Form-focused instruction and the acquisition of tense by Dutch-speaking learners of English: Experimental studies into the effects of input practice and output practice
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2.1 Introduction
In her book *Biting the Wax Tailpole: Misadventures of an Armchair Linguist*, Elizabeth Little discusses how various languages in the world apply an abundance of diverging linguistic resources to allow language users to communicate—presumably accurately, meaningfully and appropriately—with other language users. At the end of the discussion of the linguistic resources used in relation to nouns, Little (2007) draws the following general conclusion about (language) complexity: “In language, as in life, complexity can be overwhelming at first. But under closer inspection, it can prove to be something sublime” (p. 54). Although Little makes no explicit academic references to the quantitative and qualitative features of the concept of complexity, her readers are able to retrieve the general gist of her argument from both the context in which the concept is used and—most likely—from their own experiences with (foreign) languages. Complexity is a feature with which both instructed and uninstructed L2 learners are often confronted when faced with the challenge of acquiring specific L2 target features such as aspect, case, modality, mood and tense, to name but a few.\footnote{In the discussion of complexity in this chapter, the terms *ESL learner* and *Dutch-speaking ESL learner* will be used interchangeably since many of the statements that are made in this chapter apply to ESL learners of varying L1 backgrounds and are not exclusively experienced by Dutch-speaking ESL learners. When placing the focus on the participants in the experiments, I will make explicit references using the term *Dutch-speaking ESL learners* if confusion may arise.} However, it is also a feature about which many L2 learners have their own (subjective) beliefs.

The aim of this chapter is to shed light on the concept of complexity by discussing (mainly) qualitative features of tense complexity in the context of second language acquisition (SLA). After all, it is the complexity that Dutch-speaking ESL learners experience with temporal FMU mappings in the English verb phrase which led to the selection of the L2 target features under investigation in this doctoral dissertation. Consequently, a better understanding of complexity is imperative for a thorough understanding of the research approach adopted in the studies reported on in Chapters 4, 5 and 6. Many lay people have preconceived ideas about complexity and often reduce tense complexity for (Dutch-speaking) ESL learners to overt instances of negative L1
transfer, with ESL learners erroneously applying L1 processing strategies and/or L1 features to their English interlanguages, resulting in ungrammatical temporal L2 constructions (e.g., *I have spoken to her two weeks ago (as opposed to the grammatical option I spoke to her two weeks ago), which—according to many lay people—is purely the result of the influence of the Dutch sentence Ik heb twee weken geleden met haar gesproken).

The term which will be used to refer to tense complexity as experienced by L2 learners is *temporal SLA verb-phrase complexity*. In the first section of this chapter (Section 2.2), an operational definition of temporal SLA verb-phrase complexity will be provided, bearing in mind the tripartite approach to grammar (form, meaning and use), which was highlighted in the introductory chapter. The second section (Section 2.3) will consist of more judicious discussions of various terminological and conceptual considerations which have been taken into account for the operationalization of complexity in this doctoral dissertation. In this section, it will become apparent that the operational definition of complexity in the first section is motivated and influenced by findings from various linguistic subfields (e.g., linguistics, psycholinguistics, second language acquisition). The third and final section (Section 2.4) will link up the definition with the acquisition and instruction of the L2 target features under investigation: the past and present perfect when used to locate bygone situations in present-day English. In other words, the third section will provide an overview of the discussion of the temporal verb-phrase complexity that Dutch-speaking ESL learners may experience when trying to acquire the selected L2 target features under investigation in instructional settings.

This chapter should by no means be viewed as an exhaustive discussion of (temporal) SLA verb-phrase complexity in present-day English. Rather, it is meant as a nuanced discussion which will facilitate the identification of features that play a role in the acquisition and instruction of complex temporal verb-phrase morphology in present-day English in instructionally explicit settings. Insights into the broader concept of SLA complexity in general and into the more specific concept of temporal SLA verb-phrase complexity in particular will prove to be beneficial to a variety of methodological and pedagogical decisions taken with regard to the acquisition and instruction of temporal verb-phrase morphology in this dissertation.

2.2 Operationalizing temporal SLA verb-phrase complexity
The idea of terminological polysemy plays an important role when operationalizing concepts. The concept of complexity in the linguistic subdomain of SLA is no exception in this respect. Haspelmath (2009) describes the phenomenon of terminological polysemy, and although he relates it to the linguistic study of the grammatical category of case, he does admit that the concept of terminological polysemy may be found “in all areas of grammar” (p. 505):
As in all areas of grammar, the terminology surrounding case phenomena is often not straightforward: Linguists with different backgrounds use the same terms for somewhat or radically different concepts, or they use different terms for very similar or identical concepts. It is unlikely that terminological consensus will emerge soon, primarily because there is no consensus about the concepts that we need, and terminological polysemy will continue to be rampant because there are many more concepts than handy terms. But it is useful to be aware of some of the most important terminological issues. (p. 505)

The situation surrounding the concept of complexity in the specialized subdomain of SLA bears many resemblances to the terminological situation surrounding the grammatical category of case described by Haspelmath above. The aim of this first section is to make available an explicit and focused operational definition of temporal SLA verb-phrase complexity, which will be used to develop the remaining sections in this chapter.

For the discussion of what will be termed relative, temporal SLA verb-phrase complexity in English in this doctoral dissertation, the following definition may be drawn up:

Temporal SLA verb-phrase complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

Note that the definition provided above is a definition of relative, temporal SLA verb-phrase complexity in present-day English. Other scholars will undoubtedly operationalize the concept differently depending on a variety of factors such as the level of L2 proficiency, the research approach, the research design and methodology, and the selected L2 target features. The definition provided will be explained in detail in the remainder of this chapter and will reappear several times with features highlighted as the discussion of complexity in this chapter progresses.

In the definition above, the following general definitional features may be recognized:

1. Complexity is defined as a concept of degree and not as a purely categorical concept which reflects the opposition complex versus non-complex. Consequently, complexity may be placed on a complexity
continuum with certain L2 target features displaying a higher degree of complexity than others.28

2. Complexity is defined as a multifaceted concept. The various features of the concept that have been selected (e.g., tripartite approach to grammar, Dutch/English language pairing, absolute versus relative complexity, global versus local complexity) were chosen based on considerations made in this doctoral dissertation. These definitional features will be explained in the remainder of this chapter.

3. The choice of the L2 target features (i.e., complex instantiation of tense in present-day English) has been integrated into the operational definition bearing in mind both the theoretical tense-related issues explained in Chapter 1 and Ellis’s (2006, 2008) references to the feature of problematicity as the key criterion in selecting L2 target features in many SLA studies investigating the effects of instruction.29

The remainder of this chapter will investigate in more detail the qualitative features of relative, temporal SLA verb-phrase complexity. In the discussion of complexity, the following two main aspects will be featured: (1) aspects of linguistic complexity and (2) aspects of SLA complexity. Although most of these features will be discussed separately, they do interact with each other on a variety of levels.

2.3 Complexity: A multifaceted concept

2.3.1 Linguistic complexity

The concept of linguistic complexity is one which has been around for a long time. However, it has proven to be an extremely elusive idea to conceptualize, operationalize and discuss both objectively and unproblematically. This section will look at some of the contemporary attempts which have been made in the field of linguistics to discuss—mainly qualitatively—linguistic complexity. In addition to a discussion of the features often highlighted by linguists to approach the topic of linguistic complexity, an overview will be provided, which will serve as a concise summary of the main controversies that the discussion of linguistic complexity has generally centred on in the more general field of linguistics.

28 The idea of a complexity continuum brings with it the insurmountable difficulty of establishing metrics to ‘calculate’ quantitative features of complexity in an attempt to ascertain accurate degrees of complexity. Because of the problems related to establishing exact specifications about quantitative features of (language) complexity (see, for example, Brown, 2000, DeKeyser, 2005, Robinson, 1996), the focus in this chapter will be on qualitative features of complexity, which are relatively more accessible than quantitative features.

29 Grammatical complexity is one of several factors available to determine problematicity and, consequently, to select specific L2 target features for investigation in SLA studies. Others include, for example, acquisition sequences, linguistic theory and psycholinguistic theory (Ellis, 2008).
Over the last five years a renewed interest in complexity has become clearly visible in the linguistic landscape (e.g., Dahl, 2004, 2007, 2008; McWhorter, 2007, 2008a, 2008b; Miestamo, 2006, 2008; Miestamo, Sinnemäki, & Karlsson, 2008; Sampson, Gil, & Trudgill, 2009). Although the actual concept of linguistic complexity is by no means a new topic of discussion, for decades many linguists appeared to shy away from referring to linguistic complexity in most (cross)linguistic investigations. In so doing, they avoided any references to possible views which even remotely expressed that there were languages which were more complex—and, hence, linguistically more superior—than others. Such views were overtly expressed in the nineteenth century in nationalistic/Eurocentric assumptions (Kusters, 2008).

For a long time, many linguists appeared adamant in stressing a so-called principle of equi-complexity (e.g., Aitchison, 1981; Crystal, 1997), which states that the appearance of linguistic complexity in one domain of a language is counterbalanced by the disappearance of linguistic complexity in another domain of that same language. Such a form of complexity-based interaction leads to a situation in which languages see only little to no difference in (overall) linguistic complexity and remain—theoretically speaking at least—at the same level of linguistic complexity (Kusters, 2008). The principle of equi-complexity is extremely appealing in that it allows for a tremendous amount of scope (both intralinguistically and interlinguistically) when looking at linguistic complexity and the areas affected by the appearance and disappearance of linguistic complexity. In other words, in theory, the principle can be applied to a variety of structures—individually or additively—within one language and across a selection of languages. At the same time, however, the principle of equi-complexity does indeed pose a fundamental challenge to anyone on the lookout for evidence against the principle: How can one falsify such an all-inclusive principle (Kusters, 2008)?

Contemporary (cross)linguistic discussions of complexity are no longer hesitant in dealing with linguistic complexity and approach the subject head-on, providing, at times, ample resistance to the principle of equi-complexity referred to above (e.g., Dahl, 2004, 2008; Kusters, 2003, 2008; McWhorter, 2007, 2008; Miestamo, Sinnemäki, & Karlsson, 2008; Sampson, Gil, & Trudgill, 2009). What most of these discussions have in common is that they by no means claim that certain languages are complex and others are not. The general assumption in these discussions is that all languages show some form of complexity but that the levels of complexity need not be the same in all languages, resulting in languages or specific language features which are inherently more complex than others. The move from avoiding linguistic complexity to embracing and developing the concept of linguistic complexity in all of its attested

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30 The principle of equi-complexity is also known as the principle of invariance of language complexity or the principle of complexity invariance (Sampson, 2009).
variety has resulted in both fruitful research and interesting findings, which are useful for research design and methodology drawn up to investigate complexity. The remainder of this section on linguistic complexity will investigate two distinctions which are often made in discussions of linguistic complexity: (1) absolute versus relative linguistic complexity and (2) global versus local linguistic complexity.

2.3.1.1 Absolute versus relative linguistic complexity

One of the first oppositional distinctions that can be found in the modern (crosslinguistic) literature on complexity is the distinction between absolute and relative linguistic complexity (see, for example, Kusters, 2008, Miestamo, 2006, 2008), which was initially highlighted and coined by Matti Miestamo in his 2006 publication *On the Feasibility of Complexity Metrics*. Since its introduction, the oppositional dichotomy of absolute and relative complexity has been keenly used and discussed in the literature on linguistic complexity.

The fundamental difference between absolute and relative linguistic complexity lies in the fact that the concept of absolute linguistic complexity is used to refer to linguistic complexity that is “not related to the experiences of a particular kind of language user” (Kusters, 2008, p. 4, quoted with original highlighting) but rather to linguistic complexity that is considered to be “an aspect of a language as an autonomous entity” (Kusters, 2008, pp. 4–5). In effect, this means that absolute linguistic complexity can be referred to as system-oriented or theory-oriented linguistic complexity. By extension, relative linguistic complexity can be defined as linguistic complexity relative to someone or something. Consequently, relative linguistic complexity can be referred to as user-oriented linguistic complexity. Both absolutist and relativist approaches to linguistic complexity offer a myriad of possibilities for treating and discussing complexity in language(s). However, the fundamental difference between the two positions is that absolutist approaches to linguistic complexity investigate linguistic complexity using a conceptual framework (i.e., a description and/or theory) of language that is said to be independent of any specific language user and/or language aspect whereas relativist definitions of linguistic complexity do not.

The seemingly unproblematic distinction between absolute and relative linguistic complexity is, however, not as straightforward as it appears. Kusters (2008) highlights some fundamental problems with it, one of which being the premise of the absolutist approach to linguistic complexity: its so-called unrelatedness to language users. Kusters (2008) is critical of the purported unrelatedness and he views the absolutist position as “a relativist position in disguise” (p. 8) since it is relative depending on the linguistic theory which is used to evaluate linguistic complexity. The problem related to operationalizing and discussing the concept of absolute linguistic complexity becomes even more
across when it is acknowledged that a linguistic theory is, in fact, a model of a language user, albeit a possibly idealized language user (Kusters, 2008).

Even though the distinction between absolute and relative (linguistic) complexity is commonly found in the modern literature on linguistic complexity, it is not a distinction to which all linguistic scholars adhere. Dahl (2004, 2007, 2008) clearly expresses his reluctance to use the term relative complexity and prefers the terms cost, difficulty and demandingness to refer to what he calls “different aspects of complexity for a user” (2007, p. 42) (i.e., relative linguistic complexity in the current discussion of linguistic complexity). In Dahl’s terminology, complexity inevitably refers to absolute complexity and not to relative complexity. Although Dahl explains his reasons for keeping absolute linguistic complexity and relative linguistic complexity clearly separated, he provides somewhat inconsistent and contradictory guidelines as to how complexity-related terminology should be used. On the one hand, he expresses his reluctance to use, for example, the term relative (linguistic) complexity but, on the other hand, he uses the term agent-related complexity (i.e., relative linguistic complexity) when, in fact, he is referring to the three terms cost, difficulty and demandingness referred to above (Dahl, 2007). In addition, Dahl (2007) writes about keeping absolute and agent-related complexity apart and not identifying the (absolute) complexity of a language with difficulty. However, surely such an oppositional distinction is possible—even when using the term relative complexity—as long as clearly demarcated definitions are used whenever linguistically viable.

Taking into account the controversy surrounding the terms absolute (linguistic) complexity and relative (linguistic) complexity, the term relative complexity will be used in the discussion of both linguistic complexity and SLA complexity in this doctoral dissertation since it provides a succinct and linguistically viable way of referring to both linguistic complexity and SLA complexity, which are major determinants of the complexity in the research at hand: temporal verb-phrase complexity in present-day English relative to Dutch-speaking ESL learners in instructionally explicit settings. This is reflected in the definition of complexity as follows:

Temporal SLA verb-phrase complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

For more elaborate definitions and discussions of the terms cost, difficulty and demandingness see Dahl, 2004, 2007.
2.3.1.2 Global versus local linguistic complexity

A second distinction that is made in the linguistic discussion of complexity is the distinction between global linguistic complexity and local linguistic complexity. The concept of global linguistic complexity is used when talking about overall linguistic complexity in a language, in other words, linguistic complexity across the entirety of a language system. Local linguistic complexity, on the other hand, focuses on the linguistic complexity of a part (or subsystem) of the entire system. Examples of local complexity are case complexity, mood complexity and temporal complexity, which all focus on subsystems of a larger system. Although many linguistic scholars have avoided discussing overall linguistic complexity in the past, and instead, preferred to adhere to the principle of equi-complexity (see Section 2.3.1), there is currently a growing interest in both global complexity and the development of accessible and feasible complexity metrics to map (features of) global linguistic complexity both quantitatively and qualitatively (see, for example, McWhorter, 2007, 2008b). In theory, such metrics would allow crosslinguistic comparisons of global complexity.

At the same time, however, there are scholars who regard any attempt to study global linguistic complexity as problematic. In their discussion of global linguistic complexity, they highlight that researchers need to take into account some fundamental problems when trying to operationalize and discuss global linguistic complexity. Miestamo (2008) discusses two such problems, which he refers to as the problems of representativity and comparability. According to Miestamo (2008), these two problems loom in any study of global complexity and he summarizes them as follows:

The problem of representativity means that no [complexity] metric can pay attention to all aspects of grammar that are relevant for measuring global complexity. Even if this were theoretically possible, it would be beyond the capacities of the mortal linguist to exhaustively count all grammatical details of the languages studied, especially in a large-scale cross-linguistic study. (p. 30)

The problem of comparability is about the difficulty of comparing different aspects of grammar in a meaningful way, and especially about the impossibility of quantifying their contributions to global complexity. (p. 30)

The problem of comparability is also the main reason why Miestamo (2008) clearly states that “the cross-linguistic study of grammatical complexity should primarily focus on specific areas of grammar, i.e., on local complexity” (p. 31). In other words, Miestamo clearly advocates the study of local linguistic complexity. In this respect, the study of relative, temporal SLA verb-phrase complexity in present-day English is in line with Miestamo’s (and other scholars’) views and provides ample focus on two complex instantiations of tense in English. As such, the discussion at hand clearly focuses on local complexity. The L2 target features under investigation are problematic instantiations of the gram-
matical category of tense in English, more specifically the use of the past and the present perfect when used to locate bygone situations in present-day English. The grammatical category of tense is generally expressed in English in the verb phrase but often shows forms of interplay with other temporal features in discourse (e.g., adverbials). As such, temporal SLA verb-phrase complexity in English is an example of local complexity since it is found only in the verb phrase. However, other parts of the grammar of English (e.g., adverbials) clearly interact with verb-phrase elements. Both of these aspects (i.e., tense and context) will have to be considered in a judicious discussion of relative, temporal SLA verb-phrase complexity in English. The feature of local linguistic complexity is incorporated into the definition of complexity as follows:

**Temporal SLA verb-phrase** complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

### 2.3.2 Complexity in SLA research

So far, the discussion of complexity has focused on linguistic complexity, but the field of SLA has also turned to complexity in various lines of research. Over the last decade and a half a growing interest in complexity in SLA research has made itself visible. This interest has been attested in the increasing number of SLA-oriented publications dealing—partially or exclusively—with the concept of complexity (e.g., de Graaff, 1997; de Jong, Steinel, Florijn, Schoonen, & Hulstijn, 2007; De Visscher, 2005; DeKeyser, 2005; Ellis, 2008; Ellis & Barkhuizen, 2005; Housen, Pierrard, & Van Daele, 2005; Hulstijn & de Graaff, 1994; Kempe & Brooks, 2008; Larsen-Freeman, 1997, 2003; Larsen-Freeman & Cameron, 2008; Skehan & Foster, 2007; Spada & Tomita, 2007). The increasingly popular use of the concept of complexity in the linguistic subdomain of SLA has led to a number of domain-specific conceptual and operational definitions of complexity. This is why the decision was taken to discuss the concepts of linguistic complexity and complexity in SLA settings separately in this doctoral dissertation. Of course, as already mentioned, a distinct demarcation of the borders between linguistic complexity and SLA complexity is untenable since interaction and consequent overlaps are inevitable.

#### 2.3.2.1 Complexity as a dependent or independent variable

In their paper presented at the 2008 Anéla conference in Leiden, Housen, Van Daele and Bulté (2008) discuss the intricacies involved in investigating com-
plexity in an SLA context. Housen et al.’s (2008) paper makes clear that the concept of complexity in SLA research is multifaceted and offers many fruitful definitional and methodological possibilities. However, before discussing the (theoretically) demarcated forms of complexity, one research-related issue regarding the operationalization of complexity in SLA studies merits further discussion. In essence, the concept of complexity generally functions as a variable in SLA research and may do so in two conceptually and operationally distinct ways: (1) as a dependent variable (e.g., Derwing & Rossiter, 2003; Ellis, 2008; Ellis & Barkhuizen, 2005; Norris & Ortega, 2000; Spoelman & Verspoor, 2009) or (2) as an independent variable (e.g., DeKeyser, 2005; Ellis, 2008; Norris & Ortega, 2000; Spada & Tomita, 2007; Yuan & Ellis, 2003).

As an example of complexity as a dependent variable, Housen et al. (2008) state that complexity is generally operationalized as a basic dimension of L2 proficiency and L2 performance, often together with the concepts of accuracy and fluency. Both Richards and Schmidt (2002) and Thornbury (2006) provide definitions of complexity as a dependent variable:

A composite measure of language use, normally reflecting the length of utterances and the amount of subordination used. In studying a second language learner’s discourse or interlanguage complexity is one measure of L2 development. (Richards & Schmidt, 2002, p. 96)

A learner’s language is complex if it uses structures more typical of advanced learners than of lower level learners. A learner may be both accurate and fluent, but if their output consists of very simple sentences, they cannot really be said to be advanced. Factors that are taken into account when assessing complexity include:

- the amount of subordination, including the use of complex sentences
- the use of pronouns for back reference
- the proportion of lexical verbs to linking verbs: the more of the former, the more complex
- the proportion of content words to function words: the more of the former, the more complex
- the frequency of use of conjunctions. (Thornbury, 2006, p. 40)

Following this line of operationalization, the dependency of L2 complexity on learner-internal and learner-external factors has proven to be a highly productive line of SLA research.

32 The acronym Anéla stands for Association néerlandaise de linguistique appliquée, which is the official name of the Dutch association for applied linguistics. More detailed information may be found online at www.anela.nl.
33 For a more thorough discussion of general and experiment-specific variable features, see Chapters 4, 5 and 6.
34 Examples of learner-internal factors are age, aptitude, attitude, awareness, cognitive style, interest, learning strategies, motivation, personality, prior experience, sex, working memory. Examples of learner-external factors are feedback, input frequency, input quality, input quantity,
As an example of complexity as an independent variable, Housen et al. (2008) focus on instruction studies, which generally investigate the impact of the complexity of one or several L2 target features on the effects, effectiveness and efficiency of L2 instruction. The definition of complexity used in this doctoral dissertation operationalizes complexity as an independent variable. The choice of the L2 target structures under investigation was based on the high degree of problematicity that the target structures appear to be associated with in grammars of English. Its integration into the definition of complexity used in this doctoral dissertation is as follows:

Temporal SLA verb-phrase complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

However, caution should be exercised with the distinction between complexity as a dependent and an independent variable. The dichotomous operationalization of linguistic complexity as either a dependent or an independent variable in SLA research may create the impression that we are dealing with a clearly defined oppositional phenomenon. In reality, however, this opposition is not always as clear-cut as it initially appears. If a specific (grammatical) L2 target feature is categorized as a complex L2 target feature (i.e., an independent variable) and is selected for, for example, instruction, one would logically presume that the goal of instruction is the acquisition of that complex L2 target feature. However, the goal of instruction of a complex L2 target feature would be to bring about consequent changes in the L2 learners’ interlanguages, which, in turn, would be characterized by a higher degree of interlanguage complexity (i.e., a dependent variable) as a result of acquiring a complex L2 target feature. Such logic would lead to circular reasoning and would defy any concrete form of operationalization of complexity. To avoid such reasoning, the distinction between complexity as a dependent variable and an independent variable will be based in this doctoral dissertation on the initial focus of research interest. Since the initial focus of research interest is the selection of problematic L2 target features for acquisition and instruction, complexity is defined as an independent variable.

2.3.2.2 The absolute–relative linguistic complexity distinction applied in SLA research

As was already mentioned, the form of complexity that is the focus of investigation in this doctoral dissertation is what Miestamo (2006) calls relative complexity, that is, complexity relative to someone or something. In their discussion of complexity, Housen et al. (2008) refer to this form of complexity in SLA research using the terms cognitive complexity or difficulty, which—according to them—comprises two forms of difficulty: (1) objective and (2) subjective difficulty. Housen et al. (2008) define the term cognitive complexity as the ease or difficulty with which L2 learners process language items in acquisition and use. Although both forms of difficulty (objective and subjective) may provide substantial contributions to a better understanding of both L2 acquisition and L2 instruction, the focus in this doctoral dissertation is on objective difficulty simply because this form of difficulty allows for a greater degree of research control. Subjective difficulty is largely—though not exclusively—the result of learner-internal factors, which are often beyond researchers’ direct control and extremely difficult to distil from L2 learners’ performance in classroom or laboratory settings. Furthermore, Housen, et al. (2008) provide a non-exhaustive selection of objective determinants (i.e., learner-external factors), which are factors that objectively determine the cognitive difficulty of specific L2 target features. Some of their more prominently featured objective determinants are input saliency, pedagogical rule complexity, processing costs and linguistic complexity.

The distinction between absolute and relative complexity was discussed above and although it may have been presented as an either-or distinction, in practice, some discussions of complexity appear to resist—partially or completely—such a discrete distinction. The discussion of relative, temporal SLA verb-phrase complexity in present-day English could be interpreted as providing resistance to such a clear distinction in that certain issues of temporal SLA verb-phrase complexity in English (e.g., L1-induced complexity) can be said to be clearly relative, that is, specific to a certain ESL learner or to a specific group of ESL learners. Other issues of temporal SLA verb-phrase complexity in English (e.g., general problems related to the demarcation of semantic boundaries in the English tense system) can be said to be more universal or absolute, in that they are experienced by ESL learners in general and are related to inherent features of the language system. However, for the discussion at hand the absolute–relative distinction will be used to allow for a clearer discussion of the complexities at hand. Certain issues related to relative, temporal SLA verb-phrase complexity are definitely universal but interaction with more relative...

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35 Dahl’s (2007) reluctance to use the term complexity to refer to relative complexity does not appear to be of any direct concern to Housen et al. (2008), who appear to use the terms (cognitive) complexity and difficulty interchangeably.
issues will also be highlighted in the discussion below. The idea of objective complexity is incorporated into the definition of complexity in this doctoral dissertation as follows:

Temporal SLA verb-phrase complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

2.3.2.3 Complexity and the acquisition of L2 mappings
Complexity as a dependent or an independent variable has been the focus of discussion in the subdomain of SLA for some time, where it is generally referred to as complexity or difficulty. The idea of difficulty is discussed, for example, by Robert DeKeyser in his 2005 publication *What Makes Learning Second-Language Grammar Difficult: A Review of Issues*. In his article, DeKeyser discusses how tricky the concept of difficulty is. He finally settles on three factors which—according to him—are “involved in determining grammatical difficulty” (2005, p. 3): (1) complexity of form, (2) complexity of meaning and (3) complexity of the form-meaning mapping.36 DeKeyser (2005), however, is extremely careful in defining difficulty. He states that a ternary division of grammatical difficulty is not complete in that it omits any references to “the core psycholinguistic difficulty of acquisition, that is, the difficulty of grasping the form-meaning relationship while processing a sentence in the L2” (2005, p. 3), which—according to DeKeyser—is determined by the transparency of the form-meaning relationship to L2 learners processing language for meaning (at least for L2 learners who do not receive any explicit instruction on the rules governing the form-meaning mappings). DeKeyser’s statement about psycholinguistic difficulty is a valid one, which will be taken up when the concept of complexity is discussed with reference to the temporal L2 target features under investigation in this doctoral dissertation (see Section 2.4). For the time being, the idea of psycholinguistic complexity will be taken up in the definition of complexity as follows:

Temporal SLA verb-phrase complexity is defined as the degree of local, objective and psycholinguistic verb-phrase problematicity experienced by Dutch-speaking adult ESL learners who are receiving or have received explicit instruction aimed at acquiring temporal verb-phrase FMU mappings in present-day English. The concept of local, objective cognitive difficulty referred to by Housen et al. (2008).
objective and psycholinguistic temporal verb-phrase problematicity is defined as the sum of form-related, meaning-related, use-related, mapping-related and other complexity-inducing-related factors experienced by the Dutch-speaking adult ESL learners referred to above.

DeKeyser (2005) does not appear to make any regular, explicit references to the grammatical dimension of use in his discussion of mapping difficulty but from his discussion of the various aspects of difficulty it is clear that the dimension of use is discussed together with the dimension of meaning, which is often the case in discussions of FMU mappings in the (SLA) literature. The distinction between meaning and use is not always easily discernable in the tense-aspect system (Celce-Murcia & Larsen-Freeman, 1999). Consequently, specific issues dealing with meaning-related and use-related complexity will often be discussed together. This is clearly visible in Section 2.4, which is completely devoted to the complex temporal FMU mappings under investigation.

DeKeyser (2005) appears to use a discrete separation of grammatical difficulty and “the core psycholinguistic difficulty of acquisition” (p. 3). However, such discrete separation of two closely related concepts is—in my opinion—viable only if one takes into account that certain areas of overlap may exist. Specific issues of complexity related to these areas of overlap should subsequently be discussed bearing in mind the actual overlaps that are present (see also Section 2.3.2). A concrete example may be required at this point to highlight the importance of such overlaps so let us have a look at formal regularity and irregularity with regard to the past in present-day English.

The regular past is formed in present-day English by adding the inflectional suffix -(e)d to the (present) infinitive form (i.e., the base or stem) of the verb. This process produces past forms such as *analyzed* [analyse + -ed], *loved* [love + -ed], *texted* [text + -ed], *walked* [walk + -ed]. In addition to regular past forms, present-day English also has verbs which have irregular past forms, which are formed using morphological processes such as ablauting (e.g., *drove*, *ran*), consonant alternation (e.g., *lent*, *sent*), and suppletive forms (e.g., *was/were*, *went*). The dichotomy of formally regular and irregular past verb forms may appear to be straightforward but it is a dichotomy which is often regarded as problematic since ESL learners not only need to acquire the individual forms of such verbs but also need to acquire which verb forms carry which meanings and how those forms and meanings are intertwined and put to use in present-day English.37 In addition, the regular verbs are not always as regular as one might expect. It is true that the majority of regular verbs form their past verb forms fairly mechanically by adding -(e)d to the (present) infinitive form. However,

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37 Standard present-day English also has verbs which have both regular and irregular past verb forms. Such past verb forms may be conditioned, for example, geographically (e.g., *dive* (dived (BrE)/dove (AmE)), *smell* (smelt, smelled (BrE)/smelled (AmE)), *spell* (spelt, spelled (BrE)/spelled (AmE)) or semantically (e.g., *hang* (hung/hanged), *knit* (knit/knitted), *ring* (rang/ringed)).
many regular verbs do in fact show additional formal changes such as final consonant doubling (begged [beg + g + -ed], occurred [occur + r + -ed] and final -y replacement (carried [carri + -ed], letty [letti + -ed], marry [marri + -ed]), which are not always characterized as straightforward changes (see Section 2.4.3 for further details). The conditioned spelling changes described above clearly contribute to what DeKeyser refers to as complexity of form. However, such specific spelling changes also contribute to the psycholinguistic difficulty of acquisition since they affect—to a certain degree—the predictability and ease or difficulty of FMU mappings. Consequently, the factor of psycholinguistic difficulty has also been integrated into the definition of complexity provided in Section 2.2.2.

DeKeyser continues his discussion of complexity/difficulty by highlighting form-related, meaning-related and mapping-related problems. When arriving at mapping complexity/difficulty, DeKeyser (2005) introduces the concept of transparency to refer to the link between form and meaning. He lists three factors which may cause a lack of transparency: (1) redundancy, (2) optionality and (3) opacity. He admits, however, that there may be more factors at play. To understand these three factors better, they will be highlighted in more detail below.

2.4 Relative, objective and psycholinguistic temporal SLA complexity and the English verb phrase

2.4.1 Introduction

The aim of this section is to focus on the actual temporal verb-phrase complexity that Dutch-speaking ESL learners grapple with when confronted with complex (problematic) temporal verb-phrase mappings in present-day English in instructionally explicit settings. In essence, we are dealing with a mapping, more precisely, a ternary mapping according to the adopted tripartite approach to grammar (Celce-Murcia & Larsen-Freeman, 1999; Larsen-Freeman, 1995, 2001, 2003). Following an adapted version of DeKeyser’s (2005) discussion of what makes learning L2 grammar difficult, at least five possible sources of relative, temporal SLA verb-phrase complexity in English may be identified: (1) form-related complexity, (2) meaning-related complexity, (3) use-related complexity, (4) mapping-related complexity and (5) other complexity-inducing factors (e.g., L1-induced complexity, outcome measure complexity). However, DeKeyser’s (2005) concern about the completeness of this division must also be addressed. Since the focus in this chapter is on relative, objective and psycholinguistic complexity in an SLA context, we must also take into account DeKeyser’s (2005) reference to the “core psycholinguistic difficulty of acquisition, that is, the difficulty of grasping the form-meaning relationship while processing a sentence in the L2” (p. 3) and factors which may influence the process of grasping mappings such as those suggested by DeKeyser (2005) (redundancy, optionality, opacity) and Housen et al. (2008) (input saliency, processing costs, linguistic complexity). I will assume in this doctoral dissertation that the degree
of psycholinguistic difficulty of acquisition is the result of the sum of form-related complexity (Section 2.4.3), meaning-related and use-related complexity (Section 2.4.4), mapping-related complexity (Section 2.4.5) and other complexity-inducing factors (Section 2.4.6), which all interact in a multitude of ways.

It should be reiterated that the various forms of complexity which will be discussed are not always discrete forms of complexity. Overlaps between the various forms are inevitably present. Consequently, this may lead to a possible blurring of established, demarcated forms of complexity. Nevertheless, in an attempt to maintain a certain degree of overview, every effort will be made to discuss the various forms of complexity separately even though this may not necessarily be an accurate reflection of the online processing challenges that ESL learners face when acquiring complex FMU mappings in instructionally explicit settings.

2.4.2 The complex L2 target features under investigation
Before embarking on a more detailed discussion of the various forms of complexity, let us look at the complex target feature under investigation to remind ourselves of the actual realizations of the complex L2 target features which are being investigated.

In the introduction to his publication *Meaning and the English Verb*, Geoffrey Leech comments on possible problems that ESL learners may face. He starts the introduction of the 2004 edition of his publication by stating the following:

> Every language has its peculiar problems of meaning for the foreign learner. Many people would agree that in the English language, some of the most troublesome yet fascinating problems are concentrated in the area of the finite verb phrase, including, in particular, tense, aspect, mood and modality. The goal of this book is to describe these fields of usage systematically and in some detail for teachers and advanced students of English as a foreign or second language. (p. 1)

Leech is not alone in suggesting that tense—in addition to a variety of other grammatical categories and linguistic phenomena—may cause (meaning-related) problems for ESL learners. In addition to finding such observations in many other publications of a more theoretical nature, they are also clearly present in more practical discussions of the English language in general and of English grammar in particular (e.g., Aarts & Wekker, 1993; Aitken, 1992; Burrough-Boenisch, 2004; Butterman, 2007; Carter & McCarthy, 2006; Celce-Murcia & Larsen-Freeman, 1999; Cumps & Vekemans, 2005; Declerck, 1991, 2003, 2006; Dekeyser, Devriendt, Tops, & Geuens, 1999; Downing & Locke, 2006; Foley & Hall, 2003; Hannay & Mackenzie, 2002; Hoffmann & Hoffmann, 2001, 2005; Huddleston & Pullum, 2005; Mackenzie, 1997; Rijken, 2006, 2008; Ungerer, 2000; van Brederode & Koopman, 1990)

Although some of the cited references above are specifically aimed at Dutch-speaking ESL learners, many of the problems are more universal in that
they may occur for a variety of ESL learners. Consequently, they may be found in discussions aimed at both ESL learners in general and at specific groups of ESL learners who share a common feature (e.g., a common L1). It is the ubiquity of temporal problems for ESL learners which led to the choice of the L2 target features under investigation. In addition to presenting more universal (acquisitional) problems, the L2 target features under investigation are often said to pose a special learning challenge for Dutch-speaking ESL learners because of attested L1-induced problems with which many Dutch-speaking ESL learners of varying proficiency (i.e., beginner, intermediate, advanced) grapple.

The L2 target features under investigation are the English past and the English present perfect when used to locate bygone situations. Of special interest are the instantiations where a choice between these two tenses is required to locate bygone situations in past-zone contexts. In Declerck’s terminology (1991, 2003, 2006) a past-zone context is defined as a context which lies completely before the temporal zero-point (t₀) and is disconnected from t₀. As such, the L2 target features are only one part of the challenge that Dutch-speaking ESL learners face since the use of the English past to locate bygone situations often ‘competes’ with a second mapping, namely, the English present perfect, which may also be used to refer to bygone situations. In this respect, Leech’s (2004) choice of words is clear when he says that “it is worth making the point that the Present Perfect and Simple Past are not mutually exclusive choices: there are many situations where either of these tenses would be suitable” (p. 35). The idea of grammar as choice plays an important role in guiding (Dutch-speaking) ESL learners when they are faced with having to make a choice between the past and the present perfect in English.

The past and the present perfect may be semantic neighbours in the English tense system but they are clearly distinct semantically in that the past places the temporal focus on THEN whereas the present perfect places the temporal focus on NOW. This semantic difference often leads to restrictions on how the two tenses are used (e.g., with specific adverbials). The semantics of both tenses result in a choice between the past and the present perfect which is by no means arbitrary (see, for example, Ungerer et al., 2009). The lack of arbitrariness is reflected by Declerck (2006) when he says that the use of a specific tense “is wholly determined by its semantics (= temporal structure), which has to fit in with the temporal information given by the time-specifying adverbials or by the context” (p. 599). Additional information on the issues of meaning and use will be provided below in the discussion of meaning-related and use-related complexity. By way of example, consider the following sentences:

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38 The idea of competition is one which features prominently in, for example, Bates and MacWhinney’s competition model (1989). As fruitful as it may be for the discussion at hand, Bates and MacWhinney’s idea of competition will not be pursued in this dissertation.
Both (2.1) and (2.2) may refer to the exact same situation, that is, the asking of a question, which took place at a specific point in time located before the temporal zero point. However, the two situations differ with respect to their temporal focus. The sentence containing the past (2.1) clearly puts the focus on THEN. Consequently, this temporal form is obligatory whenever the temporal focus is placed on THEN and when no connection with the present timesphere can be retrieved. The sentence containing the present perfect (2.2) clearly puts the focus on NOW. This temporal form is obligatory whenever the temporal focus is placed on NOW, that is, when a connection with the present time-sphere can be retrieved.

If we were to use our ternary approach to grammar to represent these two tenses schematically, the temporal FMU mappings in (2.1) and (2.2) could be represented using Figures 2.2 and 2.3 respectively.
In keeping with the ternary approach to grammar used in this doctoral dissertation, the choice between the past and the present perfect may be viewed as a choice between two temporal FMU mappings. If we apply a ternary approach to the choice that ESL learners are faced with when locating bygone situations in present-day English, we notice that there are form-related, meaning-related and use-related overlaps and differences with regard to the temporal FMU mappings. However, the main problem that ESL learners face is relatively unambiguous when they are forced to make a choice between the past and the present perfect in past-zone contexts. According to the rules of standard present-day English, the present perfect is completely incompatible with past-zone contexts because of its focus on NOW. This rule can be found in most—if not all—discussions of the English tense system aimed at ESL learners in general (e.g., Aitken, 1992; Carter & McCarthy, 2006; Celce-Murcia & Larsen-Freeman, 1999; Declerck, 1991, 2003, 2006; Downing & Locke, 2006; Huddleston & Pullum, 2005) and at Dutch-speaking ESL learners in particular (e.g., Aarts & Wekker, 1993; De Moor, 1998; Koning & van der Voort, 1997; Mackenzie, 1997; van Brederode & Koopman, 1990).

The following sections will look at the complex temporal FMU mappings under investigation and will draw comparisons between the past and the present perfect. The present perfect is generally considered to be the main ‘rival’ or
‘competitor’ of the past when Dutch-speaking ESL learners are faced with having to choose the appropriate tense in, for example, past-zone contexts.

2.4.3 Form-related complexity
Using a ternary mapping approach (form, meaning, use), we can associate the dimension of form most easily with the concept of accuracy.\textsuperscript{39} One of the challenges that Dutch-speaking ESL learners face when dealing with English past and present-perfect verb forms is learning to produce formally correct (i.e., accurate) verb inflections. Ungrammatical past and present-perfect verb inflections such as *she beat, *we developed, *you have drank, *be panicked and *they runned are extremely common occurrences which are by no means restricted to instructionally explicit settings. As a result, formal tense-related issues are part of the discussion of the English tense system found in many grammars of English.

Of course, one could argue that such formally ungrammatical verb inflections are not always consistently detected and that detection depends—to a large extent—on whether such inflections are produced in the written mode or the oral mode (e.g., *we developed cannot be detected in the spoken mode). Nonetheless, producing formally grammatical verb inflections is a challenge which ESL learners face in both modes. Therefore, this problem merits further investigation.\textsuperscript{40}

What is more, some of the formal challenges are closely linked to issues of meaning and use, with a selection of verb forms which are conditioned as a result of meaning-related issues (e.g., \textit{ringed} versus \textit{rang}) or use-related issues (e.g., \textit{dived} versus \textit{dove}). For the discussion at hand, the emphasis will be on the written mode since the participants in the experiments were all students who had enrolled in a three-year translation programme which would eventually lead to a bachelor’s degree in applied linguistics (with a specialization in translation). Consequently, the experiments and the instruction were designed with a clear focus on the written mode.

According to DeKeyser’s (2005) argument with regard to difficult L2 grammar, we could assume that any difficulty of form can be described as the “number of choices” (pp. 5–6) involved in selecting all the correct morphemes/allomorphs to express the meanings that one wishes to convey. DeKeyser (2005) continues his argument by stating the following:

\textsuperscript{39} In Larsen-Freeman’s (1995, 2001, 2003; Celce-Murcia & Larsen-Freeman, 1999) ternary conceptualization of grammar, which was introduced in the introduction to this dissertation, the dimension of form is associated with the concept of accuracy, the dimension of meaning with the concept of meaningfulness, and the dimension of use with the concept of appropriateness.

\textsuperscript{40} The fact that Dutch-speaking ESL learners face problems when producing formally grammatical verb inflections in both the written mode and the oral mode does not necessarily mean that these problems are identical. Written-mode problems (e.g., problems of spelling) and oral-mode problems (e.g., problems of pronunciation) may be totally different depending on the actual verb inflections which are produced. However, a clear distinction between both modes does not necessarily reflect the realities of the complex, multifaceted SLA process. ESL learners may be guided, for example, by issues of pronunciation when producing written verb inflections.
Clearly, this problem is most complex in richly inflected languages, whether they be agglutinative, polysynthetic, or inflectional in the narrow sense. Everything else (such as semantic difficulty) being the same, the more that needs to be expressed overtly, the more choices need to be made about morphemes, allomorphs, and their position. (p. 6)

I agree with the second part of DeKeyser’s statement (“Everything else (such as semantic difficulty) being the same, the more that needs to be expressed overtly, the more choices need to be made about morphemes, allomorphs, and their position”) but the fact that DeKeyser appears to equate rich inflection with a high, or at least higher, level of form-related complexity would appear to indicate that his discussion of difficulty of form is either synonymous with or heavily reliant on the quantity of choices. Nowhere in DeKeyser’s discussion of form-related complexity is there any (explicit) reference to the quality of the form-related choices that need to be made. A focus on quantity may lead to problems when trying to ascertain the nature and possibly the degree of formal complexity of temporal verb-phrase morphology in present-day English.

Pinker’s (1994, 1999) words speak volumes when he says that “the creative powers of English morphology are pathetic compared to what we find in other languages” (1994, p. 127) or “English inflection is famous among linguists for being so boring” (1999, p. 29), after which he makes a reference to the fact that English verbs come in only four forms: (1) the base form, (2) the -s form, (3) the -ing form and (4) the -ed form.41 A focus on quantity as far as inflectional tense morphology is concerned would definitely categorize present-day English as less complex than a whole range of other languages. Clearly, there is more at play than simply the quantity of choices that need to be made.42

From a morphosyntactic point of view, the choice between the past and the present perfect (when used to locate bygone situations) in present-day English entails the choice between two tense forms which can be described formally by means of rules. The regular past in present-day English is generally formed by adding a past suffix (-ed) to the base form of the verb (e.g., allowed, greeted, played, warranted). In the case of irregular verbs, the resulting past verb inflections may display specific irregularities (e.g., ate, began, led, slit), which will be discussed in more detail below. The regular present perfect, on the other hand, is generally formed by combining the present of the auxiliary verb have with the regular past-participle form of the main verb (e.g., has/have allowed, has/have greeted).

41 It should be stressed that Pinker (1994, 1999) is referring to inflectional morphology in his statements about English and not to derivational morphology. His references are based on, for example, the number of inflectional verb forms available in English, which he compares with languages such as Greek, Italian, Spanish and Turkish, which are morphologically more prolific languages from an inflectional point of view.

42 The operationalization of various types of complexity (e.g., formal, functional) remains a problem in contemporary SLA research (see, for example, DeKeyser, 1998, Ellis, 1990, 1997, Krashen, 1981, for opposing views on the complexity of the third person simple present -s marker in English).
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has/have played, has/have warranted). In addition to the formal irregularities which the auxiliary have displays in the present, the past participle of irregular verbs may increase the degree of overall irregularity of this tense (e.g., has/have begun, has/have eaten, has/have led, has/have slit).43 Once again, the degree of irregularity needs to be put into perspective. An increased degree of irregularity does not mean, for example, that a present perfect is inherently more complex to comprehend or produce than a past. I will come back to this idea later on when discussing the possible effects of frequency on the acquisition of irregular past and present-perfect verb inflections.

With regard to both past and past-participle verb inflections an important distinction is generally made in present-day English between regular and irregular verbs.44 The remainder of this section will first look at the formation of the past and the past-participle forms for regular verbs. Subsequently, the formation of the past and the past-participle forms for irregular verbs will be discussed. The formal discussion provided in this section is not meant to serve as an exhaustive overview of English verb inflections but rather as a backdrop for the general form-related challenges that ESL learners face. For more detailed information the reader is advised to consult publications dealing with English grammar in general or with tense in English in particular (e.g., Aarts & Wekker, 1993; Alexander, 1988; Biber, Johansson, Leech, Conrad, & Finegan, 1999; Carter & McCarthy, 2006; Declerck, 1991, 2003, 2006; Greenbaum, 2000; Greenbaum & Quirk, 1990; Huddleston & Pullum, 2005; Koning & van der Voort, 1997; Ungerer, 2000).

The past and past-participle forms of regular verbs are identical and the form type used for these forms is the -ed form, which is one of the four morphological variants that regular verbs have in present-day English.45 The -ed form is generally constructed by adding the inflectional suffix -ed to the base form of the regular verb (e.g., allow/allowed, call/called, text/texted, watch/watched). Although the majority of regular verbs allow the computational addition of the inflectional suffix -ed to the base form of the regular verb, there are some extremely common spelling changes, which need to be taken into account when forming regular past and past-participle verb inflections. These spelling changes are relatively predictable. However, they nonetheless cause common formal

43 Although many irregular verbs display both irregular past verb inflections and irregular past-participle verb inflections (e.g., begin, eat, lead, tell), complete irregularity across both types of verb inflections is not a prerequisite for membership to the group of irregular verbs (e.g., bore/bored (past)/bored or baren (past participle), show/showed/showed or shown, sow/sowed/sown or sown, strew/strewed/strewed or strown).

44 The distinction between regular and irregular verbs is also referred to using the terms weak verbs and strong verbs respectively (Crystal, 2003; Declerck, 2003, 2006).

45 The four morphological variants for regular verbs are the base form (e.g., allow, push, surf, travel), the -s form (e.g., allows, pushes, surfs, travels), the -ing form (used for the present participle form) (e.g., allowing, pushing, surfing, traveling) and the -ed form (used—in the case of regular verbs—for both the past and the past-participle forms (e.g., allowed, pushed, surfed, travelled)).
problems for (Dutch-speaking) ESL learners. The spelling changes that occur in the formation of past and past-participle verb inflections are considered to be the results of general spelling rules in present-day English. As such, they are not unique to verb inflections and are also found in the formation of, for example, adjectives, adverbs and nouns. For the formation of the \(-ed\) form, the spelling changes may be categorized as follows: (1) final consonant doubling, (2) \(-e\) deletion and (3) final \(-y\) replacement.

**Final consonant doubling.** The first general spelling rule is the rule of final consonant doubling, which occurs only when specific conditions are present. Although the description of these conditions varies depending on which grammar book of English is consulted, the rule for final consonant doubling in the case of \(-ed\) addition may be summarized as follows: “A final consonant letter is doubled when it is preceded by one stressed vowel letter” (Koning & van der Voort, 1997, p. 33). This rule explains why verbs such as *admit*, *prefer*, *rob* and *stop* have the regular past and past-participle verb inflections *admitted*, *preferred*, *robbed* and *stopped*, which all display consonant doubling. The reason for doubling the final consonants is that these verbs are either monosyllabic (and consequently have final stress on the only vowel in the verb) (e.g., *rob*, *stop*) or that they are polysyllabic with a stressed vowel letter preceding the final consonant doubling. The reason for not doubling the final consonants is that these verbs are either monosyllabic (and consequently have final stress on the only vowel in the verb) (e.g., *rob*, *stop*) or that they are polysyllabic with a stressed vowel letter preceding the final consonant which is a candidate for doubling (e.g., *admit*, *prefer*). By extension, the rule also explains why verbs such as *answer*, *defeat*, *differ* and *envelop* have the regular past and past-participle verb inflections *answered*, *defeated*, *differed* and *enveloped*, which do not display final consonant doubling. The reason for not doubling the final consonant is that these verbs all end in a final consonant but the consonant is preceded by either an unstressed vowel letter (e.g., *answer*, *differ*, *envelop*) or two consecutive vowel letters (e.g., *defeat*). Although the spelling rule of final consonant doubling is relatively straightforward and covers a proportionately large number of verbs in present-day English, there are some (extremely common) exceptions, which need to be taken into account when producing accurate past and past-participle verb inflections. For example, the verbs *label*, *marvel*, *signal* and *travel* all have base forms which end in a final consonant (-\(\text{c}\)) and which do not carry any final stress. Consequently, the conditions for doubling final consonants listed above are not satisfied. In keeping with the general rule listed above, past and past-participle verb inflections without consonant doubling are produced by adding \(-ed\) to the base forms of the verbs, resulting in the past and past-participle verb inflections *labeled*, *marveled*, *signaled* and *travelled*. These forms are orthographically accurate and thus grammatically possible but they are not commonly found in British English. They are the preferred forms in American English. British English, however, prefers to treat these verb inflections as exceptions and systematically chooses to double the final consonant in these cases (*labelled*, *marvelled*, *signalled*, *travelled*), which is not in keeping with the general rule. Another exception are verbs ending in \(-ic\) (e.g., *fric*, *mimic*, *picnic*, *traffic*). For reasons related to pronunciation, they generally form their past and past-
participle verb inflections by first adding -k (and not by doubling the final -c) to the base forms and then the regular inflectional suffix -ed, resulting in the past and past-participle forms frolicked, mimicked, picnicked and trafficked. There are also final consonants letters which would seem to be found in base forms which satisfy the conditions for final consonant doubling above but which are generally never doubled (e.g., -w (allow/allowed, follow/followed, thaw/thawed), -y (play/played, stay/stayed, toy/toyed), -x (fax/faxed, fix/fixed, mix/mixed)). In addition to these more generalizable exceptions, there are also isolated cases of orthographically ‘quirky’ past and past-participle verb inflections among the regular verbs (e.g., bias/biased versus biassed, focus/focused versus focussed). It should be stressed that there is at times contradiction between various English grammar books on the issue of final consonant doubling, with some grammar books listing possible spellings which others do not regard as grammatical (e.g., benefit/benefited versus benefitted, program(me)/programed versus programmed, worship/worshipped versus worshipped).

-e deletion. The second general spelling rule is the rule of -e deletion. Although this rule is not always consistently referred to in English grammar books, resulting in different descriptions of the exact same phenomenon (see, for example, Alexander, 1988, Biber et al., 1999, Declerck, 2003, Huddleston & Pullum, 2005), a decision was taken to describe the rule of -e deletion here in as pedagogically unambiguous a way as possible. This decision was the result of the clear focus on both relative complexity and the instructional setting in which the Dutch-speaking ESL learners participated in the experiments. As such, the rule of -e deletion may be stated as follows: If the base form of the verb already ends in -e, the regular past and past-participle verb inflections are formed by adding -d (and not -ed) to the base form of the verb (e.g., arrive/arrived, canoe/canoed, dye/dyed, free/freed, smile/smile).

Final -y replacement. The third and last general spelling rule is the rule of final -y replacement. Verbs that end in a consonant letter which is followed by -y generally replace the -y with an -i before adding the regular past and past-participle suffix -ed (e.g., copy/copied, envy/enved, try/tried). The presence of a consonant letter before the -y is of crucial importance here. If no consonant letter is available, the regular inflectional suffix -ed is simply added without any general spelling changes (e.g., play/played, sway/swayed, toy/toyed).

The general rules for the formation of past and past-participle verb inflections—including orthographical changes induced as a result of the three general spelling rules described above—cover the majority of verbs in present-day English but not all of them. A reference was already made above to a small group of regular verbs which display irregularities which cannot be explained using any rule available (e.g., bias/biased versus biassed, focus/focused versus focussed, worship/worshipped versus worshipped). In addition to these few regular verbs, present-
Day English also has a relatively small group of irregular verbs, which display irregularities in the formation of past and/or past-participle verb inflections (e.g., \textit{begin/began/begun, drive/drove/driven, fall/fell/fallen, go/went/gone, put/put/put}'). References to irregular verbs generally refrain from listing an exact number of irregular verbs. This is probably due to the dynamic nature of language and a constant flux in the exact number of irregular verbs. Instead, estimates are generally provided. The estimate of approximately 200 irregular verbs appears to be reasonably popular in publications dealing—partially or completely—with the English tense system, albeit with slight variations such as “about 200” (Biber et al., 1999, p. 394), “altogether some 200” (Dekeyser et al., 1999, p. 38) and “only about 200”. However, other scholars appear to put the estimate slightly lower or higher and are quoted using “164” (Pinker, 1999, p. 91), “about 180” (Marcus, 2002, p. 154) and “300 or so” (Teschner & Evans, 2007, p. 32). It should be mentioned that it is not altogether clear how these numbers are calculated, that is, which criteria are used to define the requirements for membership of this relatively small group of irregular verbs. Criteria may be derived based on the formal variation that many irregular verbs display. However, even then it is not always clear whether, for example, (common) irregular prefixed verbs (e.g., \textit{misread, outdo, rewrite, undergo}) are systematically included in these numbers or not.

Regardless of the problematic nature of counting the number of irregular verbs, there are several statements about irregular verbs which can be made. Firstly, irregular verbs are a relatively small group of verbs (compared with the vast number of regular verbs in present-day English), with many irregular verbs occurring relatively frequently in both speech and writing. Secondly, irregular verbs are generally considered to be a closed group of verbs.\footnote{With the exception of specific prefixed irregular verbs which are occasionally added (e.g., \textit{mislead, underwrite, upset}).} Thirdly, even though irregular verbs are said to be irregular, they do sometimes show signs of predictable behavioural patterns. As a result, they are often discussed with respect to membership of a specific class or group of irregular verbs.\footnote{The patterning of irregular verbs is also visible when investigating the generalization of irregular patterns (for more information, see, for example, Marcus, 2002).} And finally, irregular verbs may be described as irregular but it would be highly presumptive to automatically equate irregularity with (grammatical) complexity since it has been shown that other factors (e.g., frequency, (formal) salience) may influence features of (grammatical) complexity (DeKeyser, 2005).

I would like to take some time to look at the third and fourth statement about irregular verbs in more detail. The idea of irregular patterns of behaviour is one which is commonly found in English grammar books (Biber et al., 1999; Dekeyser et al., 1999; Greenbaum, 2000). As a general rule, it can be said that irregular past and past-participle verb inflections are formed in present-day English using one or more of the following four morphological processes: (1)}
ablauting (e.g., drive/drove/driven, run/ran/run), (2) alveolar suffixation (e.g., bend/bent/bent, learn/learnt/learnt), (3) consonantal alternation (e.g., leave/left/left, teach/taught/taught) and (4) suppletive forms (e.g., be/was/were, been, go/went/gone) (Dekeyser et al., 1999). One of the characteristics of the past in present-day English is that it generally shows no formal paradigmatic variation in terms of number and person (i.e., conjugation), resulting in highly uniform verbal paradigms for the past (for both regular and irregular verbs). The only (common) exception to this rule is the irregular verb be, which has two forms in its verbal paradigm for the past (was/were). Although the present perfect shows a higher degree of formal paradigmatic variation than the past, the degree of variation is relative and limited to the conjugation of the auxiliary have in the present, resulting in only two morphologically different forms in the present-perfect paradigm (has/have + V-en).

It should be noted that membership of a specific class or group of irregular verbs is not exclusive and a variety of factors may influence any preference—or at times even necessity—for regular or irregular forms. It has already been stated that it is sometimes impossible to make discrete distinctions between form-related, meaning-related and use-related complexity. The semantics of the individual verb itself are a clear example of how form and meaning may interact and how the semantics of the verb itself may play a decisive role in deciding whether to use a regular or an irregular form. The verb ring, for example, is often listed as an irregular verb with the irregular past and past-participle verb inflections rang and run respectively. In many meanings of the verb, these verb inflections are grammatically correct (e.g., He rang the doorbell upon arrival, Have you rung your friend yet?). However, when the verb ring is used in, for example, its meanings of surrounding something or someone (e.g., The police ringed the house), of putting a metal ring around a bird’s leg (e.g., All the pigeons have been ringed) or of putting a circle around something (e.g., They ringed the date on the calendar), it is used as a regular (denominal) verb. The semantics of the context should normally provide the information required to guide language users in their choices of verb inflections.

49 The past form of the verb learn may be both regular (learned) and irregular (learnt). Several irregular verbs in present-day English have regular past and past-participle verb inflections too (e.g., dive - dove/dived - has/have dived, lean - leant/leaned - has/have leant/leaned, sneak - snuck/sneaked - has/have snuck/sneaked). Any preference for regular or irregular verb inflections may be influenced by one specific factor or a variety of factors (e.g., grammatical use, the individual verb itself, mode, regional variety, register, semantics) (Bandi-Rao, 2009; Biber et al., 1999).

50 The -en form is used in English linguistics to refer to the past-participle forms of verbs. However, this does not necessarily mean that the past participle forms of verbs always end in -en. Regular verbs in present-day English have past-participle forms which end in -ed. Thus, the past-participle forms are identical with the past forms of the same verbs. Consequently, both endings (-ed and -en) are sometimes used interchangeably to refer to this verb form (Crystal, 2003).

51 For a more detailed discussion of possible (experimental) factors see, for example, Bandi-Rao, 2009.
By way of conclusion, it can be said that even though past and past-participle verb inflections may cause formal problems for ESL learners, the majority of verbs in present-day English are fairly regular and their past and past-participle verb inflections are formed in relatively predictable ways. As far as regular spelling changes and instances of irregularity are concerned, it can be said that verb inflections may cause formal problems and, consequently, represent challenges with respect to form-related complexity. However, two issues must be stressed in this respect. Firstly, many of the formal complexities are detectable only in the written mode (e.g., final consonant doubling, final -e deletion). Secondly, there is no straightforward relationship between, on the one hand, regular spelling changes and instances of irregularity and, on the other hand, (increased) form-related complexity. Other factors (e.g., frequency, formal salience) may also play a role in determining overall form-related complexity. For example, the verb be is considered by most grammar books of English a highly irregular verb but its suppletive past and past-participle verb inflections (was/were and been respectively) are generally considered high-frequency verb inflections in present-day English. Consequently, many—if not most—ESL learners do not experience these verb inflections as problematic.

2.4.4 Meaning-related and use-related complexity

A complete linguistic account of the past and present perfect in present-day English (and of the mapping complexities that ESL learners encounter when acquiring these two tenses) must try to capture not only the formal essence of these two tenses but also their meaning-related and use-related cores, which are described as inherently more challenging in many grammars of English. In addition, such an account should shed light on possible boundaries between these two semantic neighbours in the English tense system.

Bearing in mind the adopted ternary grammar framework (form, meaning, use), the logical continuation of this chapter would dictate a discussion of the meanings and uses of these two tenses. However, the temporal meaning/use distinction in the English verb phrase is an intricate one to discern (Celce-Murcia & Larsen-Freeman, 1999) since many aspects related to meaning and use features and the boundaries of these tenses are intertwined. So much so that separate discussions of meaning and use would unnecessarily complicate matters even further. The remainder of this section will look at the actual meaning- and use-related complexities involved in choosing between the past and the present to locate bygone situations in present-day English. Since these complexities have already been extensively discussed from a largely crosslin-

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52 The notion of frequency also plays a role, for example, in the (non-)use of uncommon irregular verb inflections by adult native speakers of English. Pinker (1994) highlights the phenomenon of regularizing lower-frequency irregular verb inflections. Some examples of common regularized past verb inflections in contemporary English are: slain/slayed (instead of slew), strived/strived (instead of strove), tread/treaded (instead of trod).
guistic point of view in Chapter 1, the reader is advised to revisit this section for a detailed discussion of the complexities that Dutch-speaking ESL learners face when acquiring these L2 target features in instructional settings. In Section 2.4.3, reference was made to the fact that most discussions of verb-phrase temporality in present-day English in (pedagogical) grammars generally focus on meaning-related and use-related issues and discuss these in greater detail than form-related issues. My own concern with meaning and use is reflected in the focus on meaning and use in both the more theoretical chapters in this doctoral dissertation and in the experiments which have been carried out.

In view of what has been said in Section 1.4 and of the remarks made in this section, it can be said that the meaning-related and use-related complexities for the past and the present perfect in present-day English are not found in all the meanings and in all the uses of both tenses. The L2 target features under investigation in this doctoral dissertation are the past and the present perfect when used to locate bygone situations in present-day English. One of the clearest meaning-related and use-related complexities for Dutch-speaking ESL learners is choosing between these two tenses to express temporal relations. For example, Dutch-speaking ESL learners are often faced with problems when having to choose between the past and the present perfect in past-zone contexts since the English and Dutch tense systems display many similarities but also some fundamental differences when locating bygone situations in such contexts. Whereas standard, formal present-day English does not allow the use of the present perfect in past-zone contexts (e.g., *I have seen her yesterday), standard, formal present-day Dutch very often does and even prefers the present perfect in those situations (e.g., *Ik heb haar gisteren gezien*).

### 2.4.5 Mapping-related complexity

When analysing tense-related learner data, it is clear that Dutch-speaking ESL learners—like many other ESL learners—are susceptible to producing a variety of ungrammatical temporal FMU mappings. The ungrammaticality may be form-related, meaning-related and/or use-related. Often, the literal Dutch translations of many of the ungrammatical temporal FMU mappings in English are perfectly grammatical in standard, formal present-day Dutch. Consequently, many lay people invoke negative L1 transfer as the obvious cause of such ungrammatical temporal FMU mappings in present-day English. However, not all of the ungrammatical temporal data can be traced to L1 transfer. Assuming that form-related complexity is not as challenging as meaning-related and use-related complexity for the temporal FMU mappings under investigation, what factors are possibly at work as far as mapping-related complexity is concerned?

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53 For more detailed information on the form-related, meaning-related and use-related coding and scoring principles see Chapters 4, 5 and 6.
Some examples of ungrammatical FMU mappings in present-day English may be found in some of the following sentences:

(2.3) (a) *He has visited his friends yesterday.
(b) Hij heeft gisteren zijn vrienden bezoekt.
(c) He visited his friends yesterday.

(2.4) (a) *I know him now for ten years.
(b) Ik ken hem nu al tien jaar.
(c) I have known him now for ten years.

(2.5) (a) *Next year they are married for fifteen years.
(b) Volgend jaar zijn ze vijftien jaar getrouwd.
(c) Next year they will have been married for fifteen years.

(2.6) (a) *I will talk to him about it when I will see him.
(b) Ik zal er met hem over praten wanneer ik hem zie.
(c) I will talk to him about it when I see him.

After reading sentences (2.3a), (2.4a) and (2.5a) above, many lay people would instinctively adduce the ungrammatical English sentences to L1 transfer and the grammatical Dutch translations (2.3b), (2.4b) and (2.5b) would appear to support their claims. However, sentence (2.6a) does not support the claim that L1 transfer is the only cause of the ungrammatical English sentences. L1 transfer may play a role in the acquisition and instruction of complex, temporal FMU mappings but it is definitely not the only factor in this intricate process. The question that consequently arises is a question not about one complexity-inducing factor but rather about a possible combination of complexity-inducing factors that influence the production of such ungrammatical temporal FMU mappings by Dutch-speaking ESL learners.

In the ternary approach to grammar adopted in this dissertation for the description of the complex L2 target features under investigation, various complexity-inducing factors related to the three individual aspects of the complex mapping have already been highlighted. Form-related complexity, meaning-related complexity and use-related complexity have already been discussed. However, a more complete picture of the degree of relative, temporal SLA verb-phrase complexity present in the L2 target features under investigation must also take into account the relationship(s) between form, meaning and use. In other words, a more complete picture must also take into account the actual form–meaning–use mapping, on the one hand, and, as DeKeyser (2005) puts it, “the psycholinguistic difficulty of acquisition, that is, the difficulty of grasping the form-meaning relationship while processing a sentence in the L2” (p. 3) on the other hand. Once again, we will adopt DeKeyser’s binary approach (form, meaning) and make the necessary changes to accommodate our ternary approach (form, meaning, use).
DeKeyser (2005) refers to the transparency of the (form-meaning) relationship and to at least three factors which may cause a reduction in or lack of transparency: (1) redundancy, (2) optionality and (3) opacity. In addition to these three factors, DeKeyser (2005) also lists frequency as a factor which plays a pivotal role in determining the ease or difficulty of acquiring mappings. Let us have a look at these four factors and try to link up each factor with the L2 target features under investigation.

**Redundancy.** Temporality in present-day English can be expressed in various ways and the linguistic devices at the disposal of ESL learners are of a pragmatic nature (e.g., chronological order, scaffolding), a lexical nature (e.g., adverbials) and a morphological nature (e.g., tense). In choosing one or several of these means, ESL learners must make conscious decisions. These decisions not only reflect the actual temporal relations to be conveyed but they also take into account the semantic compatibility of the means being used. In other words, whatever means of expressing temporality are used, ESL learners must make conscious decisions to ensure that semantic alignment is achieved. Semantic alignment features prominently in Declerck’s theory of tense, which states that the use of a specific tense “is wholly determined by its semantics (= temporal structure), which has to fit in with the temporal information given by the time-specifying adverbials or by the context” (p. 599). In practice, this means that (Dutch-speaking) ESL learners may often resort to using various means simultaneously in an attempt to express and reinforce temporal relations in grammatically acceptable ways. The feature of redundancy comes into play in the discussion of complexity since temporality may be conveyed by means of various (linguistic) devices which are used simultaneously in (extended) discourse. A common way of expressing, for example, past-zone temporality is the combination of tense (i.e., a morphological means) and adverbials in the linguistic environment (i.e., a lexical means).

From a psycholinguistic point of view, the co-occurrence of various devices may have implications with regard to, for example, the processing of (redundant) L2 data. The idea of processing costs was briefly referred to in Section 2.3.3, in which it was mentioned as one of several determinants of the cognitive difficulty of specific L2 language features. However, how do processing features play a role in the mapping, acquisition and instruction of temporal (verb-phrase) morphology?

A model that has been extremely influential in sketching and fine-tuning the strategies and mechanisms that (foreign) language learners use to establish

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54 See Bardovi-Harlig (2000) and Chapter 3 in this doctoral dissertation for more details on the three means available to express temporality.

55 The term *semantic alignment* is not explicitly used by Declerck (1991, 2003, 2006) but is used in this dissertation to refer to the feature of semantic compatibility.

56 The pragmatic means of expressing temporality may also be used to express past-zone temporality but will not feature prominently in the further discussion in this chapter.
FMU mappings is VanPatten’s model of input processing (IP) (1996, 2005, 2007), which consists of two main principles and several subprinciples. Of special interest to the study of (temporal) redundancy is the first principle of VanPatten’s model, the primacy of meaning principle, and its so-called preference-for-nonredundancy subprinciple (see Figure 2.3).

**Principle 1. The primacy of meaning principle**

Learners process input for meaning before they process it for form.

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**Principle 1a. The primacy of content words principle**

Learners process content words in the input before anything else.

**Principle 1b. The lexical preference principle**

Learners will tend to rely on lexical items as opposed to grammatical form to get meaning when both encode the same semantic information.

**Principle 1c. The preference for nonredundancy principle**

Learners are more likely to process nonredundant meaningful grammatical form before they process redundant meaningful forms.

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**Principle 1d. The meaning-before-nonmeaning principle**

Learners are more likely to process meaningful grammatical forms before nonmeaningful forms irrespective of redundancy.

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**Principle 1e. The availability of resources principle**

For learners to process either redundant meaningful grammatical forms or nonmeaningful forms, the processing of overall sentential meaning must not drain available processing resources.

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**Principle 1f. The sentence location principle**

Learners tend to process items in sentence initial position before those in final position and those in medial position.

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Figure 2.3. The first principle and six subprinciples of VanPatten’s input processing model (adapted from VanPatten, 2005, and Lee and Benati, 2007)

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57 Closely linked but not synonymous with input processing is processing instruction (PI). For more detailed information on input processing and processing instruction, see Chapter 3 and Lee and Benati, 2007, VanPatten, 1996, 2005, 2007, VanPatten and Benati, 2010.

58 In a 2007 publication, VanPatten revised the lexical preference principle and formulated the revision as follows: “If grammatical forms express a meaning that can also be encoded lexically (i.e., that grammatical marker is redundant), then learners will not initially process those grammatical forms until they have lexical forms to which they can match them” (p. 118).
Let us have a closer look at how VanPatten’s primacy of meaning principle and its corollaries fit into the broader picture of (temporal) redundancy and mapping complexity with respect to the L2 target features under investigation. When locating bygone situations in English, ESL learners may be forced to choose between either the past or the present perfect. One of the problems that they grapple with is the choice between these two tenses in past-zone contexts. How can this problem be related to VanPatten’s model of input processing in general and to the relevant principles in particular? To exemplify the problem, I will use variations of example sentences, which were discussed above. The variations are the following three sentences:

(2.7)  
(a) *She has sent me a text message three days ago.
(b) *Ze heeft me drie dagen geleden een sms'je gestuurd.
(c) She sent me a text message three days ago.

In (2.7c), the grammatically correct sentence in standard, formal present-day English, the past-zone context is created by a combination of lexical and morphological means. The lexical element is the adverbial three days ago, which can be categorized as a past-zone adverbial (see Section 1.4.1). The morphological element is sent, the past verb inflection of the irregular verb send. Semantic alignment between both elements is an absolute requirement and is present in (2.7c). Both elements are past-zone elements which are perfectly compatible in standard, formal present-day English.

As far as the processing of these elements at a sentential level is concerned, we can try to apply VanPatten’s primacy of meaning principle and its subprinciples. The primacy of meaning principle implies that ESL learners process the past-zone input for meaning before they process it for form. In keeping with VanPatten’s model of input processing, I am assuming, of course, that the ESL learners have perceived and noticed the past-zone input. Without perception and noticing processing cannot take place (VanPatten, 2004a).

Following principles 1a and 1b, the ESL learner processes the adverbial three days ago in the past-zone input before the past verb inflection sent. What is more, the ESL learner will tend to rely on the adverbial to retrieve meaning since both the adverbial and the past verb inflection encode the same past-zone meaning. The grammatical form sent may be deemed redundant in the past-zone input since the past-zone meaning is also encoded in the adverbial three days ago. This redundancy may lead to a situation in which the ESL learner will not process the grammatical form or will process it only partially (principle 1c). Caution should be exercised at this point since no processing (or partial processing) of the grammatical form does not mean that the ESL learner will not perceive and/or notice the grammatical form. The grammatical form may simply not be processed (completely) even though the ESL learner will perceive and/or notice it. The grammatical form sent is meaningful so according to principle 1d of VanPatten’s primacy of meaning principle the form is a likely candidate for
processing but processing may be influenced as a result of the other subprinciples. Following principle 1e, we can state that the past verb inflection *sent* is a redundant meaningful grammatical form and that the overall sentential meaning must not drain the L2 learner’s available processing resources (whatever these may be). Principle 1f is not terribly explicit in that it does not state the exact position of items in the processing of the input. The grammatical form *sent* in our example sentence comes before the lexical form *three days ago*, which is found in final position, but *sent* does not appear in absolute initial position since the subject pronoun has taken up that position. VanPatten’s sixth subprinciple is not completely transparent with respect to the consequences of these positions of forms.

If we assume that VanPatten’s primacy of meaning principle is an accurate reflection of actual SLA processes, the overall conclusion with regard to the processing of the grammatical form *sent* is that the ESL learners’ processing resources are drawn towards the lexical form *three days ago*. This does not mean that the grammatical form *sent* is not processed at all but it is not an absolute priority for ESL learners because of a variety of reasons (e.g., primacy of content words, reliance on lexical items, redundancy, available resources).\(^{59}\)

**Optionality.** DeKeyser (2005) refers to the aspect of optionality and cites examples such as null subjects (in Spanish and Italian) and case marking (in Korean). He talks about the “alternating presence or absence in the presence of the same meaning” (p. 8). Even though DeKeyser appears to accept, for example, that pro-drop languages such as Spanish and Italian may or may not express subject pronouns overtly without any difference in meaning, often the use of subject pronouns does lead to a nuanced shift in meaning in these languages since overt use of such pronouns may lead to the expression of, for example, emphasis. For the sake of the current discussion, DeKeyser’s idea of optionality will be referred to as optionality with semantic equivalence even though strict semantic equivalence may not be consistently present. How can optionality be related to the English tense system and to the past/present perfect distinction under investigation? Even though the English tense system has semantically demarcated verb inflections to express temporal relations, the choice between the past and the present perfect when used to locate bygone situations is often a choice between two closely related semantic neighbours in the English tense system with many instances in which both tenses are grammatically possible.

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\(^{59}\) VanPatten’s primacy of principle meaning states that L2 learners will tend to rely on lexical items as opposed to grammatical form to retrieve meaning when both encode the exact same meaning. However, no explicit references are made to the proximity of these lexical items to the grammatical forms. At a sentential level, one can assume relatively close proximity between the lexical items and the grammatical forms. However, temporal relations in (extended) discourse are often established between lexical items and grammatical forms which are not necessarily found in close proximity. VanPatten does not express any possible correlation between changes in the proximity of these elements and changes in the way that these elements are consequently processed.
Lewis (1986) explicitly refers to this general grammatical idea of choice using the wording “grammar as choice” (p. 42). Leech (2004) also discusses this element of choice when elaborating on the choice between the past and the present perfect to refer to the expression of past time and what Declerck calls bygone situations. Declerck (2003, 2006) makes similar references to this aspect of the English tense system. In the absence of, for example, any explicit adverbials or past-zone contexts, English often allows the use of either a past or a present perfect. However, the feature of optionality in the choice between the past and the present perfect is not synonymous with DeKeyser’s concept of optionality (with semantic equivalence) since the past puts the temporal focus on THEN and the present perfect on NOW (e.g., I saw her and I have seen her). In essence, this concept of optionality is optionality without semantic equivalence. In other words, I clearly see DeKeyser’s point when he addresses optionality but optionality with semantic equivalence is not the norm in language. There is indeed often an aspect of optionality involved in the selection of grammatically correct tense forms when choosing between the past and the present perfect to locate bygone situations. However, this does not mean that the tense forms from which the selection is made are necessarily equivalents as far as meaning and use are concerned. Although not synonymous with DeKeyser’s concept of optionality referred to above, the feature of optionality or choice is a feature which has to be considered since the idea of choice may cause problems for ESL learners, who often regard grammatical choices as either choices with only one correct option or as choices with equivalent meanings and uses. Such problems are exacerbated when the choice is one between semantically closely related neighbours such as the past and the present perfect in present-day English. The SLA challenge then consists of fine-tuning semantic nuances, which is an intricate and at times conceptually abstract process for many L2 learners.

**Opacity.** DeKeyser (2005) refers to opacity as “a complex form of the problem of low form-meaning correlation” (p. 8). The obligatory use of the past in past-zone contexts and the ungrammatical use of the present perfect in past-zone contexts may be interpreted as a choice between two mappings which are not terribly opaque in past-zone contexts for many ESL learners. However, focusing on only the two tenses involved in this choice is only one part of a much larger challenge. Reference has already been made to the fact that tenses are used based on their semantics and that semantic alignment plays a vital role in helping ESL learners process tenses accurately, meaningfully and appropriately. This is also the case when choosing between the past and the present perfect in, for example, past-zone contexts. An ideal—albeit unrealistic—situation would be a scenario in which tenses represented unique temporal FMU mappings, that is, one tense form with one tense meaning and one tense use. Sadly, this is not the case in present-day English (nor in most of the other known natural languages). Tenses are often used with various meanings,
in various ways and with only nuanced semantic differences at times. Often, the temporal FMU mappings are the result of the inherent semantic properties of the tenses combined with contextual features. In addition, the past and the present perfect are two tenses of a much more elaborate tense system in present-day English. Not only does present-day English have more than two tenses, with every tense reflecting inherent semantic properties (Declerck, 1991, 2003, 2006), the English language—like many other natural languages—also has a tendency to combine tense with other grammatical categories in the verb phrase (e.g., aspect, mood). In other words, the grammatical category of tense casts its net relatively wide and even though the choice between the past and the present perfect in past-zone contexts may not be opaque from an absolute point of view, the net within which this choice is to be made may contribute to an even higher degree of opacity and thus to a higher lack of (temporal) transparency for ESL learners.

**Frequency.** The role of frequency in language learning is an intricate one, which was already highlighted cursorily in Section 2.4.3, where it was mentioned with respect to form-related complexity. However, the role of frequency may be said to extend beyond mere formal features. It may also be applied to the other aspects of the temporal FMU mappings under investigation: (1) meaning and (2) use.

Initial SLA investigations into the role of frequency were focused on the relationship between input frequency and the order of acquisition (Ellis, 2008). The frequency-focused theory (or hypothesis) which guided early SLA studies and which was formulated in the 1970s became known in SLA research as the frequency hypothesis. In its simplest form, the hypothesis stated that the order of L2 acquisition was determined by the frequency of linguistic items in the input and that high-frequency linguistic items would be acquired before low-frequency linguistic items. Many SLA scholars decided at the time to test the claim(s) expressed in the frequency hypothesis but the results from the subsequent studies were not conclusive. Some SLA studies showed significant effects for the research variable input frequency (e.g., Larsen-Freeman, 1976a, 1976b; Lightbown, 1983) whereas others did not find any pronounced correlations between input frequency and accuracy (e.g., Long & Sato, 1984; Snow & Hoefnagel-Höhle, 1982). Later SLA studies and reviews have been able to highlight the role of frequency on SLA learning more comprehensively and more convincingly (e.g., Gass & Lakshmanan, 1991; Goldschneider & DeKeyser, 2001). The issue that the majority of the later SLA studies into the effects of input frequency have reported though is related to the unique effects of input frequency. Frequency has generally been recognized as an input-related factor which plays a role in the multifaceted L2 acquisition process. However, SLA researchers have also been explicit about stressing the actual role of input frequency. The overall consensus in contemporary SLA research is that input frequency is one of several possible determinants and that it is part of a more
complex set of interactions in the L2 acquisition process. In their 2001 study, Goldschneider and DeKeyser highlight the results of their meta-analysis with respect to the effects of five determinants which they selected for discussion: (1) perceptual salience, (2) semantic complexity, (3) morphophonological regularity, (4) syntactic category and (5) frequency (in the input). They acknowledge that other determinants possibly exist and that not all of the determinants are necessarily input-related determinants. They explicitly list L1 transfer as a determinant which is not input-related but there are others (e.g., processing constraints as stated, for example, by VanPatten, 1996, 2005, 2007). However, since the focus of their study was on the effects of the properties of the so-called grammatical functors,60 they made a conscious decision not to investigate the effects of possible determinants external to the functors. As part of their conclusions and implications section Goldschneider and DeKeyser (2001) state the following:

It would also be interesting to try to tease apart the individual determinants’ effects on acquisition in order to establish with more certainty whether the combination of factors accounts for the order through a cumulative effect or through the interaction of the factors. (p. 38)

For the temporal FMU mappings under investigation in this doctoral dissertation, input frequency no doubt plays a role in the L2 acquisition process. As such, frequency may affect all of the three aspects of mappings (form, meaning, use) and, of course, the actual acquisition (and instruction) of the temporal FMU mappings by ESL learners (and teachers) in instructionally explicit settings. The mappings themselves (i.e., the past and the present perfect in present-day English to locate bygone situations) may not be completely straightforward for Dutch-speaking ESL learners. However, they cannot be considered altogether obscure since they do in fact appear relatively frequently in the input to which the participants in the studies are exposed inside and outside the respective instructional settings. The reader should simply keep in mind either possible cumulative effects or the interaction of determinants (referred to above by Goldschneider and DeKeyser (2001)) in the L2 acquisition and instruction of the complex, temporal FMU mappings under investigation.

2.4.6 Crosslinguistic influence and outcome measure complexity as complexity-inducing factors

The aim of this section is to shed light on two other complexity-inducing factors which have already been referred to fragmentarily in this chapter but which merit further discussion within a context of SLA complexity in instructionally

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60 Goldschneider and DeKeyser (2001) refer to the grammatical input using the term grammatical functors, which they use as a less theory-burdened synonym for grammatical units or grammatical morphemes.
explicit settings: (1) crosslinguistic influence (CLI) and (2) outcome measure complexity.

**Crosslinguistic influence (CLI).** The first complexity-inducing factor to be discussed in this section is related to an issue which was already raised in the previous sections on complexity and which is generally referred to in contemporary SLA discourse as crosslinguistic influence (CLI) or transfer.\(^6\) The concept of CLI has been the object of investigation for quite some time in a variety of linguistic subdomains (e.g., contact linguistics, language typology, language universals) (Odlin, 2003). The linguistic subdomain of SLA is no exception and has investigated CLI since its inception. The aim of this section is not to provide a detailed account of CLI by means of, for example, exhaustive lists of SLA studies carried out on the topic.\(^6\) Rather, the aim in this section is to highlight the concept of CLI and how it may contribute to relative, temporal SLA verb–phrase complexity in experimental studies.

CLI is a feature which is generally considered to be present when several languages come into contact. The phenomenon of ‘coming into contact’ may also be referred to as interlingual or crosslinguistic contact. The expression ‘come into contact’, however, can take on a variety of meanings depending on the exact context in which it is used. For the SLA complexity-related discussion at hand, I will assume that interlingual contact is the coming into contact of two languages, which takes place—psycholinguistically—in the L2 learners’ heads when they are asked to call upon their multi-competence of two (or possibly more than two) languages.\(^6\) The two languages under investigation here are the L2 learners’ native language (i.e., Dutch) and their target language (i.e., English), which are typologically closely related languages.

The initial contrastive SLA research agenda in the mid-twentieth century relied heavily on contrastive comparisons between two languages and on predictions which were dependent on the comparisons undertaken (Brown, 2000). The hypothesis which resulted from such comparisons in the 1950s and 1960s was generally referred to as the contrastive analysis hypothesis (CAH) (Lado, 1957). As far as acquiring a second language was concerned, the CAH claimed that the intractable problem for L2 learners in the SLA process was the negative transfer which took place from the language learners’ L1s to the language learners’ L2s (Brown, 2000; James, 1998; Sharwood Smith, 1994). As such, the focus of attention for CAH advocates was on the predictive value of the hy-

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\(^6\) The terms *crosslinguistic influence* and *transfer* are the most commonly used terms to refer to the concepts of crosslinguistic influence in the field of second language research. However, other common ways of referring to crosslinguistic influence are, for example, *language transfer*, *linguistic interference*, *the role of the mother tongue*, *native language influence* and *language mixing* (Odlin, 2003).

\(^6\) For overviews of CLI, the reader is advised to consult more comprehensive SLA-specific accounts on the topic (e.g., Brown, 2000; Ellis, 1994, 2008; Gass & Selinker, 2001; Odlin, 1989, 2003; Ortega, 2009; Ringbom & Jarvis, 2009).

hypothesis as far as L1-induced SLA complexity/difficulty was concerned. The claims that were made using the CAH were supported by many scholars in the form of empirical methods of prediction. One such model was Stockwell, Bowen and Martin's hierarchy of difficulty (1965), which was drawn up to make predictions about the relative difficulty of specific L2 target language features for the language pair L1 English and L2 Spanish. In discussions of CLI, Stockwell, Bowen and Martin's oft-cited hierarchy of difficulty model is an extremely popular model which has been hotly debated and critiqued. It clearly shows that the concept of CLI (and its possible effect on the SLA process) is not a new and unexplored phenomenon (Brown, 2000; Cook, 1993; DeKeyser, 2005; Ellis, 2008; Sharwood Smith, 1994). The 1960s and 1970s, however, saw a shift in the focus of investigation from predicting L2 difficulties to the actual analysis of learner language, which was also referred to using the term interlanguage. This shift occurred after it was shown that the CAH—in both its strong and weak version—was not as tenable as had been claimed and that observations of learner language data did not validate the predictions of difficulties resulting from interlingual comparisons. The discussion of CLI in this section should be viewed from an interlanguage point of view. By no means do I wish to provide any predictive value for the comparison of differences and similarities between temporal FMU mappings in English and in Dutch.

Throughout this chapter the focus has been on the problems that Dutch-speaking ESL learners experience when having to choose between the past and the present perfect when locating bygone situations in present-day English. These problems often result in wrong choices being made, namely, in choosing, for example, the ungrammatical present perfect to refer to bygone situations in past-zone contexts (e.g., *I have seen her yesterday instead of the grammatically correct option I saw her yesterday). In other words, the past is underused and the present perfect is overused. Consequently, this would point to possible problems that Dutch-speaking ESL learners experience when mapping form to meaning and when using that mapping correctly. In fact, for many lay people negative L1 transfer is the only (intuitive) explanation that sufficiently explains these problematic mapping features. To them, Dutch-speaking ESL learners are in danger of having their language ability clouded as a result of negative L1 transfer. Possible negative L1 transfer, however, is only part of the much more complicated and larger temporal puzzle under investigation, which has been highlighted in detail in this chapter. The present perfect in present-day English is not per se a problem across all of its uses. In fact, many uses of the English present perfect such as indefinite readings (e.g., I have never seen that man before,}

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64 See, for example, Brown, 2000, and Odlin, 2003, for discussions of the contrastive analysis hypothesis.

65 The strong version of the CAH, which was considered by many untenable, focused on the predictive value of the CAH, which was the result of contrastive analysis. The weak form of the CAH focused on observational use of the CAH rather than predictive use (Brown, 2000).
Have you spoken to her? and resultative readings (e.g., Someone has left the door open, They have already given their contribution) appear to be relatively less problematic for Dutch-speaking ESL learners. It is only when the options for locating bygone situations by means of the past or the present perfect are discussed that many contrastive grammars explicitly highlight possible problems based on the language learners’ L1s (e.g., Aarts & Wekker, 1993, De Moor, 1998; Koning & van der Voort, 1997; Mackenzie, 1997 (for Dutch), Lambotte, 1998 (for French), Hoffmann & Hoffmann, 2001, 2005; Ungerer, 2000; Ungerer et al., 2009 (for German)).

Thus, from a (purely) CLIC-inspired point of view the discrepancy between grammatical and ungrammatical uses of the English present perfect could be explained as instances of positive and negative transfer respectively. However, the discussion of complexity in this chapter has already highlighted other intractable problems with respect to the choice between the past and the present perfect to locate bygone situations in present-day English. These problems are not the unique result of pure, L1-induced transfer. They are largely the result of a combination of more universal developmental patterns of specific tense morphology acquisition, L1 transfer and possibly other complexity-inducing factors. Much more than straightforward instances of CLIC is at play in the acquisition of these complex temporal FMU mappings, which are also problematic for ESL learners whose L2s share mapping similarities with English. Thus, with respect to the acquisition of the complex, temporal FMU mappings under investigation, Dutch-speaking ESL learners experience both universal, developmental problems of acquisition and specific (L1-induced) problems of acquisition. In other words, the determinants of SLA complexity are varied and consist of interacting factors of both a universal nature and a specific nature. Even this relatively simplistic division of complexity into universal developmental complexity and L1-induced complexity is, of course, a simplified approach to the acquisition of complex, temporal FMU mappings since a whole range of other factors may interact in their own unique ways to determine the various aspects of SLA complexity (e.g., interlingual identification/psychotypology, transfer variability, task complexity). Ortega’s (2009) selection of words puts the intricate relationship between transfer and other SLA-related factors into context:

In addition, knowledge of the L1 impacts on L2 acquisition subtly and selectively, sometimes resulting in strikingly different negative and positive consequences for different learner L1 backgrounds, at different stages of development or proficiency and for different areas of the L2. (p. 31)

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66 ESL learners—including Dutch-speaking ESL learners—face other temporal challenges when acquiring features of the English tense system. See, for example, Section 2.4.5 for other instances of temporal problems in the English verb phrase.
The interest in CLI in SLA discourse has remained strong (Odlin, 2003). This unabated interest is clearly visible in the pages devoted to CLI in most, if not all, of the introductory publications dealing with SLA (e.g., Brown, 2000; Ellis, 1994, 2008; Ortega, 2009; Saville-Troike, 2006) and in the more specialized publications dealing with transfer in the field of SLA (e.g., Jarvis & Odlin, 2000; Odlin, 1989, 2003; Ringbom & Jarvis, 2009). The issue of transfer will be revisited in Chapter 3, where its role will be discussed specifically in relation to the study of tense morphology.

**Outcome measure complexity.** The research that was carried out for the three studies in this doctoral dissertation is experimental in that participants were invited to take part in sessions in which they received explicit instruction dealing with the meanings and the uses of the past and the present perfect to locate bygone situations in present-day English. Data collection took place in a pretest/posttest format for which the participants received contextualized input and were subsequently asked to interact with the input in context. The four outcome measures that were used for the data collection procedure were the following: (1) grammaticality judgement (GJ), (2) selected response (SR), (3) constrained constructed response (CCR) and (4) translation (TR). As far as the degree of outcome measure complexity is concerned, it is extremely difficult—if not impossible—to draw up some definitive form of ‘objective’ outcome measure complexity hierarchy because of the multifaceted combination of the input (e.g., text length, text topics), the practice-based instruction (input practice, output practice), the outcome measures (GJ, SR, CCR, TR), other experimental conditions and subjective factors (e.g., outcome measure familiarity, time pressure, vocabulary load) found in the experimental studies in this doctoral dissertation. One concrete approach to outcome measure complexity is the process of item analysis. Calculating item difficulty indices could provide us with an overview of item difficulty data. Bachman (2004) defines item difficulty as follows:

Item difficulty is the proportion of test takers who answered the item correctly, for R-W [right or wrong] scoring, or, for P-C [partial credit] scoring, the average score on the item. We can also calculate the difficulty or proportion of test takers who chose the different distracters, for R-W scoring, or for the different item scores, for P-C scoring.

68 See, for example, Bachman, 2004, and Bachman and Kunnan, 2005, for more detailed information on calculating item statistics for testing purposes.
What is clear from the definition above is that Bachman’s definition of item difficulty is strongly reliant on subjective factors since the test takers’ answers play an essential role in calculating item difficulty and, consequently, outcome measure complexity and overall test complexity. How, though, can objective factors be separated from possible subjective factors when calculating item difficulty using Bachman’s equation? No answer is provided in the literature on this intricate issue. The concept of outcome measure complexity will be revisited in Chapters 4, 5 and 6, where Studies 1, 2 and 3 will be discussed in their general setup and in their experiment-specific details.

2.5 Conclusion
The aim of this second chapter was to highlight and discuss the concept of temporal complexity in SLA contexts in an attempt to provide the reader with a more comprehensive and balanced picture of temporal complexity as defined in this doctoral dissertation. In addition, the chapter sought to motivate the choice of the L2 target feature under investigation in this doctoral dissertation. In the first section (Section 2.2), I provided an operational definition of what I have termed \textit{temporal SLA verb-phrase complexity}, incorporating both the tripartite approach to grammar (form, meaning, use), which was highlighted in the introduction, and (mainly) qualitative features of various forms of complexity which have been discussed in this chapter.

Since the concept of complexity is such a multifaceted concept, it was imperative to discuss terminological and conceptual issues which were taken into account to operationalize complexity. Those issues were highlighted in the second section of this chapter (Section 2.3). The first two definitional considerations were related to the concept of linguistic complexity, which has been discussed in terms of two oppositional distinctions: (1) absolute versus relative linguistic complexity and (2) global versus local linguistic complexity. Subsequently, I turned the focus to complexity in SLA research, where it has been and still is an extremely popular concept. Generally speaking, complexity in SLA studies is operationalized as either a dependent or an independent variable. In addition to discussing this operationalization aspect, I also explained how the absolute-relative linguistic complexity distinction may be applied in SLA research. Subsequently, I highlighted in more detail the concept of complexity with respect to the acquisition of L2 mappings.

The third and final section (Section 2.4) tied up the operational definition of temporal SLA verb-phrase complexity with the discussions of the definitional features and applied the insights into the concept of complexity to the acquisition and instruction of the L2 target features under investigation in this dissertation. From this analysis it became clear that ESL learners face a variety of challenges, which are not simply form-related, meaning-related and use-related but which exceed these boundaries and operate at other levels too (e.g., the L2
mapping(s) itself (themselves), the psycholinguistic challenges that the ESL learners are faced with when trying to grasp L2 mappings).

The overall conclusion with respect to Dutch-speaking ESL learners and the L2 target features under investigation is the following: The concept of temporal SLA verb-phrase complexity is intricately interwoven with an array of factors found in both the L2 target features selected for instruction and in the SLA process itself. Not only are Dutch-speaking ESL learners faced with form-related, meaning-related and use-related instances of linguistic complexity, they are also faced with the challenge of mapping all three aspects onto L2 target features during online processing, a process which is inherently complex for many—if not most—ESL learners. The target features under investigation, the past and present perfect when used to locate bygone situations in present-day English, pose universal (linguistic and SLA-specific) challenges which are experienced by most—if not all—Dutch-speaking ESL learners at different levels of proficiency. However, the universal challenges do not provide a complete and accurate reflection of possible problems with which Dutch-speaking ESL learners grapple. In addition to the universal challenges, Dutch-speaking ESL learners also face specific challenges such as crosslinguistic influence. Add to that the specificity of the instructional settings and the picture of obvious L1 transfer as the single cause of complexity—which is generally conjured up by lay people—is no longer as accurate as it is represented. Although there are many factors which contribute to relative, temporal SLA verb-phrase complexity, the distinction between universal challenges and specific challenges is an important one since it provides a more complete picture of the complementary challenges that Dutch-speaking ESL learners face when acquiring tense.

The following chapter (Chapter 3) will investigate how the acquisition and instruction of tense (and the broader concept of temporality) have been approached in the field of SLA. Chapter 3 will show how the study of L2 temporality developed from incidental investigations into temporal morphology to methodological investigations with targeted areas of interest. In addition to describing this development, important aspects in the study of L2 temporal (e.g., developed research methodology) will be highlighted and discussed. In addition, the nature and the role of instruction will be discussed in the SLA process. Using two well-known approaches to SLA, input processing and skill acquisition theory, a comparison will be drawn with respect to the views that both theories have on the role of practice in the SLA process. Since the concept of practice was an important element of the instruction provided in the experimental research, comparing both approaches in light of their views on practice will provide us with information which is valuable in drawing up research hypotheses.