specified for quantity
3 Terminative modifier	Resultative complement, frequency or time span adjunct in the sentence	None in the sentence
4 Durative modifier	Time duration adjunct in the sentence	None in the sentence

9 As will be shown in section 4.1, a striking 30% of the parallel corpus sentences (durative in terms of *zhe*), are classified by the ANS as non-durative. This allows the corpus data to uncover processes of Dutch durativity not currently captured by the ANS.

10 Note that the ANS does not present its model in the form of tables 1 and 2; I have drawn it up in this format for ease of exposition and for relating it to the parallel analysis data.

11 *Dynamicity* is a notion going back to Vendler (1957); cf. Boogaart (2004) for an overview of dynamicity and related aspectual terminology.

12 Specified for quantity is to say whether the precise number of entities is stated. The sentence *Kailyn eet een olijf* ‘Kailyn is eating an olive’ has a quantitatively specified object (viz. *een olijf* ‘an olive’), whereas this constituent is quantitatively unspecified in *Kailyn eet olijven* ‘Kailyn is eating olives’.

The combination of these properties can be thought of as a computation yielding an outcome of either DURATIVE or TERMINATIVE. All relevant outcomes are listed in Table 2. The computations with *both* a terminative and a durative modifier are not included, since such modifiers are incompatible.¹³

Table 2 Overview of ANS computation outcomes

	1	2	3	4	Outcome	1	2	3	4	Outcome	1	2	3	4	Outcome
Binary values	–	–	–	–	DURATIVE	+	–	–	+	DURATIVE	+	–	+	–	TERMINATIVE
	+	–	–	–	DURATIVE	–	+	–	+	DURATIVE	–	+	+	–	TERMINATIVE
	–	+	–	–	DURATIVE	+	+	–	+	DURATIVE	+	+	–	–	TERMINATIVE
	–	–	–	+	DURATIVE	–	–	+	–	TERMINATIVE	+	+	+	–	TERMINATIVE

The ANS-model presents a finite system characterizing Dutch aspectuality in terms of durativity and terminativity. It operates exclusively at a rather abstract level, however, describing only general clausal principles, potentially disregarding more specific constructions bearing aspectual value. This study is thus complementary to the ANS-model. Additionally, the model can be applied to the parallel data: labeling the data in terms of these properties reveals which corpus sentences are non-durative according to the ANS computation.

3.3 Heuristic element: Mandarin *zhe*

The Mandarin suffix *zhe* attaches to a clause’s main verb, endowing its clause with the aspectual value of ‘durative aspect’ (Henne et al. 1977: 125; Li & Thompson 1981: 185; Dai 1997: 80; Xiao & McEnery 2004: 182; Wieden- hof 2015: 201). Sentences (3)–(4), from the parallel corpus, illustrate the use of *zhe*; (a) is the original Dutch literary translation, (b) my translation of the Dutch sentence to English. For reference purposes, the corpus code is in- cluded to the right of each original sentence.¹⁴

- (3) 街上刮着强劲的风, [B004]
- jie-shang *gua-zhe* qiangjing de feng

street-on blow-DUR strong SUB wind

13 A more elaborate discussion of the concepts underlying the ANS-model can be found in Bogaards (2017: 5–15).

14 The abbreviations used in the glosses stand for the following: 1SG=first person singular personal pronoun (pp); 1PL=first person plural pp; 3SG=third person singular pp; CLF=classifier; DUR=durative aspect; EXP=experiential aspect; PRX=proximal demonstrative pronoun; RES=resultative; SUB=subordinator.

- (a) 'Op straat **woei** een forse wind.'
- (b) 'A heavy wind **was blowing** in the street.'
- (4) 疯骡把王胆咬伤后，我们都期待着再看一场好戏，[E002]
feng luo ba Wang dan yaoshang hou, women dou qidai-zhe zai kan
 mad donkey take Wang gall bite after 1PL all expect-DUR again see
yi-chang hao xi
 a-CLF good show
- (a) 'Toen de krankzinnige muilezel Galblaas beet, **verwachtten** we alle-
 maal weer zo'n schouwspel.'
- (b) 'We **were** all **expecting** another spectacle after the mad donkey had
 bitten him.'

Durative aspectuality in terms of *zhe* can be defined as follows: it indicates the duration of a situation, only focusing on its medial part, not its temporal boundaries (Xiao & McEnery 2004: 187; 197).¹⁵ Sentences (3)-(4) illustrate this: it is unclear and irrelevant when the *blowing* and *expecting* will terminate. This definition matches durativity in terms of the ANS, in that the situation is not temporally delimited.

It is important to discern one additional function of *zhe*: resultativity. This function is subsumed by durativity, corresponding to the above definition. It is, however, more specific: in some cases, *zhe* refers to the state that is the result of completing the event expressed by a dynamic predicate (Li & Thompson 1981: 220). It thus produces a state, not an activity, and that state is construed as resulting from a preceding event.

The methodological consequence is that durativity in terms of *zhe* can be equated to durativity in terms of the ANS on a general level; comparing the expressional means yielded by the parallel analysis with the ANS-model is therefore a meaningful exercise. Resultativity, however, is not a part of the ANS definition. For that reason, *zhe*'s 'resultant state' dimension will be treated as a separate relevant notion throughout the qualitative analysis.

¹⁵ As noted previously, *zhe* is polysemous: in addition to the basic definition provided here, a 'backgrounding' function can be distinguished, where *zhe* signifies that one action is backgrounded to another. This function is limited to the use of *zhe* in a specific construction: the 'V₁-*zhe* V₂'-structure (Xiao & McEnery 2004: 182-183). This specific structure is excluded from the corpus, because it functions differently than *zhe*'s durativity in a general sense. Homographs and lexicalizations were also excluded, cf. Bogaards (2017: 21).

3.4 Corpus compilation and labeling procedure

A parallel corpus was assembled containing the first 100 relevant instances of *zhe* in five Chinese novels and their Dutch translations, all by different authors and translators.¹⁶ Table 3 presents the five novels that the corpus draws on.

Table 3 Parallel corpus material

#	Original	Author	Year	Translation	Translator(s)	Year
A	绿化树 <i>Lǜhua shù</i>	张贤亮 X.L. Zhang	1983	<i>Eethuisje Amerika</i>	Rint Sybesma	1990
B	玩儿的就是心跳 <i>Wánr de jiùshì xiàntiào</i>	王朔 Wang Shuo	1989	<i>Spannend spel</i>	Jan Willem van Bragt & Yuhong Gong	1997
C	我的禅 <i>Wǒ de chán</i>	卫慧 Wei Hui	2004	<i>Trouwen met Boeddha</i>	Jan De Meyer & Iege Vanwalle	2005
D	玉米 <i>Yùmi</i>	毕飞宇 Bì Fēiyǔ	2008	<i>Drie zussen</i>	Yves Menheere	2013
E	蛙 <i>Wā</i>	莫言 Mò Yán	2009	<i>Kikkers</i>	Silvia Marijnissen	2012

Applying the back-and-forth procedure proposed in section 3.1, a labeling system was constructed in interaction with the corpus material, in terms of which the 500 Dutch parallel sentences were labeled. The labeling procedure was preceded by locating *zhe*'s durativity in a (set of) linguistic element(s) in the translation. Then, the locus of durativity in the Dutch sentence was assessed in terms of the labeling system.

Table 4 shows the four features that constitute the labeling system. The first feature, 'translatedness', constitutes an assessment of whether a translation is close enough to the original's structure to consider it a 'translation' usable for a parallel analysis. This feature comes first, because the remaining features do not apply to an 'untranslated' sentence (corresponding to a label *n/a* for the remaining features in Table 4). Sentence (5) exemplifies 'untranslatedness': note how strongly the translator's output in (a) diverges from the glosses.

- (5) 玉米其实也没有拉着，只是仰在那儿，或者说，被彭国梁拽在那儿。 [D086]

Yùmi qíshí yě méiyǒu la-zhe, zhìshì yáng zài nàr, huózhe shuō Pēng

Yumi actually also not.have pull-DUR only face at there or say Peng

¹⁶ The corpus is accessible at <http://www.maartenbogaards.nl/resources/bogaards_2018_500zhecorpus.xlsx>. The codes – e.g. [D086] for (5) – correspond to the sheets (A-E) and rows (1-100) in the corpus file.

- Guoliang ye zai nar*
 Guoliang also at there
- (a) ‘Eigenlijk had Yumi haar hand alleen maar uitgestoken, en had Peng Guoliang hem vastgegrepen.’
- (b) ‘In fact, Yumi had only held out her hand, and Peng Guoliang had grabbed it.’

The constituent feature – which as indicated in section 3.1 functions here as a categorizational template – has a similarly constraining effect: if the linguistic material is not located in the verbal constituent, it cannot have tense (likewise corresponding to a label *n/a*).¹⁷ Finally, schematicity indicates whether a more or less schematic (string of) linguistic element(s) can be identified in which *zhe*’s durativity is located – i.e. a construction, in terms of Construction Grammar. If not, the expression is considered ‘unmarked’.

Table 4 Mapping labeling system

1. Translatedness	2. Constituent	3. Tense ¹⁸	4. Schematicity
a. Translated	a. Verbal	a. Simple	a. Unmarked
			b. [POS _{loc}]
			c. [POS _{cop}]
			d. [POS+INF]
			e. [POS+PPT]
			f. [COP+PPT]
			g. [<i>blijven</i> +INF]
			h. [<i>beginnen</i> +INF]
			i. [<i>aan het</i> INF <i>zijn</i>]
		b. Compound	j. [AUX+PPT]
b. Untranslated	b. Nominal	n/a	n/a
	c. Adverbial		
	d. Adjectival		
	e. Prepositional		
	n/a		

17 Due to their low frequency (cf. section 4.1), instances outside the verbal constituent are not explored further in this study; for that reason, features 2b–2e also automatically get a label *n/a* for the schematicity feature. See Bogaards (2017: 31–38) for a more extensive treatment of these categories.

18 To avoid terminological overlap, the Dutch tense categories *onvoltooid* ‘imperfect’ and *voltooid* ‘perfect’ are referred to by the respective formal terms *simple* (preterite) and *compound* (with temporal auxiliary).

Although plenty of example sentences will be discussed during the qualitative analysis (section 4.2), some examples are necessary now to get an adequate impression of what the schematicity categories in Table 4 mean. Table 5 provides an explanation of the abbreviations, and an example sentence for each relevant feature. In each example, the (string of) linguistic element(s) designated as the locus of the Dutch durativity, is in bold.

Table 5 Explanatory examples for categories in Table 4

#	Category		Example
4a	Unmarked		<i>Hij droeg een bijna nieuw zwart katoenen, gewatteerd pak.</i> [A004] ‘He was wearing an almost new black cotton, quilted suit.’
4b	[POS _{loc}]	locative posture verb	<i>Op iedere korrel zat een kafnaald [...].</i> [D097] ‘On every grain was [sat] an awn [...].’
4c	[POS _{cop}]	copulative posture verb	<i>De deuren van de andere kantoren zaten op slot [...].</i> [B027] ‘The doors to the other offices were [sat] locked [...].’
4d	[POS+INF]	posture verb + infinitive	<i>[...] terwijl een grote schuurlamp ernaast stond te branden.</i> [D089] ‘[...] while a large lantern was [stood] burning beside them.’
4e	[POS+PPT]	posture verb + past participle	<i>Bij alle families in onze noordoosthoek lagen ze opgestapeld op de binnenplaats [...].</i> [E066] ‘At all families in our corner of the North East, they were [lay] stacked in the courtyard.’
4f	[COP+PPT] ¹⁹	copula + past participle	<i>[...] dankzij Muju was ik vervuld van emoties en gevoelens die ik nooit eerder had gekend.</i> [C081] ‘[...] thanks to Muju I was filled with emotions and feelings I had never known before.’
4g	[blijven+INF]		<i>[...] ik bleef maar doortobben over de manier waarop ik mijn kaarten beter had kunnen spelen.</i> [B094] ‘[...] I just kept brooding over ways in which I could have played my cards better.’
4h	[beginnen+INF]		<i>Ze nam de aardappel lachend aan en begon hem met haar klunzige handjes te pellen.</i> [A095] <i>With a smile on her face, she took the potato, and started peeling it with her clumsy little hands.</i>
4i	[aan het INF zijn]		<i>Een paar vrouwen waren, klaar met schelden, naast de mesthoop in alle ernst recepten aan het uitwisselen.</i> [A047] <i>A few women, done calling names, were very earnestly trading recipes next to the dungheap.</i>
4j	[AUX+PPT]	temporal auxiliary + past participle	<i>Op de boeg, die ooit wit moest zijn geweest, waren grofweg met de hand enkele zwarte karakters geschilderd.</i> [C019] <i>On the bow, that had to have been white at some point, several black characters were painted crudely by hand.</i>

19 For the purposes of annotating the corpus data, it was assumed that all instances of [V+PPT] could be characterized as *either* [AUX+PPT] or [COP+PPT] using syntactic tests (Broekhuis et al. 2015: 987–988). In general, though, past participles are sometimes ambiguous or vague with regard to the salience of a processual (AUX) or resultative (COP) interpretation, as Coussé (2011) points out. I return to this point in section 4.2.3.

As stated in section 3.2, the corpus data were also related to the theoretical benchmark: the ANS-model. Instances in the verbal constituent were characterized in terms of the binary properties in Table 2, yielding an outcome DURATIVE or TERMINATIVE for each item. This makes it possible to track down ‘violations’ of the ANS computation, i.e. items that would be expected to be terminative in terms of the ANS, yet are durative in terms of *zhe*. In this way, potentially relevant phenomena are highlighted, which moreover are not yet captured by the ANS-model.

The quantitative and qualitative analyses presented in the next section therefore each consist of two distinct characterizations: the labeling system in Table 4, which serves the method’s heuristic purpose of mapping out relevant expressional categories; and the ANS computation in Table 2, which contextualizes these categories in terms of the selected benchmark.

4 Results

This section is divided into two parts: first, a quantitative overview of the expressional categories is presented, in terms of both the presently constructed labeling system and the properties in the ANS-model; then the results are analyzed qualitatively.

4.1 Quantitative overview

Table 6 shows the distribution of features according to the labeling system in Table 4, displaying absolute (*f*) and relative frequency (%).

As Table 6 shows, most corpus sentences were assessed as ‘translated’ (96.2%) and located in the verbal constituent (91.4%). Of the latter, the majority has simple tense (85.4%) and is not marked explicitly for durativity (70.8%). Regarding schematicity, for 25.4%, a construction has been identified that contributes to the Dutch sentence’s durativity. These include posture (POS) constructions (14.2%); the use of a past participle (PPT) with a temporal auxiliary (AUX) – i.e. compound tense – or with a copula (COP) (8.2%); and other auxiliary constructions, totaling 3%.

Table 7 shows the aspectuality of the corpus sentences according to the ANS, as operationalized in Table 2. This yields an outcome TERMINATIVE or DURATIVE for every sentence, except for the ones untranslated and not in the verbal constituent (n/a). Note that for constructions with an AUX or POS, the ANS-model’s properties was applied to the main verb (i.e. the PPT or INF), as the AUX or POS was added by the translator.

Table 6 Distribution of expressional categories

1. Translatedness			2. Constituent			3. Tense			4. Schematicity		
Label	f	%	Label	f	%	Label	f	%	Label	f	%
Transl.	481	96.2%	Verb	457	91.4%	Simp.	427	85.4%	Unmarked	354	70.8%
									[pos _{loc}]	37	7.4%
									[pos _{cop}]	8	1.6%
									[pos+INF]	15	3%
									[pos+PPT]	11	2.2%
									[cop+PPT]	11	2.2%
									[blijven+INF]	9	1.8%
									[beginnen+INF]	4	0.8%
									[aan het INF zijn]	2	0.4%
						Comp.	30	6%	[AUX+PPT]	30	6%
Untransl.	19	3.8%	Nom.	0	0%	n/a	43	8.6%	n/a	43	8.6%
			Adv.	10	2%						
			Adj.	2	0.4%						
			Prep.	12	2.4%						
			n/a	19	3.8%						

Table 7 Distribution of aspectuality according to the ANS

Outcome	<i>f</i>	%
DURATIVE	308	61.6%
TERMINATIVE	149	29.8%
n/a	43	8.6%

Strikingly, nearly 30% of the corpus sentences are classified as **TERMINATIVE** by the ANS. Quantitatively, it is useful to check which expressional categories from feature set 1 correlate with terminativity. To this end, Table 8 shows the distribution of categories within the set of **TERMINATIVE** outcomes.

Table 8 Expressional categories for ANS terminative outcomes

Label	<i>f</i>	% of total TERMINATIVE outcomes
Unmarked	114	76.5%
[AUX+PPT]	19	12.8%
[<i>blijven</i> +INF]	6	4%
[POS+PPT]	4	2.7%
[<i>beginnen</i> +INF]	3	2%
[POS+INF]	3	2%

The majority (76.5%) of **TERMINATIVE** corpus sentences concerns an otherwise unmarked verb form that would be expected to be durative in terms of *zhe*. To account for this discrepancy, several explanations will be put forward in section 4.2.5.

4.2 Qualitative analysis

Having mapped out Dutch durativity in terms of *zhe* quantitatively in Table 6, this section serves to further clarify what the schematicity labels mean, establish how they relate to each other, and argue that this categorization follows from the empirical evidence. This section is subdivided into the means of expression listed under schematicity: unmarked instances; posture constructions; compound and copulative constructions; and other auxiliary constructions. The unmarked ANS ‘violations’ are discussed last. In each case, a representative selection of corpus sentences illustrates the category.

4.2.1 Unmarked instances

The majority of the corpus sentences (70.8%) were assessed not to be marked explicitly for durativity. Sentences (3)-(4), put forward in section 3.3

to illustrate *zhe*, are examples. Notably, unlike (3)-(4), not all unmarked translations of *zhe* will be understood as (unambiguously) durative by a Dutch reader, as (6)-(7) illustrate.

- (6) 一个纠察队员，用一只脚踩着她的背。 [Eo99]

yi-ge jiucha duiyuan, yong yi-zhi jiao cai-zhe ta de bei
one-CLF order member use one-CLF foot step.on-DUR 3SG SUB back

- (a) 'Een ordehandhaver **zette** één voet boven op haar rug.'

- (b) 'A steward **put** one foot on her back.'

- (7) 我躺在沙发上，看着从哥大东亚系图书馆借来的张爱玲在美国的晚年传记。 [Co49]

wo tang zai shafa shang, kan-zhe cong Geda Dongya
1SG lie.down at sofa on look-DUR from Columbia.University East.Asia
xi tushuguan jie lai de Zhang Ailing zai Meiguo de
department library borrow come SUB Zhang Ailing at USA SUB
wannian zhuanji
later.years biography

- (a) 'Ik lag op de sofa en **las** de biografie van Eileen Zhang over haar jaren in Amerika. Ik had het boek geleend uit de Oost-Aziatische bibliotheek van Columbia University.'

- (b) 'I was lying on the sofa, and **was reading/read** Eileen Zhang's biography on her years in America. I had borrowed the book from Columbia University's East-Asian library.'

In (6), the Mandarin verb and *zhe* – *cai* 'step on' – emphasize the state resulting from the *stepping*, i.e. the foot being on the back. However, the Dutch unmarked translation is clearly terminative, also according to the ANS computation. (7) is an especially interesting case because it is aspectually ambiguous: a Dutch reader can understand this sentence as conveying either that the subject *was reading* the biography (i.e. durative), or *read* it in its entirety (i.e. terminative) (cf. fn.2). If relevant, the reader might construe the aspectuality based on other factors, e.g. context cues. To a Mandarin reader of the original, on the other hand, *zhe* makes it unambiguously clear that the former holds: the reader has not finished the biography.

Consequently, unmarked predicates are a part of both the Dutch terminative *and* durative domain. This is represented schematically in Figure 1.

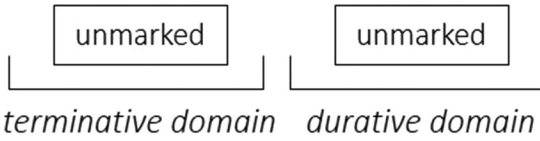


Figure 1 Hypothesized expressional means shaping the Dutch durative domain (step 1/5)

This figure will be updated with the constructions discussed in the following sections (figures 2-5).

Figures 1-5 will provide a visualization of the core building blocks of the Dutch durative domain and its boundaries with other relevant aspectual domains, as mapped out by the parallel analysis. In these figures, I will take the relevant building blocks – e.g. the category ‘unmarked’ in this section, and various posture constructions in the next – and relate them to the type of aspectuality they express and to each other. By highlighting formal similarities (e.g. the shared POS in posture constructions) and clarifying relative aspectual positions (e.g. AUX in a resultative, and COP in a non-resultative domain; cf. section 4.2.3), these figures serve to give a visual overview of the ‘mapping out’ that is the goal of this study. It is important to note that figures 1-5 are not a formalized representation of the *exact* theoretical relationships between aspectual categories (cf. fn.23), but only a schematic aid to ‘keep track’ of the mapping out in each following subsection.

4.2.2 Posture constructions

Posture verbs (POS) indicate pose and position; in Dutch, these are *zitten* ‘to sit’, *staan* ‘to stand’, *liggen* ‘to lie’ and *hangen* ‘to hang’.²⁰ These verbs are used beyond their postural meaning in Dutch. Such use – represented here as [POS+INF] and [POS+PPT] – occurs quite frequently in the parallel corpus (6.8%). [POS+INF] is a well-known pattern called the posture progressive (Boogaart 1991; Lemmens 2015). Since this category is well-described, I will not go into it here.

A formally similar, but aspectually distinct construction attested in the corpus is [POS+PPT]. As with [POS+INF], the finite verb is a posture verb, but in this case, the accompanying verb is a past participle instead of an infinitive. (8)-(9) are examples:

20 *Zitten*, *staan* and *liggen* were attested in all POS-categories; *hangen* was attested only in [POS_{loc}] and [POS_{cop}].

- (8) 扔在案板上的笼屉布，沾着许多馍馍渣！[Ao23]
reng zai anban shang de longti bu, zhan-zhe xuduo momo
 throw.away at chopping.board on SUB steamer cloth touch-DUR a.lot bun
zha
 residue
- (a) 'Aan een achteloos op het hakbord gegooide broodjesstomerdoek **zaten** nog heel wat stukjes deeg **geplakt**!'
 (b) 'A lot of pieces of dough **were stuck** to a steaming cloth carelessly thrown onto the chopping board!'
- (9) 我既好奇又茫然以这些门里居然关着我过去的一段生活。[Bo68]
wo ji haoqi you mangran yi zhe-xie men-li juran guan-zhe
 1SG both curious and blankly with PRX-some door-in unexpectedly close-DUR
wo guoqu de yi-duan shenghuo
 1SG past SUB a-CLF life
- (a) 'Ergens, achter een van deze deuren, **lag** een periode van mijn leven **opgesloten**.'
 (b) 'Somewhere, behind one of these doors, a period of my life **was being held**.'

In (8)-(9), *zhe*'s resultative subfunction manifests itself. As discussed in section 3.3, *zhe* can express a state resulting from an earlier action, here *geplakt* 'stuck' from *zhan* 'to touch' and *opgesloten* 'held' from *guan* 'to close'. In the translations, the results are expressed by a past participle, expressing simultaneously one action terminating and a resultant state being in effect: in (9) the *opsluiten* 'locking up' has terminated, while the state *opgesloten* 'locked up' is attributed duratively to the posture verb's subject. This attribution is brought about in the Dutch sentences by the posture verbs *zaten* 'sat' and *lagen* 'lay'.

[POS+PPT] and [POS+INF] differ with regard to this resultativity feature: [POS+INF] presents an activity as ongoing; [POS+PPT] does the same, but for states, which can be understood to have resulted from previous action. Cornelis & Verhagen (1995) already pointed out the stativity of the [POS+PPT]-schema, as well as its formal resemblance to the passive. Formally, [POS+PPT] resembles Dutch compound tense as well, which was also distinguished as a durative category, notated as [AUX+PPT]. Compound

tense is discussed more extensively in the following section, where it will also be compared to [POS+PPT].

In addition to the POS-strings with INF and PPT, the locative use of posture verbs – notated as [POS_{loc}] – was attested frequently in the corpus (7.4%). For that reason, the [POS_{loc}]-category is proposed to explicitly mark durativity. (10)-(11) illustrate:

- (10) 水面上结着厚冰, [E070]

shuimian shang jie-zhe hou bing
water.surface on congeal-DUR thick ice

- (a) ‘Er **lag** juist een dikke laag ijs op het water.’
(b) ‘A thick layer of ice **lay** on the water.’

- (11) 廊柱间绳上晾着各色衣 衫, [Bo87]

lang zhu jian sheng shang liang-zhe geshe yishan
porch pillar between rope on dry-DUR all.kinds clothes

- (a) ‘[...] aan de lijnen tussen de pilaren **hing** wasgoed in allerlei kleuren.’
(b) ‘Laundry in all kinds of colors **was hanging** on the washing lines between the pillars.’

Finally, the corpus has several instances (1.6%) of POS-verbs used on their own, but not locatively. Instead, they function to attribute a property, similarly to [POS+PPT], but without a past participle. In this sense they function like a copula, hence the proposed notation [POS_{cop}]. (12)-(13) are examples:

- (12) 我偷眼看到, 姑姑的口半张着, [E040]

wo touyan kan-dao, gugu de kou ban zhang-zhe
1SG steal.glance look-RES aunt SUB mouth half open.up-DUR

- (a) ‘Ik gluurde stiekem naar tante; haar mond **hing** half open [...]’
(b) ‘I took a furtive look at auntie; her mouth **hung** half open.’

- (13) 这三家店也在那里, 互相紧挨着。[Co83]

zhe san jia dian ye zai nali, huxiang jin ai-zhe
PRX three CLF store also at there mutual tight near-DUR

- (a) ‘[...] daar **lagen** ook die drie winkels **op een rijtje**.’
(b) ‘That was also where those three shops **were situated in a row**.’

In (12)-(13), a posture verb – *hing* ‘hung’, and *lagen* ‘lay’ – attributes a quality to the subject of the clause, much like a copula. These qualities are *halfopen* ‘half open’, and *op een rijtje* ‘in a row’. This attribution resembles [POS+PPT], except that (12)-(13) will be understood not as resultant states, but as states. Notably, this scope difference resembles the way [AUX+PPT] and [COP+PPT] interrelate (cf. section 4.2.3).

It must be noted that [POS_{cop}] – accounting for only 1.6% of the corpus – has a quantitatively weak underpinning. I see, however, three reasons for including it as an explicit durative marker: first, it belongs to a broader category of Dutch verbs that in its entirety is a prominent part of the corpus (14.2%), while categorizing it under locativity does not do it justice. Second, the copulative use of POS verbs has an unmistakably durative effect due to its stativity. Third, the juxtaposition of [POS+PPT] and [POS_{cop}] on the one hand, and [AUX+PPT] and [COP+PPT] on the other, will prove illuminating in mapping out the Dutch durative domain (as discussed in the following section).

In Figure 2, Figure 1’s schematic base has been expanded to include POS-constructions. The lines going to the more abstract form [POS] signify their shared formal property. The theoretical status of the resultative domain in relation to the durative and terminative domains will be refined in the following section.

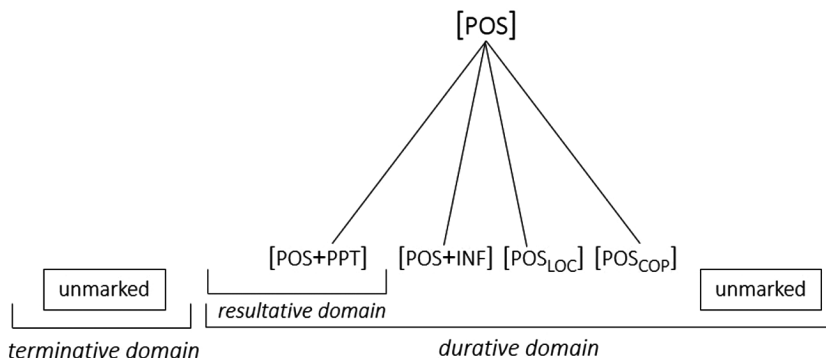


Figure 2 Hypothesized expressional means shaping the Dutch durative domain (step 2/5)

4.2.3 Compound and copulative constructions

6% of the translations consist of a verb in compound tense, i.e. a temporal auxiliary *hebben* or *zijn* and a past participle, notated here as [AUX+PPT]. Although compound tense typically ‘conceives of an action as already

having taken place, as completed' (Haeseryn et al. 1997: 121; my translation), the state resulting from completing that action can also be within its scope: another manifestation of *zhe*'s resultativity, similar to [POS+PPT]. Contrary to its POS counterpart, though, the corpus suggests that understanding resultativity from [AUX+PPT] is a gradual matter in Dutch: some sentences with compound tense invite a Dutch reader to focus on a resultant state (durative), whereas others stress the action as such (terminative). (14)-(16) illustrate this claim, ranging from most terminative to most resultative (durative).

- (14) 集上有二三十个老农民摆着摊子, [Ao66]

ji-shang you ersanshi-ge lao nongmin bai-zhe tanzi
market-on have twenty.to.thirty-CLF old farmer arrange-DUR booth

- (a) 'Op de markt **hadden** zo'n twintig à dertig oude boeren hun waar **uitgestald**.'
- (b) 'At the market, about twenty to thirty old farmers **had put** their wares on **display**.'

- (15) 从我们村通往卫生院公路两侧, 栽种着一排排桑树, [Eo56]

cong women cun tongwang weishengyuan gonglu liangce, zaizhong-zhe
from 1PL village lead.to health.center road two.sides plant-DUR
yi-papai sangshu
a-CLF mulberry.tree

- (a) 'Tussen ons dorp en het gezondheidscentrum **waren** langs beide kanten van de openbare weg rijen moerbeibomen **aangeplant**, [...].'
- (b) 'Between our village and the health center, rows of mulberry trees **were planted** on both sides of the public road.'

- (16) 窗子上刻着剔透的花鸟大草, [Bo10]

chuangzi-shang ke-zhe titou huaniaodacao
window-on carve-DUR transparent painting.of.flora.and.fauna

- (a) 'In de ramen **waren** natuurvoorstellingen **uitgesneden**.'
- (b) 'Scenes of nature **were carved** into the windows.'

(14)-(16) are all instances of a temporal auxiliary and a past participle, but differ in their focus on action or result. The predicate of (14) expresses that the internal endpoint of *uitstallen* 'putting on display' has been reached. However, in its wider context, the state resulting from this is relevant, as marked explicitly in Mandarin. Similarly to (14), but less so, (15) has the event within its scope: the action of *aanplanten* 'planting' is understood

terminatively. Simultaneously, though, the state resulting from this action – rows of mulberry trees lining the roadsides – is inferred from (15).

In (16), then, the focus has shifted from terminativity to resultant stativity: just like in (14)-(15), the completed action – *uitsnijden* ‘carving’ – is within scope, but takes a back seat to the resultant state: *being carved*. Contrary to (14), which has clearer terminative aspectuality, (16) predominantly expresses resultativity, i.e. has durative aspectuality. The [AUX+PPT]-category is thus complex with regard to its aspectual value: its interpretation is on a sliding scale, ranging gradually from terminativity to durativity through shift from processual to resultative focus. Coussé (2011: 630) has similarly argued for a ‘continuum representation of ambiguous past participles’.²¹

The formally nearly identical category [COP+PPT] – the copula *zijn* having the same form as the temporal auxiliary – differs from [AUX+PPT], besides its syntactic (re)interpretation, in one important aspectual respect: the state expressed by the PPT attributed to a subject by COP, has no processual focus; it just expresses a (resultant) state. (17) is an example.

(17) 每间高大的房间里都住着人家, [Bo86]

mei jian gao da de fangjian-li dou zhu-zhe renjia
 each CLF tall large SUB room-in all live-DUR household

(a) ‘Alle ruime, hoge kamers **waren** bewoond, [...]’

(b) ‘All the spacious, tall rooms **were** occupied.’

These categories can be related to the POS-constructions discussed in the previous section – [POS+PPT] and [POS_{cop}] – in two ways. First, the question is how the resultativity of [POS+PPT] relates to the graduality of [AUX+PPT]. My suggestion is that [POS+PPT] is situated at the far resultative end of the terminative-resultative continuum, marking for resultative focus.

21 The continuum I propose here, involving a gradual distribution of the schema [AUX+PPT], differs in one key respect from Coussé’s (2011): Coussé’s continuum involves PPT-constructions with *be*, i.e. BE-perfects and *not* HAVE-perfects (cf. Coussé 2014) on the one hand, and copulative constructions with a past participle on the other (discussed in the remainder of this section). Crucially, the two continua serve different purposes and are not mutually incompatible: Coussé’s continuum illustrates a gradual relationship between two syntactic analyses (auxiliary and copular); the continuum proposed here illustrates gradual differences in aspectual interpretation within one syntactic category (the perfect). Incidentally, note that I have left Coussé’s continuum out of my analysis on *practical* grounds (cf. fn.20); I am not making the theoretical claim that there is no continuum between [AUX+PPT] and [COP+PPT], it is merely not included in figures 1-5.

[POS+PPT] has the completed action of which PPT is a result within its scope, but the dominance of the terminative action that is possible with [AUX+PPT] (as in (14)) is impossible for [POS+PPT].

Second, the respective resultativity and stativity of [POS+PPT] and [POS_{cop}] are analogous to that of [AUX+PPT] and [COP+PPT]: [POS_{cop}] and [COP+PPT] function as copulative versions to their resultative counterparts: compare, for instance, (13) with (9), and (17) with (15). In this way, two groups of constructions that shape the Dutch durative domain, carve out two separate sections of it – the copulative ones dealing with isolated stativity, and the non-copulative ones with resultativity.

Figure 3 visualizes the mapping out thus far: [POS+INF], [POS_{loc}], [POS_{cop}], and [COP+PPT] belong to the non-gradual, non-resultative durative domain, whereas [AUX+PPT] and [POS+PPT] are placed in the terminative-resultative domain, which shows a gradual focus shift. Resultative stativity being a subtype of durativity, the durative and terminative domains consequently show some overlap in Dutch. The durative domain's dotted line extending into the resultative one indicates the arbitrariness of drawing the leftmost boundary – as long as it includes all [POS+PPT], which marks resultativity explicitly, and does not include all [AUX+PPT], of which only a subset receives a dominantly resultative interpretation.

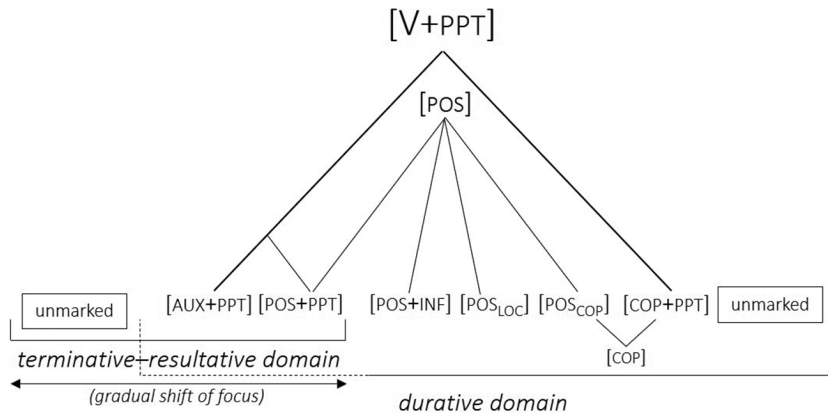


Figure 3 Hypothesized expressional means shaping the Dutch durative domain (step 3/5)

4.2.4 Other auxiliary constructions

The corpus also contains instances of other auxiliaries, totaling 3% of the corpus: [*blijven*+INF] (1.8%), [*beginnen*+INF] (0.8%), and [*aan het* INF *zijn*]

(0.4%). Under 4g-4i in Table 5, there are examples; due to their low total frequency, I will not treat these examples in detail.

Although the auxiliaries were added in the translations, the low frequency of these constructions suggests that they are not very prominent members of the Dutch durative domain. A possible explanation is that they express some subtype of imperfectivity, but not strictly durativity in terms of *zhe*, e.g. *inchoativity* for *beginnen* ‘start to’ (Broekhuis et al. 2015) and *progressivity* for *aan het zijn* ‘be V-ing’ (Lemmens 2015).

The schema [*blijven*+INF] is slightly more frequent, and closer to the basic definition of durativity in terms of both *zhe* and the ANS. However, it has an additional aspectual dimension outside of *zhe*’s durativity: *blijven* ‘stay’ indicates that the action was already going on, and is extended duratively. Therefore, the term *continuativity* does a better job of capturing its aspectual effect.

Whether these auxiliary constructions belong to the durative domain or to a neighboring imperfective domain, depends upon how one defines *durativity*. This question will not be addressed further; here, they will be tentatively located on the fringes of the Dutch durative domain, with more specific aspectual properties. Figure 4 is the schematic summary shown before, with the addition of these three constructions.

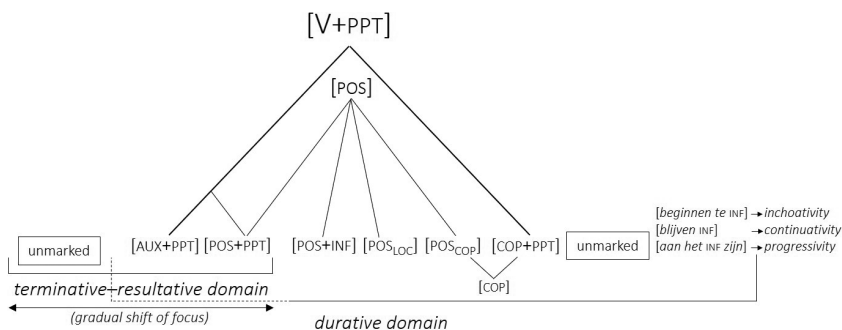


Figure 4 Hypothesized expressional means shaping the Dutch durative domain (step 4/5)

4.2.5 ANS violations

To finish up mapping out the Dutch durative domain, it is useful to tie up the loose ends of the TERMINATIVE corpus sentences, as pointed out in section 4.1. I put forward three mutually complementary explanations to account for the discrepancy: zero-delimitation, the terminative-resultative continuum, and pluractionality.

The first explanation, which I term ‘zero-delimitation’ here, pertains to a problem of the ANS computation: quantification does not delimit all activities, i.e. does not produce a TERMINATIVE reading with all dynamic verbs. The ANS mentions this problem but offers no explanatory account, only illustrating it with the sentence *Rachel duwde de boodschappenwagen* ‘Rachel pushed the shopping cart’ (Haeseryn et al. 1997: 1671). In this sentence, both object and subject are quantified, so the ANS computes an outcome TERMINATIVE, yet it is interpreted duratively. Most of the corpus sentences classified by the ANS as TERMINATIVE are cases of zero-delimitation, e.g. (7) when read duratively.

The precise conditions for zero-delimitation are an object for further research, but one might be world knowledge. More specifically, this involves the general knowledge that a quantified object is so vast or fickle that it can hardly be ‘completed’ by the main verb, as in (18).

- (18) 马蹄和车轮踏碾着寂寥的土路。 [A017]
 mati he chelun tanian-zhe jiliao de tulu
 hoof and wheel step.crush-DUR lonely SUB dirt.road
 (a) ‘De hoeven en de wielen **pletten** de eenzame zandweg.’
 (b) ‘The hooves and wheels **flattened** the lonely dirt road.’

The main verb in (18), *pletten* ‘flattened’, is accompanied by a quantified subject and object, and in other contexts does not show zero-delimitation, e.g. in *Esmay plette de knoflookteen* ‘Esmay flattened the garlic clove’ *knoflookteen* ‘garlic clove’ delimits *plette* ‘flattened’. However, a Dutch reader of (18) will be aware that *zandweg* ‘dirt road’, although quantified, is unlikely to be flattened in its entirety. Not only is it too vast, weather conditions and other travelers might also change its ‘flattened’ state. Sentence (7) forms an interesting point of comparison, as its object (*biography*) holds an ambiguous delimitation middle-ground, the question being whether a biography is ‘vast’ enough to stipulate zero-delimitation.

The terminative-resultative continuum, secondly, refers to the gradual focus shift discussed in section 4.2.3. This graduality explains the fact that some instances of unmarked and [AUX-PRT]-forms receive a terminative reading in Dutch, as they are on the terminative end of the continuum. (6) and (14) are examples.

The third explanation concerns pluractionality, which in Bertinetto & Lenci’s (2010) definition consists of habituality and iterativity. Both are durative at least in an actional sense (cf. Smith 1991: 186; Ferreira 2016). Sentence (19) illustrates habituality, (20) iterativity.

- (19) 裕贵家的光着屁股，捂着两只早就被人摸过的奶子， [D₀₃₈]-[D₀₃₉]

Yugui jiade guang-zhe pigu, wu-zhe liang-zhi zaojiu bei ren mo-guo
 Yugui wife bare-DUR buttocks cover-DUR two-CLF already by people touch-EXP
de naizi
 SUB breast

- (a) ‘Ze **ontblootte** haar achterste, maar **bedekte** haar borsten, alsof er nooit iemand met zijn handen aan had gezeten.’
 (b) ‘She **bared** her buttocks, but **covered** her breasts, as if no one had ever touched them with their hands.’

- (20) 玉米敲着自己的头， [D₀₄₅]

Yumi qiao-zhe ziji de tou
 Yumi hit-DUR own SUB head

- (a) ‘Ze **sloeg** zich op het hoofd.’
 (b) ‘She **hit** herself on the head.’

Without context, (19) and (20) have terminative aspect: *ontblootte* ‘bared’, *bedekte* ‘covered’, and *sloeg* ‘hit’ have inherent endpoints, as well as quantitatively specified subjects and objects. However, the narrative context gives rise to a habitual reading in (19): the fact that *she* does these things habitually is to say something about her character. In (20), the context leads the reader to infer that *she* hit herself not one, but several times, i.e. iteratively. Neither is marked, however, so an inattentive reader of the translated novel might read them terminatively, whereas this is impossible in the original, in which *zhe* marks the durativity explicitly.

To complete the schematic map of Dutch durativity in terms of *zhe*, zero-delimitation and pluractionality were added to the previous figures as a final step, producing Figure 5.²²

22 As an anonymous reviewer points out, the placement of the two ‘unmarked’ boxes in Figure 5 may make it seem that this category is schematized as a non-contiguous subgroup. This is not the intent: since unmarked forms – at least according the ANS – produce aspectual readings in interaction with clausal structure, this category may theoretically cover the entire durative (or even aspectual) domain. An insightful suggestion by the reviewer is that the aspectual potential of unmarked forms is blocked only by competing forms, e.g. posture constructions; this insight is captured by Figure 5, since the unmarked forms do not overlap with potentially competing aspectual constructions. Characterizing more precisely the theoretical relationship between marked and unmarked aspectual categories, for example in terms of competition, could be the object of future research (cf. section 5).

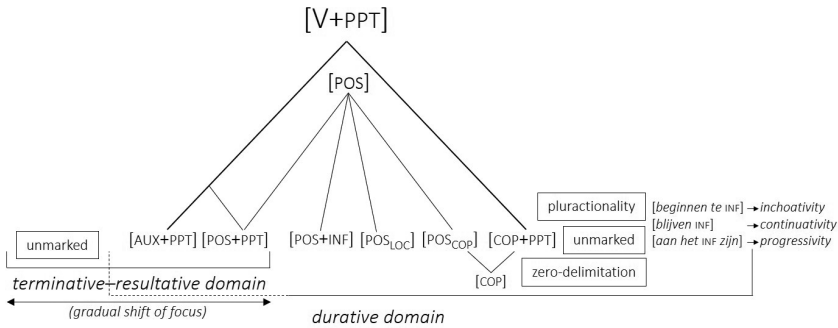


Figure 5 Hypothesized expressional means shaping the Dutch durative domain (step 5/5)

All in all, this section illustrates the challenge of pinning down the determination of Dutch aspectuality. It is dependent on many variables operating at different levels, both absolute and gradual in nature, most of which are not marked explicitly. Moreover, the terminative and durative domains are not entirely discrete categories in Dutch, showing some overlap. As shown in sections 4.2.2-4.2.3, there are definite anchor points though, marking explicitly for resultative, stative or dynamic durativity, thereby shaping the Dutch durative domain.

5 Conclusions and discussion

In this article, I have employed parallel text analysis to map out the expression of Dutch durative aspectuality in terms of Mandarin *zhe*. This has yielded a list of expressional categories and mechanisms shaping this domain, depicted schematically in Figure 5. To conclude, these results are presented in Table 9. Here, the expressional means are arranged by the subtypes

Table 9 Hypothesized Dutch durative domain, constructions and mechanisms

Durative domain			
Stative		Dynamic	Other
Resultative	Non-resultative		
[POS+PPT] [AUX+PPT]	[POS _{loc}] [POS _{cop}] [COP+PPT] habituality unmarked	[POS+INF] zero-delimitation iterativity unmarked	[beginnen te INF] [blijven INF] [aan het INF zijn]

mentioned in section 4.2: stativity (resultative and non-resultative), dynamicity, and other (inchoativity, continuativity, and progressivity – the question remains whether these should be seen as *subtypes* of durativity).

To properly interpret the ‘map’ rendered in Figure 5 and Table 9, and determine its implications, three points have to be taken into consideration, all relating to the provision in this article’s title: that the procedure has produced a *Mandarin* map for Dutch durativity.

First, being a heuristic starting point, the map is necessarily hypothetical in nature: it has been drawn up on the basis of a specifically Mandarin language element, with its own preoccupations and affinities. As such, its hypothesized expressional means and relations have yet to be tested on *original* and *more* Dutch language material. Another valuable addition in this respect would be complementary heuristic parallel analyses based on linguistic elements from other languages (e.g. a Japanese map, an English map).

Second, from the Dutch perspective the map is also likely inexhaustive: although the basic aspectual effect of *zhe* and durativity in terms of the ANS have been shown to correspond, it does not follow conclusively that the shapes of their intralinguistic domains are identical. More specifically, Mandarin *zhe* is neighbored by other imperfective aspectual markers, most prominently ‘progressive’ *zai* and ‘continuative’ *xiaqu* (Xiao & McEnery 2004: 181). The allocation of conterminous aspectual function might vary crosslinguistically, meaning that certain Dutch durative constructions might not have been traced by *zhe* due to them falling within a different Mandarin aspectual jurisdiction. A way to mitigate this could be to expand the parallel analysis by adding other Mandarin aspectual markers.

Last, the overview – based on Mandarin narrative material – provides little to no information on the constraints of the listed means of expressions in Dutch language use. For instance, the use of [POS+PPT] appears somehow constrained but the parallel corpus does not reveal much about the schema’s productivity. These properties have yet to be established by further research, for which the parallel heuristic forms a point of departure.²³

Bearing these provisions in mind, the account of Dutch durativity provided here *does* present a novel, more unitary way of relating diffuse expressional means within one domain. The building blocks of this domain

23 See Bogaards (2019) for research-in-progress into [POS+PPT]-patterns.

are also mostly concrete, as I argue that the elements COP, POS, and PPT are combined in various constellations to function as anchor points for different subtypes of durativity. Besides these anchor points, I observe that durativity is not marked explicitly in Dutch, deriving its value from actionality plus clausal structure (the ANS-model) and mechanisms like zero-delimitation and pluractionality.

As such, this study offers a concrete elaboration of the accounts of Dutch aspectuality discussed earlier: the ANS, especially, and also Broekhuis et al. (2015) in at least one respect. For the ANS it is appropriate to integrate the aspectual effects of more concrete constructions into the model – more specifically posture constructions and the perfect – and to explicitly address principles like pluractionality and zero-delimitation. As for Broekhuis et al. (2015): they already discuss most of the findings in Table 9, elaborating on ‘aspectual and semi-aspectual non-main verbs’ extensively. There is, however, one key finding they do not mention as an aspectual construction: the [POS+PPT]-schema, which they consider a ‘fixed expression consisting of a verb and a participle’, a category to which they also assign strings like *iemand iets betaald zetten* ‘to get even with someone’ (Broekhuis & Corver 2015: 993–994). From a constructional perspective, this grouping seems questionable since the participial slot seems considerably more abstract in [POS+PPT]; (8)–(9) are evidence, and the corpus contains other examples as well. The frequency of [POS+PPT] in the data, its apparent resultativity, and its membership of the prominent posture family, may warrant some discussion as part of a comprehensive account of Dutch aspectuality.

Arriving at these outcomes was not the only objective of this study, however. It also aimed to be a test case for *heuristic parallel text analysis* as characterized in section 2 and in so doing to concretize and refine its methodological procedures. The steps outlined in section 3 were shown to yield a set of linguistic tools that provides an illuminating – if preliminary – look into the domain under investigation. Most notably, the mutual dependence of quantitative and qualitative analyses and the back-and-forth construction of a labeling system were demonstrated to be central components of the methodology. All in all, I hope to have shown that in more ways than one – in its application to more conceptual content, to more languages, and to more analytical directions – the heuristic parallel method is a research avenue with much potential for interesting and innovative linguistic inquiry.

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Over de auteur

Maarten Bogaards, Leiden University

E-mail: maarten@maartenbogaards.nl

