

**Perception verb complements in Akatek,
a Mayan language**

von

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Contents

Acknowledgments	ix
Chapter 1. Introduction	1
1. What we see and what we say we see	2
2. Typology	8
2.1. Typological Classification	8
2.2. Investigation of cross-linguistic patterns	9
2.3. Holistic, partial and comparative typology	12
2.4. Summary	15
3. Data	15
4. Methodology	16
5. Goals and outline of chapters to come	18
Chapter 2. Perception verbs and their complements	21
1. The lexical field	22
2. The hierarchy	25
3. Types of meaning extension	27
3.1. Extension along the hierarchy	27
3.2. From perception to cognition	28
3.3. Etymological evidence	33
3.4. Summary	35
4. Perception verb complements	35
4.1. Semantic properties	37
4.2. Structural properties	38
4.3. Non-PV matrix predicates	45
4.4. Summary	46
5. Conclusion	46
Chapter 3. Perception verb complements in English	49
1. Introduction	49
1.1. Structural types	49
1.2. Semantic types	54
1.3. Correlations	55
2. Matrix predicates	57
2.1. Narrow containers	59

2.2. Loose containers	61
2.3. Others	62
2.4. Summary	63
3. Criteria for the structural characterization	65
3.1. Complementizer	66
3.2. Subject/object case	67
3.3. Agreement	68
3.4. Tense/aspect	68
3.5. Adverbs/adjectives	69
3.6. Determiners/pluralization	69
3.7. Constituency	69
3.8. Passivization of the PV	72
3.9. Cleft	75
3.10. Summary	77
4. Criteria for the semantic characterization	79
4.1. Temporal simultaneity	81
4.2. Predicate type	81
4.3. Negation	83
4.4. Modality	84
4.5. Complementizer	86
4.6. Summary	87
5. Conclusion	88
Chapter 4. Akatek, a ‘typical’ Mayan language	91
1. Basic grammatical features	92
1.1. Person marking and ergativity	92
1.2. Pronouns, nouns and verbs	96
1.3. Tense, aspect, aktionsart, modality and negation	99
1.4. Non-configurationality	105
1.5. The subject in ergative languages	108
1.6. Summary	112
2. Typological characteristics	112
2.1. Basic word order	113
2.2. The syntax of VOS languages	116
2.3. Case and agreement marking	122
2.4. Possessive marking	125
2.5. Grammatical relations typology	126
2.6. Summary	130
3. Conclusion	131
Chapter 5. Perception verb complements in Akatek	135
1. Introduction	135
2. Lexicalization of perception verbs	139

2.1. Passive perception verbs	139
2.2. Active perception verbs	140
2.3. Meaning extension	141
2.4. Summary	142
3. PVCs of type2	143
3.1. Structural characterization	145
3.2. The suffix <i>-on</i>	174
3.3. Semantic characterization	179
3.4. Matrix predicates	186
3.5. Summary	200
4. PVCs of type1	201
4.1. Complementizers	202
4.2. Structural characterization	208
4.3. Semantic characterization	214
4.4. Summary	219
5. Conclusion	220
Chapter 6. Typology of perception verb complements	225
1. PVC types	226
2. Event denoting PVC types	228
2.1. Indicative PVCs	228
2.2. Pseudo-relative PVCs	229
2.3. Subjunctive PVCs	229
2.4. Paratactic PVCs	229
2.5. Infinitive PVCs	231
2.6. Nominalized PVCs	231
2.7. Tense-aspect restrictions	235
2.8. Summary	236
3. Proposition denoting PVC types	237
3.1. Indicative PVCs	237
3.2. Subjunctive PVCs	241
3.3. Infinitive PVCs	241
3.4. Nominalized PVCs	241
3.5. Summary	242
4. Typological correlations	243
Chapter 7. Conclusion	247
1. PVs as matrix predicates	247
2. PVC types	248
3. Interpretation of PVC types	248
4. Typology of PVC systems	250
5. Non-PV matrix predicates	253
6. Outlook	254

Abbreviations	255
Bibliography	259

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CHAPTER 1

Introduction

Across languages, perception verbs (henceforth: PVs) belong to a group of predicates that is able to take different types of complements. These perception verb complements (henceforth: PVCs) basically have two interpretations. Certain types of PVC are used to describe the physical perception of some object or event. These complement types express a direct physical relation to the environment.

- (1) Jonathan saw a butterfly.
- (2) Jonathan watched his daughter climb on a chair.

Other types of PVC are used to denote something mental, also termed epistemic (DRETSKE, 1969), conceptual (BOLINGER, 1974), indirect (KIRSNER & THOMPSON, 1976) or abstract (MÖNNICH, 1992b).¹

- (3) Jonathan saw that it was too late.

Leaving aside the perception of physical objects, I distinguish two classes of ontological entities for the interpretation of natural language (VENDLER, 1967):

1. Events, processes, actions → EVENTS
2. Propositions, facts, results → PROPOSITIONS

For ease of reference, in the following the terms EVENT and PROPOSITION are used to refer to these two semantic types, which are explained in more detail in chapter 3, section 1.2. PVCs that express EVENTS are complements of PVs that express physical sense perception. PVCs that express PROPOSITIONS have PV matrix predicates that semantically extend into the cognitive domain. This cognitive extension of passive PVs is assumed to be a universal in this study.

Generally, it has been claimed, that there is a one-to-one correlation between PVC type and semantic type. More specifically, a PVC type denotes either EVENTS or PROPOSITIONS. However, as PVCs, English

¹Note that this listing is not exhaustive.

finite *that*-complements can be of at least two kinds. Either they express something that can only be interpreted as a PROPOSITION as in (3) or they can refer to perceptible processes as in (4).

(4) Jonathan saw that his daughter was climbing on a chair.

In the latter case it cannot be excluded that, next to expressing a PROPOSITION, the EVENT of his daughter's climbing on a chair is also perceived (DRETSKE, 1969). This point of view is explained in more detail in section 1.

This thesis investigates PVCs in English and in Akatek. The focus is on the comparative analysis of the structural and semantic characteristics of the PVC types in both languages. Therefore, the study is mainly descriptive and data oriented. Typologically, I combine a partial approach, i.e. limiting the investigation to PVCs, with a comparative approach, i.e. comparing the PVC types of at least two languages. The results obtained from the detailed investigation and comparison of English and Akatek PVC systems are embedded in a wider typological perspective that necessarily is much less detailed in analysis.

The structure of this introductory chapter is as follows. In section 1, observations regarding perception in language from a philosophical point of view are presented. The main purpose is to differentiate among types of seeing and speaking about seeing. In section 2, the reader is introduced to different typological approaches. Section 3 provides information regarding the sources and types of data used for the investigation of Akatek. In section 4, I present the research strategy followed in this thesis. Finally, in section 5, goals and outline of the thesis are put forward.

1. What we see and what we say we see

The purpose of this section is to distinguish different types of *seeing*: without cognitive processing or with cognitive processing. I am not interested in the philosophical discussions relating to perception and the mind (refer to DRETSKE (1995); VENDLER (1984)). Instead, the following observations taken from DRETSKE (1969) regarding the different types of *seeing* shall serve as an introduction to the intricacies connected to speaking primarily about *seeing*, but also about *hearing* and *feeling*, and in a more restricted sense about *smelling* and *tasting*. At this point, I ignore the role of structural types used to express different types of seeing. This issue is dealt with in later chapters.

As is explained further below, we can *see* in a non-epistemic or in an epistemic way. The non-epistemic type of *see* is characterized by

lacking positive or negative belief content. It is represented by see_n . Regarding the epistemic type of see , which is referred to as *seeing that*, three subtypes are distinguished based on the way the information is obtained: acquisition of knowledge can either be achieved through our visual sense, and that directly (primary epistemic seeing) or indirectly (secondary epistemic seeing), or independently of visual means.

S is defined as a sentient agent. The state of affairs, activity, or condition which makes a statement about S true has ZERO BELIEF CONTENT if there is ‘no belief such that S ’s having or failing to have that belief is logically relevant to the truth of the statement’ (DRETSKE (1969), 5). This claim is illustrated in example (5): S can step on a bug without believing that she stepped on it.

(5) S is stepping on a bug.

In contrast to states of affairs, activities, or conditions with zero belief content are conditions with positive or negative belief content. For example, the statement in (6) has POSITIVE BELIEF CONTENT in case S believes he is not six feet tall and NEGATIVE BELIEF CONTENT, in case S does not believe he is six feet tall.

(6) S wishes he were six feet tall. DRETSKE (1969), 5

DRETSKE (1969) defines visual perception as a fundamental ability devoid of any positive belief content: ‘With respect to its positive belief content, seeing a bug in this fundamental way is like stepping on a bug; neither performance involves, in any essential respect, a particular belief or set of beliefs on the part of the agent. Nothing one believes is logically relevant to what one does’ (p. 6). This way of seeing which is logically independent of whatever beliefs we may possess is referred to as *seeing_n* and defined in the following way:

(7) S *sees_n* $D = D$ is visually differentiated from its immediate environment by S (DRETSKE (1969), 20)

The term VISUAL DIFFERENTIATION in the definition in (7) expresses that S ’s differentiation of D is constituted by D ’s looking some way to S , specifically that D looks different than its immediate environment. The index n in *see_n* refers to the fact that this kind of seeing is NON-EPISTEMIC in character. Put differently:

The state of affairs described by saying that S *sees_n* D is a state of affairs whose realization does not depend on S ’s knowing anything in particular, either about D or about anything else. This non-epistemic character of seeing is a

consequence of the fact that it lacks positive belief content.
DRETSKE (1969), 30

Seeing_n is open to events as well as objects. Events exist in time, objects in space. ‘Events are given dates; objects (in contrast to the things which *happen* to the objects) are not. Events do not have shape and color; they have no precisely defined spatial perimeter which segregates them from neighboring objects and events’ (DRETSKE (1969), 31). Events are happenings or occurrences, they involve a movement or change of some sort. The occasions on which we see an event take place without a change of some sort being involved are exceptional. To describe the perception of an event as opposed to the perception of an object *D*, Dretske suggests the following modification to (7):

- (8) *S sees_n* an event = the event is visually differentiated from its immediate *temporal* environment by *S*

With regards to perception expressions, there is a potential for confusion to arise from not carefully separating truth implication, i.e. what we see, from utterance implication, i.e. what we say we see. Truth and utterance implication are defined in the following way (DRETSKE (1969), 35):

- (9) Truth implication
Q is a truth implication of *S*’s statement if *S*’s statement would not be true unless *Q* were true.
- (10) Utterance implication
Q is an utterance implication of *S*’s statement if *S* would not, normally, have made the statement unless *Q* were true.

First person singular, present tense, indicative active perceptual reports imply that the speaker believes what she has seen. In other words, when saying (11-a), the speaker has (or at least believes herself to have) identified what she claims to see, i.e. the bus. The utterance implication of (11-a), ‘I believe that that is a bus’, must be kept apart from the truth implication. The reason is that it is the speaker’s *saying she sees a bus* and not her *seeing the bus* that implies that she believes that whatever is approaching her is a bus. Therefore, it would be paradoxical for her to utter (11-b).

- (11) a. I see the bus approaching. DRETSKE (1969), 36
b. ?I see a bus approaching, but I do not believe a bus is approaching. DRETSKE (1969), 37

This confusion can be largely avoided by two factors: past tense and third person reports. In first person reports like (12), past tense indicates that enough time has passed for the speaker to identify something that she may not have identified at the moment of perceiving. The advantage of third person reports is that the speaker has the necessary distance in perspective and time in order to identify something which the perceiver may not be able to do, as for example in (13).

(12) I *saw* a bus, but, at the time, did not know what it was.
DRETSKE (1969), 37

(13) He sees the bus but cannot make out what it is.
DRETSKE (1969), 37

The speaker generally tries to anticipate the level of identification of the object of perception that the perceiver could have gained and hence selects words for the description of the perception that she thinks most adequate.

A qualifying device can be employed if one wants to distinguish the speaker's perspective in third-person perceptual reports from the perspective of the perceiver. For example, a report such as *he saw three camels* can be qualified by ... *but, of course, he did not realize they were camels* in order to show that the perceptual report does not imply that the perceiver must have correctly identified the camels.

In sum, we do not necessarily recognize or identify the objects or events we perceive. In other words, perceiving does not automatically involve cognitive processing.

However, our visual perception is generally said to be our main source of information regarding the content and the nature of our world. It is therefore not surprising that we can use *see* to refer to the acquisition of knowledge not only by our visual ability but also in a way that is completely unrelated to that ability. Two usages of *seeing that* are distinguished that rely on visual information: primary and secondary epistemic seeing. PRIMARY EPISTEMIC SEEING is defined in the following way:

- (14) *S sees that b* is *P* in a primary epistemic way if (DRETSKE (1969), 79 ff.):
1. *b* is *P*
 2. *S sees_n b*
 3. The conditions under which *S sees_n b* are such that *b* would not look *L*, the way it now looks to *S*, unless it was *P*

4. *S*, believing the conditions are as described in 3, takes *b* to be *P*

Primary epistemic seeing refers to ‘those uses of the construction ‘see that’ which tell us *how* *S* knows that *b* is *P*’ (DRETSKE (1969), 81) as illustrated in example (15). The second half of the example sentence, *by seeing the Queen Mary itself*, tells us how *S* arrived at the insight expressed in the first half of the sentence, *S* saw that the *Queen Mary* was arriving.

- (15) *S* saw that the *Queen Mary* was arriving *by seeing the Queen Mary itself*. DRETSKE (1969), 80

In a less technical sense, primary epistemic seeing is called eye-witness report, first-hand observation, or direct testimony of the senses. In other words, primary epistemic seeing is part of the evidential system in English. Epistemic perceptual reports convey two things: that the percipient knows something and how part of that information was acquired.²

At the beginning, I mentioned that epistemic perception based on visual information is subdivided into primary and secondary epistemic seeing. I have just described primary epistemic seeing. If the way other things look or behave leads us to say that we can *see that b* is *P*, then we have instances of SECONDARY EPISTEMIC SEEING:

- (16) *S* sees that *b* is *P* in a secondary epistemic way if (DRETSKE (1969), 153):
1. *b* is *P*
 2. *S* sees *c* ($c \neq b$) and sees (primarily) that *c* is *Q*
 3. Conditions are such that *c* would not be *Q* unless *b* were *P*
 4. *S*, believing the conditions are as described in 3, takes *b* to be *P*

The percipient *S* arrives at the belief that *b* is *P* by following at least two psychologically distinguishable procedures: seeing that *c* is *Q* and inferring this as a sign that *b* is *P*. The example in (17) illustrates the

²Similar to the observation made for the expressions selected for saying that a third person *sees_n*, for saying that a third person *sees* in a primary epistemic way, as a loose general rule ‘a subject term is selected which it is believed approximates the percipient’s actual level of proto-knowledge’ (DRETSKE (1969), 105). Perceptual reports are seen as progress reports with a starting point and an end point. Proto-knowledge characterizes the percipient’s knowledge at the starting point and the knowledge *that b is P* describes the percipient’s knowledge at the end point.

definition of secondary epistemic seeing: *S* sees that the flame (*c*) is weak (*Q*) and infers from this observation that her cigarette lighter (*b*) must be low on fluid (*P*).

- (17) *S* sees that her cigarette lighter is low on fluid by observing the flame.

Seeing that constructions can convey three slightly different things, the first two of which have already been presented:

1. One *sees that b* is *P* by seeing *b itself* (primary epistemic seeing).
2. One *sees that b* is *P* without seeing *b* (secondary epistemic seeing). For illustration, two more examples are provided:

- (18) *S* saw that someone had been trampling on her daffodils **without seeing anyone**.

- (19) One can see (**by the newspapers**) that the President is ill. DRETSKE (1969), 79

3. As has been mentioned before, in the third type of *seeing that* construction, no visual abilities are involved. In other words, *seeing that* constructions are not restricted to describing our *acquisition* of knowledge by *visual* means.

- (20) The mother saw that her child had a fever by touching his forehead.

An important observation regarding this study is that we can also see events take place in an epistemic way. For illustration, refer to example (21). One can see events take place in an epistemic way when one sees the constituents of an event, e.g. the two runners, alter their state in a certain way, e.g. one is overtaking the other, and when, moreover, one mentally processes what one sees and realizes that the event of one runner overtaking the other is taking place.

- (21) *S* sees that one runner is overtaking the other.
DRETSKE (1969), 166

In sum, two fundamentally different ways of seeing have been identified: one that involves only perception but no cognitive processing, called non-epistemic seeing, and one that involves both perception and cognition, referred to as epistemic seeing. The latter one can be subdivided depending on whether direct or indirect visual evidence is available. In addition, there is a third subtype that does not even rely on

visual input. Confusion between the truth implication of a visual perception expression, i.e. what we see, and the utterance implication, i.e. what we say we see, arises especially in first person reports in the present tense. Therefore, the following investigation of PVCs concentrates on third person reports in the past tense. The observations made with respect to our visual ability also apply to our senses of hearing and touch, but less to our senses of smell and taste. In chapter 2 the lexicalization and the cognitive extension of PVs across languages and the different PVC types that occur are discussed.

2. Typology

The central goals of typological research have been traditionally the classification of the world's languages as presented in section 2.1 and more recently the investigation of cross-linguistic patterns, which is the topic of section 2.2. Central to the investigation of cross-linguistic patterns are the notion of a linguistic type and the method of cross-linguistic comparison. The identification of correlative grammatical properties by means of cross-linguistic comparison allows to define linguistic types. The investigation of cross-linguistic patterns is approached from three different perspectives referred to as holistic, partial and comparative typology. These approaches are presented in section 2.3.

2.1. Typological Classification. For the typological classification of the world's languages, the entire range of variation across languages has to be ascertained, i.e. theoretically possible structural types must be defined. Once this is done, each language is classified as one of the established types. The variation of grammatical mechanisms used to relate linguistic concepts to each other is highly restricted across languages. This observation constitutes the starting point for the classical typological classification of languages into isolating, agglutinative, inflectional and incorporating types. The different techniques for encoding relational meaning, i.e. the relation of lexical concepts to each other, were successively identified by Friedrich and August von Schlegel, Wilhelm von Humboldt and August Schleicher.³

The ISOLATING language type is characterized by a complete absence of affixes. AGGLUTINATIVE languages use affixes that denote single grammatical categories such as number and concatenate the affixes without phonological changes. INFLECTIONAL languages, also referred to as flexional or fusional, are characterized by multifunctional

³For a detailed historical discussion refer to chapter 3 of GREENBERG (1974).

affixes which incorporate several grammatical categories such as number, gender and case. Also these affixes phonologically change considerably in combination with roots. The INCORPORATING type, also called POLYSYNTHETIC, is reserved for languages that treat verb and object as one word.

Obviously, any given language does not adhere completely to only one type, but uses various techniques for encoding relational meaning. It follows that membership in a language type is a question of degree or tendency, the most prevalent characteristic determining each language's basic type. In other words, characterizations must be posited in relative and not in absolute terms. A critique put forward by SPENCER (1991) claims that instead of four discrete types, there is a continuum regarding the encoding of relational meaning in languages, so that no basic types can be identified. The fact that the above types cannot be clearly identified in all cases⁴ led GREENBERG (1954) to develop the concept of a LINGUISTIC TYPE. A quantitative index, like e.g. morphemes per word, allows to rank languages relative to other languages regarding various structural parameters.

In addition to his critique regarding distinctness of the four language types, SPENCER (1991) notes that there are many languages for which this morphological typology is of no relevance. As an example he cites English, which is mostly isolating regarding inflectional categories but agglutinating regarding derivational morphology, while the fact that English also has some compounding makes it look polysynthetic. The question then arises of what use even an improved quantitative classification of English would be if English had to be classified as inflectional-agglutinative-polysynthetic. As a further problem with the classification of languages as either isolating, agglutinative, inflectional, or polysynthetic, Spencer observes that polysynthetic languages are agglutinative, so that polysynthetic should be a subtype of agglutinative. When considering inflectional as a special type of agglutinative, the difference boils down to languages having morphology and languages lacking morphology, which is what Friedrich von Schlegel originally suggested (VON SCHLEGEL, 1808/1977).

2.2. Investigation of cross-linguistic patterns. Besides the typological classification of the languages of the world, typologists are interested in discovering cross-linguistic patterns. Clusters of connected properties are identified and used to define linguistic types. The

⁴A main problem is where to draw the line between a small and a large number of morphemes.

properties need to be connected in such a way that knowing the presence of one property allows predictions about the presence of other properties. In other words, the goal is to establish implicative correlations between properties. This concern of typology goes mainly back to Greenberg's discovery of implicational universals of morphology and word order (GREENBERG, 1966). In this conception, typology centers around the notion of a linguistic type and of cross-linguistic comparison.

The notion of a linguistic type is defined as a collection of correlative grammatical properties. It plays a central role in both descriptive and generative traditions:

From a descriptive point of view, a language is assumed . . . to be an organic whole whose properties cohere together to form an integrated system. This assumption arises from the intuitive feeling that descriptive grammarians often have in actually describing individual languages and in observing systematic cross-linguistic similarities, . . . But, for generative grammarians, the idea that a language (or language type) is organized in terms of interconnected structural properties takes on a specific significance. Their ultimate goal is to account for language acquisition by children - how children acquire grammars in such a short period on exposure to an impoverished stimulus. . . . [They] hypothesize that a whole series of grammatical properties are connected such that the acquisition of one feature leads to the automatic acquisition of a whole array of related properties. SHIBATANI & BYNON (1995), 10f.

The latter assumption is the basis of the principles-and-parameters approach to Generative Grammar. This approach promotes a typological method that involves setting of particular typological parameters, such as Hale's configurationality parameter (HALE, 1983), in order to account for certain property clusters. Ideally, implicationally-linked typological features would be an automatic product of a particular parameter setting (NEWMAYER, 1998).

Cross-linguistic comparison serves on the one hand to make progress regarding linguistic universals and on the other hand to reassess single language analyses (CROFT, 1990). Linguistic typology thus provides analytical tools for the latter and empirical results for the former. Its ability to do so, however, depends on exploiting the material provided by descriptive studies and on using the explanatory principles put forth by language universals research. Analyses of particular

languages hence serve the purpose to investigate how universal characteristics of language are manifest in the language under investigation. In addition, the correlations among several different grammatical phenomena like e.g. word order, case, or complementation observed in a single language must be viewed from a cross-linguistic perspective. The relevant questions to ask are whether the observed single language correlations are accidental, peculiar to this specific language, or universal in nature, and whether and how these correlations systematically vary across languages.

A fundamental problem of cross-linguistic comparison is to determine the *TERTIUM COMPARATIONIS*, the basis of comparison. In other words, the main prerequisite for research focused on cross-linguistic comparison is to ensure comparability of a certain grammatical phenomenon in different languages. Phenomena have to be defined in a way that proves valid cross-linguistically. The essential problem is that languages vary in their structure to a great extent and that this variation makes it difficult to use only structural criteria to identify grammatical categories across languages. The solution so far has been to apply non-structural, i.e. mainly semantic criteria. However, NEWMEYER (1998) challenges the validity of such an approach. For example, identifying subject and objects on the basis of their semantic role, i.e. as agents or patients, or based on their discourse function, i.e. as topics or new participants, results in circularity:

Since one holds out the hope of *explaining* their nature on a semantic or discourse basis, it is methodologically illicit to define subject and objects on semantic or discourse grounds. To do so would be to reason in the most viciously circular fashion. In other words, we need a formal characterization of subject and object. NEWMEYER (1998), 338

A formal characterization of logical subject and object, referred to as Semantic Case Theory, has been developed by KEENAN (1988). Given the denotations of a transitive verb and its two NPs, there are two theoretical ways of interpreting the sentence.⁵ However, basic transitive sentences in English are not ambiguous regarding the interpretation of the two core argument NPs as subject and as direct object. The following case constraint applies to English:

- (22) In basic transitive sentences of the form [NP[V NP]] the VP-internal NP is always interpreted as accusative.

⁵I excluded the two additional readings resulting from scope ambiguities, see KEENAN (1988).

As axioms of Semantic Case Theory Keenan presents three constraints that are satisfied by speakers of all languages when interpreting basic transitive sentences: Case Existence, Case Distinctness and Case Structure (KEENAN, 1988). These constraints are explained in more detail in chapter 4, where I apply them to Akatek in order to define subject and object.

2.3. Holistic, partial and comparative typology. Three orientations of typological study have emerged. First, a holistic approach, also referred to as individualizing or characterological, second, partial typology, also called the generalizing approach, and third, comparative typology (GREENBERG, 1974; MATHESIUS, 1928/1964).

The traditional concept of typology is based on a view of language as an organic whole with a distinct character. The concept of language as an organic whole goes back to VON HUMBOLDT (1836/1963), who referred to it as inner form. SAPIR (1921) describes the idea that individual languages have a ‘basic plan’ as follows:

[I]t must be obvious to any one who has thought about the question [of the general form of a language] or who has felt something of the spirit of a foreign language that there is such a thing as a basic plan, a certain cut, to each language. This type or plan or structural ‘genius’ of the language is something much more fundamental, much more pervasive, than any single feature of it that we can mention, nor can we gain an adequate idea of its nature by a mere recital of the sundry facts that make up the grammar of the language. SAPIR (1921), 120

The goal of holistic typology is a complete characterization of a language based on a small number of typological features.

In partial typology the investigation is restricted to single constructions or grammatical phenomena, e.g. word order, case marking patterns, or relative clauses. Even though the predictive power of the results put forth by partial typology is confined to specific domains, far-reaching cross-linguistic predictions can be made. And even though only a single phenomenon is examined in the framework of partial typology, the identification of interconnected properties and their hierarchical organization play a central role.

The idea that typological classification can involve only a particular construction, and not the language as a whole can be found already in the work of KEENAN & COMRIE (1977). Their work on the syntactic typology of relative clauses resulted in an implicational hierarchy, the so-called noun phrase accessibility hierarchy. This hierarchy makes

predictions regarding the ability of NPs to be relativized depending on their grammatical roles. KEENAN & COMRIE (1977) found that all languages can relativize subjects, and when a language can relativize a grammatical role lower on the accessibility hierarchy than subjects, than it can also relativize all the grammatical roles in between.

(23) S < DO < IO < OBL < GEN < O of Comparison

Thus, grammatical hierarchies like the one exemplified above reflect attested patterns. For example, the hierarchy claims that some languages only relativize their subjects, while others relativize subjects and direct objects, still others, subjects, direct objects, and indirect objects, and so forth. Indirectly, implicational hierarchies as the one in (23) exclude the occurrence of theoretically possible patterns, i.e. provided that the hierarchy is valid, no language should allow to relativize indirect objects, while not allowing to relativize direct objects as well as subjects.⁶ The notion of hierarchy is ‘perhaps the single most important concept characterizing contemporary typological practices.’ SHIBATANI & BYNON (1995), 7

The focus of attention in partial typology lies on drawing cross-linguistic generalizations, which are generally of two kinds (SHIBATANI & BYNON, 1995):

1. Only a subset of the theoretically possible variety of structures is employed in language.
2. The implicational relations found between different features constitute unidirectional dependencies, i.e. the presence of one feature entails the presence of another feature but not vice versa.

Looking at a single language, it turns out that in order to convey a certain meaning often more than one construction is available. At the same time, any given construction may be used for a variety of purposes. Hence, useful typological generalizations can only be reached if one of several construction types used to convey a certain meaning in a language can be identified as the basic type, which is not always easy or even possible. Moreover, all additional uses of a construction type need to be investigated.⁷

⁶Regarding the noun phrase accessibility hierarchy, subsequent research noticed a number of problems, which are summarized in NEWMAYER (1998), 317ff.

⁷The existence of additional usages of construction types can sometimes be explained by the harmony principle, i.e. one construction diachronically harmonized or extended over various functions (see HAWKINS (1983)).

Partial typology has not been left without critique. By looking at an isolated ‘part’ of language, little is to be gained regarding the inter-relationship of the construction under investigation with other ‘parts’ of the language (HAWKINS, 1986). Supporting Hawkins’ critique, SHIBATANI & BYNON (1995) note that a mere collection of generalizations of individual features of languages does not necessarily result in a deeper understanding of language. They suggest that

to be more effective, partial typology must organize its domains of investigation into an interrelated network so that possible hierarchical structuring of the domains may emerge. SHIBATANI & BYNON (1995), 16

The difficulty of identifying one of several constructions as the basic one as well as the desire to correlate co-occurrences of the domains investigated in partial typology paved the ground for a yet different approach to typology, namely comparative typology.

The obvious limitations of partial typology caused some linguists to revert to more traditional approaches and to start doing what is referred to as comparative typology. Comparative typology adopts the view of holistic typology, which treats language as an ‘organic’ whole and therefore aims at comparing the overall grammatical structures of two or more languages. However, in contrast to holistic typology, only a small number of languages but a large number of properties are investigated and compared. Examples are the comparative typology of English and German by HAWKINS (1986) or of English and Australian languages by HALE (1983). The goal of comparative typology is to identify underlying principles of the contrastive features found among the languages investigated. This is based on the assumption that linguistic properties are connected in a hierarchical manner, i.e. one property is responsible for the cooccurrence of other properties. Thus, the focus shifted from the hierarchical organization of cross-linguistic patterns of individual constructions to the hierarchical organization of properties within single languages.

In sum, three main approaches to language typology have been identified. They basically differ in the number of languages and the number of features under investigation. Whereas in holistic typology, languages are seen as organic wholes and the goal is to classify them by reverting to only a few characteristics, the goal of partial typology is to generate implicative correlations between single features. In partial typology, the investigation is limited to single grammatical phenomena like e.g. relative clauses, but the predictions made on the basis of the established hierarchical ordering of the variety of structures is claimed

to be applicable cross-linguistically, i.e. to all languages. The third approach, comparative typology, integrates the view of languages as having basic underlying ‘plans’ with the detailed investigation of a large number of features and the way those are dependent on or independent from other features, so that only very few languages can be taken into consideration.

2.4. Summary. In this section, I have provided an overview of the development of linguistic typology. Currently, most typological research focuses on the investigation of cross-linguistic patterns with the goal of establishing implicational hierarchies. I presented three different perspectives from which typologists undertake their studies. Researchers adhering to holistic typology view language as an organic whole and therefore aim at the complete characterization of a language based on a small number of typological characteristics. The idea that languages have a certain basic plan justifies that only a small number of features, the ones considered relevant or highly characteristic, is taken into consideration. The goal of holistic typology is the classification of the languages of the world. In partial typology the investigation is restricted to single constructions or phenomena like e.g. word order, case marking, or relative clause constructions. The hierarchical organization of the different realizations of a construction allows the positing of implicative correlations. The goal of partial typology is to establish cross-linguistic generalizations. Finally, comparative typology involves only a small number of languages, but a large number of properties is investigated. Comparative typologists reject the limitation of the investigation to single constructions. They consider languages as ‘wholes’ as in the holistic approach, but advocate looking at as many features as possible and at the way they interact. As a result, only a few languages can be compared.⁸

3. Data

Since solid typological generalizations are based on detailed analyses of a wide range of different languages, recourse to secondary data seems unavoidable. This is due to the fact that no individual linguist can provide detailed analyses of many languages. Secondary sources, however, either do not provide the required information or they are problematic regarding the accuracy of the data. A major problem is the diverging and often undefined use of terminology. In addition, the selection and interpretation of the data in secondary sources is often

⁸For an overview of the currently active schools of language typology refer to SHIBATANI & BYNON (1995).

biased by the hypothesis of the researcher. The use of sources that already rely on secondary sources should be avoided altogether since they potentially introduce or perpetuate errors or misreadings of the original. A typical example of a misreading is the following: GIVÓN (1995) uses Sacapultec (Maya) to support ‘the VSO-language argument’ while in the source, DUBOIS (1987) notes that Sacapultec is a VOS language, which is in accordance with the fact that other members of the same branch in the Mayan family of languages are also either VOS or VOS/VSO flexible (DAYLEY, 1981; ENGLAND, 1991; QUIZAR, 1979).

Detailed analyses of PVCs are rare in secondary sources, so that I decided to investigate PVCs in one language, Akatek (Maya), in detail and to embed the obtained results into a broader typological perspective.

I used data obtained from three different sources: from a grammar, from text collections and from elicitation. The grammar of Akatek offers a wealth of examples, many taken from texts, and is kept fairly descriptive (ZAVALA, 1992b). The second source of data is a published bilingual text collection (PENALOSA & SAY, 1992) along with texts of a native speaker (FRANCO, 1993). These texts, folk tales and personal narratives, were recorded, transcribed and edited with the help of the author.⁹ The third type of data was collected during interviews with two native speakers concentrating on the elicitation of grammaticality judgments and translations during a one-month field trip. All Akatek data in this thesis are from my field notes unless indicated otherwise.

4. Methodology

In this thesis, I adhere to a combination of partial and comparative typology. On one hand, the investigation focuses on one specific construction type, namely perception verb complements (PVCs). On the other hand, emphasis is given to the detailed description of one language, Akatek, and its comparison with English, which has been described in considerable detail. In addition, basic typological characteristics of Akatek such as word order are compared to English in order to investigate whether there are any correlations between traditional typological features and PVCs. The results of the description of the PVC systems of Akatek and English are embedded within the typological system of general complementation established by NOONAN

⁹The texts of Roberto Franco were collected and interlinearized in 1993 at the University of Oregon by myself and other students, who also generously shared their interlinearized versions of large parts of PENALOSA & SAY (1992) with me.

(1985). The notion of PVC system employed in this thesis involves the complex relationships between two semantic types, EVENTS and PROPOSITIONS, and the different structural PVC types employed in each language to express these semantic types. The characterization of the semantic types is based on VENDLER (1967), the description of the structural and semantic characteristics of the PVC types builds on the research that has been done on PVCs in English. After that, selected languages are used to develop a typology of PVC systems. In addition to presenting the cross-linguistic variety of PVCs, a number of correlations are established and based on these, a preliminary implicational hierarchy is presented. Due to the problems regarding secondary data sources and the difficulties of obtaining detailed information on PVC systems in a large number of languages, the results of the typological correlations must be seen as tentative. More specifically, I adhere to the following research strategy.

The first step is to define the two semantic types, describe lexicalization patterns and cognitive extension of the matrix PVs and define PVCs. Next, English PVCs are characterized structurally and semantically. This description permits to correlate the structural types with the semantic types and then correlate the outcome with typological findings regarding complementation. Based on these results, the structural and semantic characteristics of Akatek PVCs are described. Then, Akatek PVC types are correlated with the semantic types, compared to English PVC types, integrated into the typology of complementation and correlated with general typological characteristics. Finally, supplementing the results obtained from the detailed analyses of Akatek and English PVC systems with data from selected languages, a typology of PVCs is developed. The individual steps taken are summarized below:

1. Definition of semantic types: EVENTS and PROPOSITIONS
2. Lexicalization and cognitive extension of PVs
3. Definition of structural types: PVCs
4. English PVCs:
 - (a) Structural and semantic characterization
 - (b) Correlation with semantic types
 - (c) Correlation with typology of complementation
5. Akatek PVCs:
 - (a) Structural and semantic characterization
 - (b) Correlation with semantic types
 - (c) Comparison to English PVC types
 - (d) Correlation with typology of complementation
 - (e) Correlation with general typological characteristics

6. Typology of PVCs

I presuppose that there is at least one matrix PV in all languages investigated that is Janus-faced in sometimes acting as a verb expressing physical perception and sometimes like a cognitive predicate. In this case, two different semantic types, which are referred to as EVENTS and PROPOSITIONS, can be correlated with two or more different PVC types in each language. Based on the extensive literature dealing with PVCs in English I propose the following four hypotheses:

1. Hypothesis I
 Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS.
2. Hypothesis II
 At least one PVC type is exclusively EVENT denoting.
3. Hypothesis III
 PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting.
4. Hypothesis IV
 The ability to be embedded by the matrix predicate ‘*know*’ distinguishes the exclusively EVENT denoting PVCs from the primarily PROPOSITION denoting ones.

5. Goals and outline of chapters to come

The current study makes a typological and a descriptive contribution to our knowledge of PVCs. Its typological contribution consists in providing a comparative typology of English and Akatek PVC systems and in establishing an implicational hierarchy for PVC systems. Its descriptive focus lies on identifying PVC types in Akatek, providing structural and semantic characterizations of them, and correlating them with two semantic types, EVENTS and PROPOSITIONS. The scope of investigation is a distinct class of construction types (PVCs) defined by a group of specific matrix predicates (PVs). A number of construction types are excluded from the investigation: NPs, NP adjuncts, small clauses, relative clauses, and *wh*-clauses. Matrix predicates that embed PVCs are restricted in two ways. They must be passive PVs as opposed to active or copulative PVs, e.g. *see*, but not *look at* or *look like*. In addition, only those passive PVs qualify that are able to alternatively function as cognition predicates in the sense of e.g. ‘realize’ or ‘understand’.

Chapter 2 provides a cross-linguistic overview of perception verbs (PVs) and of the complements they take (PVCs). First, the lexicalization patterns of PVs and their meaning extensions are discussed. The scope of investigation is limited to a special class of PVs: *see*, *hear*, and *feel*, all of which semantically extend into the cognitive domain. Second, the variety of complement types that can be embedded by PVs is described. Special emphasis is given to the question which complement types combine with PVs denoting physical sense perception and which complement types combine with PVs expressing cognition.

Chapter 3 explores in detail the PVC system in English. The structural and semantic characterization of English PVCs serves as the basis of comparison for the description of PVCs in Akatek in chapter 5. In addition, I consider non-PV matrix predicates for the PVC types under investigation. The description of PVC types in English and the correlation of those PVC types with the semantic types is embedded in the framework of a typology of complementation suggested by NOONAN (1985).

Chapter 4 introduces the reader to the basic grammatical characteristics of Akatek and provides a traditional typological characterization of Akatek, showing that it is a fairly typical Mayan language. The foundation laid in this chapter complements the criteria laid out for the description of perception verb complements in chapter 3. Together, they serve as the basis for the investigation of Akatek PVCs in chapter 5. The typological description of Akatek in this chapter opens up the possibility to integrate the results regarding PVCs into a holistic framework aiming at developing patterns of connected properties, e.g. the possible relationship of basic word order and grammatical relations typology with PVCs, which is undertaken in chapter 5.

Chapter 5 contains the central part of the study, in which the hypotheses I, II, III, and IV are investigated regarding Akatek PVCs. As a prerequisite to the investigation of PVCs, the lexicalization pattern of PVs in Akatek is presented. Akatek PVCs are described following the structural and semantic characterization of English PVCs in chapter 3. In addition, non-PV matrix predicates for the PVC types are investigated and compared to non-PV matrix predicates of the corresponding English PVC types. The characterization of the PVC types in Akatek allows to correlate the PVC types with two semantic types: EVENTS and PROPOSITIONS. In addition, the PVC system established for Akatek is compared to the English PVC system and the typology of complementation suggested by NOONAN (1985). Based on the results of chapters 3 and 5, I propose a preliminary implicational hierarchy of PVCs as well as two more hypotheses:

- (24) Hypothesis V
PVC types higher up in the hierarchy are more likely to denote PROPOSITIONS, while PVC types lower in the hierarchy are more likely to denote EVENTS.
- (25) Hypothesis VI
All the complement types included in the typology of complementation can function as PVCs, but PVC types are not restricted to them.

I also consider the question of whether a connection can be established between the traditional typological description of Akatek presented in chapter 4 and the results of the typological considerations regarding the PVC system of Akatek.

Chapter 6 develops a typology of PVC systems. Information on PVC systems of selected languages supplements the results from the study of English and Akatek PVC systems. These languages are Cayuga, Mohawk, Nez Perce, Japanese, Cambodian, Fijian, Malagasy, Russian, Modern Greek, the Albanian dialect Arbëresh, Romance languages (French, Italian and Spanish), and German. The variation of EVENT denoting and PROPOSITION denoting PVC types in these languages as well as the variety of PVC systems support the implicational hierarchy established in chapter 5 and result in a number of correlations. The results support Hypothesis V and VI and indicate that Hypothesis I needs to be modified.

Chapter 7 summarizes the main findings and places the study in a wider linguistic perspective.

CHAPTER 2

Perception verbs and their complements

One aspect of lexical typology has been the investigation and comparison of lexical fields across languages. Research on basic color terms has shown that typologically, lexicalization of a certain semantic domain can follow an implicational hierarchy. BERLIN & KAY (1969) discovered that there is a universal inventory of eleven basic color terms: *white, black, red, green, yellow, blue, brown, purple, pink, orange, and grey*. All languages have a lexical item to express white and black. The remaining languages are ordered along the following hierarchy:

- (1) white < red < green < blue < brown < grey
 black yellow purple
 pink
 orange

The color term hierarchy reflects the observation that e.g. a language with four basic color terms will have a term for black, for white, for red and one for either yellow or green, whereas a language with five basic color terms has expressions for yellow and for green. A similar hierarchy has been established for verbs expressing the basic sense modalities of VISION, HEARING, TOUCH, SMELL, and TASTE (VIBERG, 1983). VISION ranks at the top of the hierarchy, i.e. if a language has only one perception verb, it is a verb that at least expresses VISION.

The goal of this chapter is to provide a cross-linguistic overview of perception verbs (PVs) and of the complements they take (PVCs). First, the lexicalization patterns of PVs and their meaning extensions are discussed. The scope of investigation is limited to a special class of PVs: *see, hear, and feel*. Second, the variety of complement types that can be embedded by PVs is described. The chapter is based on perception verbs in English and on cross-linguistic findings regarding perception verbs. The structure of the chapter is as follows.

Section 1 provides an overview of the lexical field of basic perception verbs for the five sense modalities. Next, the alleged primacy of vision verbs is discussed and the scope of further investigation limited to the passive PVs. In section 2, the hierarchical organization of the

sense modalities with respect to their cross-linguistic lexicalization is presented. In section 3, two ways of meaning extension for PVs are described. First, one PV can cover the meaning of one or more of the sense modalities. Second, PVs can semantically extend into the cognitive domain. Both types of meaning extension are oriented along the lexicalization hierarchy. Finally, evidence from the etymological development of Indo-European (IE) perception verbs is presented in support of the observed meaning extensions. In section 4, the complement types that occur with matrix PVs are presented based on Noonan's typology of complement types (NOONAN, 1985). In addition, typological findings regarding classes of complement taking predicates, especially of non-PV matrix predicates, are cited.

1. The lexical field

A lexical field like the field of perception verbs is characterized by the intricate interaction of field specific and field independent components. Field independent components apply to all verbal lexical fields while field specific components characterize individual lexicalization fields like that of perception verbs. For the lexical field of perception, the most important field specific components are the five sense modalities: VISION, HEARING, TOUCH, SMELL, and TASTE. These interact with the three field independent components called ACTIVE, PASSIVE, and COPULATIVE (VIBERG, 1984).¹ Viberg's paradigm predicts that a maximum of 15 different basic perception verbs (PVs) can be lexicalized cross-linguistically: an ACTIVE PV, a PASSIVE PV, and a COPULATIVE PV for each of the five sense modalities. Of course, a language can have many more verbs expressing perception. Viberg's study as well as mine are restricted to basic PVs like *smell*, while PVs like *sniff* are classified as non-basic.

The selection of a specific grammatical subject as base, i.e. either the perceiver or the object of perception, allows to distinguish between active and passive PVs on the one hand and copulative PVs on the other. Experiencer based verbs are distinguished from source based verbs in that the former take as subjects animates that undergo a certain experience while the latter choose the experienced entity as subject. Both active and passive PVs select the perceiver as their grammatical subject and are thus classed as experiencer based verbs, see (2-a) and (2-b), respectively (VIBERG, 1983). Copulative PVs select

¹ACTIVE and PASSIVE does not refer to voice distinctions here. In the course of the study active and passive PVs are distinguished from passivized (active or passive) PVs.

the perceived entity as their grammatical subject as shown in example (2-c), i.e. they are source based verbs, and thereby differ from active and passive PVs. Active and passive PVs differ from each other in that the former refer to unbounded volitional processes that a human agent consciously controls as in example (2-a) while the latter denote uncontrolled, non-volitional states as in (2-b).

- (2) a. Peter listened to the birds.
 b. Peter heard the birds.
 c. Peter sounded happy. VIBERG (1984), 125

As shown in examples (2-a) to (2-c), for the sense modality of HEARING, the English language lexicalizes three different verbs: the active PV *listen to*, the passive PV *hear*, and the copulative perception verb *sound*. However, this is not the case for all sense modalities in English. For example the sense of SMELL is only lexicalized as one PV, namely *smell*, which can function as an active, a passive and a copulative verb as shown in examples (3-a) to (3-c), respectively.

- (3) a. Peter smelled the cigar.
 b. Peter smelled cigars in the room.
 c. Peter smelled good. VIBERG (1984), 125

In Table 1 the lexicalization pattern of PVs in English is shown. Distinct active, passive, and copulative PVs are only lexicalized for the sense modalities of VISION and HEARING. This indicates that VISION and HEARING have a more prominent role than the other sense modalities, i.e. TOUCH, SMELL, and TASTE, for which there are no distinct lexicalizations for active, passive and copulative PVs.

TABLE 1. The basic paradigm of active, passive and copulative verbs of perception in English (after VIBERG (1983))

Sense modality	ACTIVE PVs	PASSIVE PVs	COPULATIVE PVs
VISION	<i>look (at)</i>	<i>see</i>	<i>look</i>
HEARING	<i>listen</i>	<i>hear</i>	<i>sound</i>
TOUCH	<i>feel</i>	<i>feel</i>	<i>feel</i>
SMELL	<i>smell</i>	<i>smell</i>	<i>smell</i>
TASTE	<i>taste</i>	<i>taste</i>	<i>taste</i>

Earlier research has shown that perception expressions referring to the sense of VISION in English show greater syntactic, morphological

and semantic variation than verbs referring to the other four sense modalities (COOPER, 1973a,b). As examples, Cooper provides ‘Verb + Particle’ constructions (4), the ability of visual PVs to occur in imperatives (5), and the ability of perception denoting nouns to occur in Noun-Adjunct constructions (6).

- (4) Look up the address. COOPER (1973b), 34
- (5) Look at you, tracking mud all over my clean kitchen!
COOPER (1973b), 35
- (6) The waitress is a good-looker. COOPER (1973b), 36

All three types of construction are frequent or at least grammatical for vision expressions. For the other sense modalities, these constructions are either less frequent or ungrammatical. Expressions for HEARING exhibit the highest degree of overlap with the syntactic and morphological abilities of VISION expressions, expressions for TOUCH, SMELL, and TASTE do so to a decreasing degree. Morphologically, expressions referring to VISION exhibit more affixed forms than non-vision sense referents. For example, besides the noun *sight*, there is *insight*, *foresight*, and *hindsight*, furthermore the adjective *insightful* and the adverb *insightfully*. In Viberg’s cross-linguistic data, VISION is the sense modality with the greatest degree of lexical elaboration (VIBERG, 1984). Especially for active visual perception, there is a large number of hyponyms and the passive visual PV seems to be the only passive PV that has any hyponyms at all. COOPER (1973a) explains the observed primacy of the VISION modality with the importance accorded to visual information as our main source of information. Even in Australian languages, which preferably derive verbs of cognition from HEARING verbs and not from VISION verbs, VISION verbs are the only perception verbs that are never derived from another modality, i.e. vision is the unmarked perceptual modality (WILKINS, 1996).

This study deals with experiencer based passive PVs like *see* for two reasons. First, as opposed to active PVs, passive PVs in English and other languages extend their meaning into the cognitive domain, and second, passive PVs can embed all of the following complement types (PVCs): naked infinitives, gerunds, nominalizations, infinitival complement clauses, and tensed complement clauses with the complementizer *that*. These PVCs are the topic of section 4. Active PVs in English, which are experiencer based verbs like passive PVs, cannot take infinitival complement clauses or tensed complement clauses with

the complementizer *that*. Therefore, active PVs are referred to for contrastive purposes in this thesis while source based copulative verbs are excluded from the observations.

In English, different passive PVs are lexicalized for all five sense modalities, i.e. *see*, *hear*, *feel*, *smell*, and *taste*. However, most languages do not have five basic passive PVs lexicalized, i.e. one for each of the five sense modalities. The majority of languages lexicalizes between one (possibly even none) and four simple verbs to refer to the five modalities of passive sense perception (VIBERG, 1983). In the next section lexicalization patterns of passive PVs across languages as investigated by VIBERG (1983, 1984) are presented.

2. The hierarchy

Typological investigations by VIBERG (1983) resulted in a basic lexicalization hierarchy of sense modalities as shown in (7).²

(7) VISION > HEARING > TOUCH > SMELL, TASTE

The hierarchy reflects the tendency that if a language has lexicalized only one verb for passive perception, it will be a verb for VISION, if a language has two passive PVs, these two will cover VISION and HEARING, and so on. SMELL and TASTE do not exhibit a clear lexicalization ordering across languages, and are sometimes lexicalized as one verb for both sense modalities.³ Therefore, in (7) they are separated by a comma. Put differently, if a language has an expression for one sense modality, it also exhibits expressions for all of the sense modalities higher, meaning to the left of that expression, in the hierarchy in (7). However, Viberg himself notes a number of exceptions to the hierarchy:

First of all, the claim that every language has at least one basic passive PV for VISION does not hold: Ngarinjin, a Kimberley language of NW Australia, does not have any simple verb for perception. Instead, an expression equivalent to ‘strike with light’ is used for passive visual perception and ‘hold with light’ for active visual perception (VIBERG, 1983).

The second exception is that the only basic passive PV is one for general sense perception, and not one specifically for vision. Thus, in

²Viberg’s sample consisted of 53 languages. According to Viberg, European languages are overrepresented in his sample while North and South America and Oceania are highly underrepresented (VIBERG, 1983). The data were obtained from bilingual dictionaries and via questionnaires based on the basic paradigm for verbs of perception as presented in Table 1.

³For example Middle High German *smecken* was used for both SMELL and TASTE (BUCK, 1949).

Kobon (Papua), Vietnamese, and Chinese there is only one verb for passive perception, and that does not have a prototypical meaning of VISION, but expresses general sense perception. Both Vietnamese and Chinese have distinct active PVs for each sense modality. In order to achieve the passive perception reading, the verb for general sense perception is added to the active PV. In other words, both languages use serial verb constructions to distinguish for example passive ‘see’ from passive ‘hear’, while the only simple verb lexicalized for passive perception is unspecified for any sense modality. VIBERG (1983, 1984) explicitly focused on lexicalization patterns of the five sense modalities without including the possibility of additional lexicalizations for general sense perception. However, he notes that few languages with specific lexical items for the sense modalities have an additional general sense PV. If this observation bears closer examination, English would be among the few languages having verbs both for specified and unspecified sense perception, i.e. *sense* and *perceive*. German also has a verb for general passive sense perception, *wahrnehmen* ‘perceive’. However, the lexical field of basic perception in German is more intricate than in English. In addition to the TOUCH PV *fühlen* ‘feel’ there is a second PV, *empfinden*, which is close to *fühlen* in that both can express the sense modality of TOUCH or general sense perception. Similarly, *spüren* ‘sense’ can express general sense perception but also has the tactile interpretation ‘feel’. There seems to be a connection between lexicalizations for TOUCH and expressions for general sense perception. Findings regarding the historical development of lexicalization patterns for the sense modalities are provided in section 3.3.

As a solution in terms of the hierarchy, I limit the investigation to lexical items for the five sense modalities, and only if no specific verb for any of the modalities is lexicalized, like e.g. in Kobon (see VIBERG (1984), p. 150), then I resort to the general verb for perception. In other words, the general verbs for perception in English and German are outside the scope of the investigation because both languages exhibit a complete lexicalization of the hierarchy, i.e. a distinct passive PV for each sense modality.

The third exception VIBERG (1983) notes is Seneca, an Iroquoian language. In Seneca, passive PVs for VISION, HEARING, SMELL/TASTE are lexicalized, but not for TOUCH, so that hierarchy (7) does not work here. Due to the under-representation of American Indian languages in Viberg’s sample, however, he assumes that this pattern is not uncommon, so that for the time being, the ranking of TOUCH, SMELL and TASTE within the hierarchy is unclear (VIBERG, 1983).

In sum, the revised version of the lexicalization hierarchy for passive PVs as shown in Table 2 considers the exceptions presented above. First of all, no basic passive PV might be available in a language (\emptyset). Second, in case only one PV is lexicalized, there is either a PV for VISION or for general sense perception, i.e. PERCEIVE. Third, the order of TOUCH, SMELL, and TASTE cannot be decided at this point.

TABLE 2. Revised lexicalization hierarchy for passive perception verbs (after VIBERG (1983))

\emptyset	>	PERCEIVE/ VISION	>	HEARING	>	TOUCH SMELL TASTE
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In the next section, two kinds of meaning extension of passive PVs are discussed. The first meaning extension is along the sense modality hierarchy. More specifically, PVs higher in the hierarchy can cover meanings of PVs lower in the hierarchy but not vice versa. The second meaning extension of passive PVs is an extension to non-perception domains like cognition.

3. Types of meaning extension

Two types of meaning extension are described. First, the ‘last’ PV lexicalized along the hierarchy often covers some or all of the meanings ‘below’ it (section 3.1). Second, passive PVs can extend their meaning from the domain of perception to the domain of cognition. In this case, the tendency to acquire cognitive extensions roughly follows the sense modality hierarchy as well (section 3.2). In section 3.3, etymological evidence for both types of meaning extension is provided.

3.1. Extension along the hierarchy. The sense modality hierarchy established by VIBERG (1983, 1984) reflects a hierarchical tendency of PVs to cover meanings lower on the hierarchy. Cross-linguistically, the lowest, i.e. the rightmost, PV lexicalized in a particular language along the hierarchy tends to cover all or a part of the unlexicalized meanings to its right with the exception that certain modalities may be skipped. In other words, if a language lexicalizes passive PVs for the senses of VISION and HEARING, the PV for HEARING is likely to be extended in meaning to the senses of TOUCH, SMELL and TASTE. This meaning extension along the sense modality hierarchy can either be achieved via polysemy, or via serial verb constructions or compound

verbs, i.e. a PV plus an NP specifying the sense modality or the perceived item.⁴ Viberg also notes that this polysemy phenomenon is predominant in the passive PVs and only rarely occurs in active or copulative PVs.

3.2. From perception to cognition. As already mentioned, passive PVs allow abstract interpretations. This semantic extension into the abstract, cognitive domain also follows the sense modality hierarchy. In other words, if PVs in a language extend into the cognitive domain, at least the passive PV for VISION will extend. If two PVs for different sense modalities extend into the cognitive domain, then those are the ones for VISION and HEARING, etc. In his typological study, VIBERG (1984) observed the following cognitive and what he termed ‘social’ meanings that can be assumed by PVs. As cognition sense he identified ‘know, understand’, ‘experience, think’, and ‘suspect’. What he called ‘social’ meaning of PVs are ‘meet’, ‘obey’, and ‘know-a-person’ as listed in Table 3.

TABLE 3. Extended meanings of basic passive perception verbs across languages (VIBERG (1984), 158)

Perception verb	Cognition meaning	‘Social’ meaning
‘see’	‘know, understand’	‘meet’
‘hear’	‘know, understand’	‘meet, obey’
‘feel’	‘experience, think’	‘know-a-person’
‘smell’	‘suspect (detect a secret)’	
‘taste’	‘experience’	

There are counter-examples against the claim that the cognitive extension of PVs follows the lexicalization hierarchy. In Australian languages, the main PV sources for cognitive expressions are verbs of HEARING (WILKINS, 1996). According to a study by ROHMER (1996) the verb for ‘hear’ is polysemous with the verb for ‘think’ in Yankunytjatjara, the closely related Pitjantjatjara, and Warlpiri. This, however, does not exclude the possibility that the verb for ‘see’ also extends into the cognitive domain. ROHMER (1996) cites one example for a cognitive extension of *nya* ‘see’ in Yankunytjatjara. He also quotes two examples for conceptual reports after *nya* ‘see’ in Ngaanyatjarra (GLASS, 1983). Thus, the evidence available to me regarding Australian languages is not conclusive. Possibly, Japanese and Cambodian also prefer HEARING over VISION with respect to extension into the cognitive domain

⁴For an illustration of this claim refer to VIBERG (1984), p. 138.

(HUFFMAN (1970), ANNE HOLZAPFEL (p.c.)).⁵ An additional argument for a primacy of the HEARING modality instead of the primacy of VISION is provided by studies of morphologically distinct sensory evidentials, which lexicalize along the following (tentative) hierarchy (ANDERSON, 1986):

- (8) HEARING > NON-VISION SENSORY > VISION

Evidentials indicate the kind of evidence available to the speaker for making a claim, e.g. sensory evidentials indicate whether the information was obtained by visual, non-visual sensory, or auditory means. Haptic, gustatory or olfactory sources of information are cross-linguistically subsumed within a non-visual sensory evidential marker (ANDERSON, 1986). Evidentials also play a role in the interpretation of perception verb complements, which will be explored in section 4.1 and in chapter 6. In other words, regarding the lexicalization of morphological evidentials, HEARING has primacy over VISION, and VISION and HEARING are lexicalized as distinct evidential markers as opposed to the three other sense modalities.

At this point, VISION and HEARING PVs appear to be in competition with respect to serving as the main source for cognitive extensions. The main division within the sense modality hierarchy has been drawn between VISION, HEARING and TOUCH on the one hand and SMELL and TASTE on the other - and not between VISION and HEARING vs. TOUCH, SMELL, and TASTE. Differences in behaviour of the individual PVs reflect the ordering in the hierarchy. Thus, in English, tensed complements of PVs in the upper part of the hierarchy, i.e. *see*, *hear*, and *feel*, can occur without the complementizer *that* as shown in (9), which is not possible for complements of PVs of the lower part of the hierarchy, i.e. *smell* and *taste* as illustrated by the ungrammaticality of the bracketing in example (10) (CAPLAN, 1973).

- (9) a. John saw/heard/felt (that) Mary would run to the store.
CAPLAN (1973), 274
b. John saw/heard/felt (that) the dinner was already cooked.
- (10) a. John smelled *(that) the dinner was already cooked.
CAPLAN (1973), 274
b. John tasted *(that) the pudding was already sweet.
CAPLAN (1973), 274

⁵For details see also chapter 6, section 3.4.

As can be seen in (9), the passive PVs *see*, *hear* and *feel* can take complements with cognitive content as well as complements with perceivable content, while *smell* and *taste* cannot take tensed complement clauses with cognitive content as demonstrated in (11).

(11) John smelled/tasted *that Mary would run to the store.

Both *smell* and *taste* can take tensed complements, but the meaning of the complements must refer to something perceivable as in the examples in (10) above. However, in accordance with the cross-linguistic observations presented in Table 3, *smell* and *taste* in English can be used in a cognitive sense, then taking abstract NP complements:

(12) a. John smelled danger in the air. CAPLAN (1973), 275
 b. John tasted defeat. CAPLAN (1973), 275

Vision verbs in English are distinct from the other PVs in that they can be assigned more cognitive extensions than expressions referring to the other sense modalities. For instance, in example (13-a), *look* means ‘consider’, in example (13-b) *see* means ‘comprehend’, in (13-c) it means ‘escort’ and in (13-d) ‘make certain’.

(13) a. Let’s look at these facts. COOPER (1973a), 6
 b. I see your point. COOPER (1973a), 6
 c. See the lady home. COOPER (1973a), 6
 d. See (to it) that this work is completed soon.
 COOPER (1973a), 6

Regarding the upper part of the hierarchy, i.e. VISION > HEARING > TOUCH, a decrease in certainty regarding the information conveyed in the finite *that*-complement has been noted for Polish (KRYK, 1979), English and Swedish (VIBERG, 1984). Parallel to the hierarchical ordering for the lexicalization of PVs and the meaning extensions along the hierarchy and into the cognitive domain, the sense modality hierarchy also reflects a decrease in certainty of PVs that extended into the cognitive domain from VISION over HEARING to TOUCH. The English examples below demonstrate that while *see* is implicative (14-a), *hear* and *feel* are nonimplicative. The difference between *hear* and *feel* is that the certainty of the information in (14-b) depends on the source of the information, i.e. it could be either true or false, while (14-c) is uncertain.

(14) a. I saw that John hated TG: True.

- b. I heard that Mary smoked grass: True, as long as the source of information is not questionable.
 - c. I feel that she has burned the cake: Uncertain.
- VIBERG (1984), 157

The passive PVs *see*, *hear*, and *feel* - as well as the copulative PVs *look like*, *sound like*, *feel like* - are used in English to express sensory evidence (CHAFE, 1986). As opposed to PVs embedding finite *that*-complements, however, passive PVs with *ing*-clauses as complements express a high degree of certainty no matter which PV is used:

- (15)
- a. I see her coming down the hall. → She's coming down the hall. CHAFE (1986), 267
 - b. I hear her taking a shower. → She's taking a shower. CHAFE (1986), 267
 - c. I feel something crawling up my leg. → Something is crawling up my leg. CHAFE (1986), 267

As a preliminary generalization, a verb higher up in the hierarchy expresses a cognitive meaning that carries a higher degree of certainty than a verb lower in the hierarchy. One way to explain this observation is that human communication is transmitted through the senses of VISION, HEARING and marginally also TOUCH, while the senses of SMELL and TASTE do not serve this purpose. Not even in cultures where the senses of SMELL and TASTE play an important social role do they extend their meaning into the cognitive domain as for example in Warlpiri (CAPLAN, 1973). This claim is opposed to Viberg's cross-linguistic observations presented in Table 3 and the observation that in English *smell* and *taste* can take abstract NP complements. Viberg observed cognitive extensions for all five sense modalities, while 'social' extensions seem to be restricted to VISION, HEARING and TOUCH.⁶

There is a neuro-anatomical explanation for the division between VISION, HEARING, and TOUCH on the one hand and SMELL and TASTE on the other (CAPLAN, 1973). Information obtained by the senses of SMELL and TASTE is perceived via different neuro-anatomical pathways than information obtained by the senses of VISION, HEARING and

⁶In German there is an extension from *nicht riechen können* 'not be able to smell' to 'dislike a person':

- (i) Sie kann ihn nicht riechen.
 she can.3s him not smell
 'She cannot stand him.'

TOUCH. For the sense of SMELL and TASTE, the incoming sensory data are received and projected in the limbic areas, while the information obtained via VISION, HEARING and TOUCH is first projected in the neo-cortex. The neo-cortex is, phylogenetically seen, the youngest part of the cerebrum, which constitutes a proportionally larger part of the human brain than of animal brains. The neo-cortex is the location of most of the intellectual abilities which distinguish humans from other beings. The visual and auditory areas in the cortex are located in close proximity to the language area. Specifically the left perisylvian region of the cerebral cortex has been identified as the language ‘organ’ (PINKER, 1994). The left side of the human brain is also specialized for hand control.

Possibly, the hemisphere that already contained computational microcircuitry necessary for control of the fine, deliberate, sequential manipulation of captive objects was the most natural place in which to put language, which also requires sequential control. PINKER (1994), 306

From a purely physiological point of view, VISION and HEARING differ from the other sense modalities in three ways. First, they can cover a much larger distance than TOUCH, SMELL and TASTE. The distance we can cover with our haptic sense is around 1 metre, with our olfactory sense, several hundred metres. Our auditory sense allows us to cover several kilometres, and our sense of vision almost indefinitely more (ZENNER & ZRENNER, 1994). Second, both VISION and HEARING have the ability to focus on stimuli, e.g. by head or eye movement. Our eyes have far greater abilities to focus than our ears. Third, VISION and HEARING can analyse stimuli in great detail and with high accuracy. So, with our eyes we can distinguish relative lightness, a large variety of colours and shapes, movements, and obtain - to a degree - three dimensional information (ZENNER & ZRENNER, 1994), whereas our sense of TASTE mainly distinguishes between bitter, sweet, sour, and salty (HATT, 1990).⁷ About 60 percent of all the information our brain receives from the environment is taken in through our eyes (STIEVE & WICKE, 1990). This might help to explain why VISION ranks at the top of the lexicalization hierarchy of sense modalities established by VIBERG (1983) followed by HEARING, TOUCH, SMELL and TASTE. This observation also supports the observation that VISION verbs are the ‘first’ in the hierarchy to undergo semantic extension into the cognitive domain

⁷This generalization does not apply to the human sense of SMELL.

SWEETSER (1990) identified two target domains for the semantic extension of PVs: knowledge or intellect and mental 'vision'. Mental 'vision' she sees as a result of the strong connection between VISION and knowledge, i.e. our ability to focus our attention mentally and visually, thereby monitoring stimuli with our minds and with our eyes. This can be seen in English in verb forms like *look down on*, *look up to*, *look after*, etc. The other target domain, knowledge or intellect, Sweetser relates to the fact that vision is our primary source of objective data about our world. This is supported by the decrease in certainty along the hierarchy mentioned above where VISION verbs express the highest degree of certainty and also by studies of evidentials, which show that visual evidence is considered the strongest and most reliable source of data (ANDERSON, 1986). While both VISION and HEARING function over a distance, only our sense of VISION can be physically focused on the object of perception, e.g. by turning around or looking in one or the other direction. HEARING can only marginally be focussed on the object of perception by a physical movement. It is a mainly mental activity. The distance these two sense modalities are able to cover is connected with 'objectivity' and 'intellect', while closeness that is required especially for the sense modalities of TOUCH and TASTE is often equated with 'subjectivity', 'intimacy', and 'emotion' (SWEETSER, 1990). This observation (based on IE) also supports the hierarchical tendency of PVs to extend into the cognitive domain.

Additional support for the close connection between VISION and knowledge stems from Viberg's observation that the notions of 'see' and 'know' are covered by one word in several Polynesian and Australian languages (VIBERG, 1984). In the Papuan language Kobon the only PV can also mean 'understand' (DAVIES, 1981). Etymologically, the basic word for *know* in several IE languages, e.g. German *wissen*, derives from a root meaning 'have seen'. There are counter-examples, however. The case of Latin *sapere* 'taste' demonstrates that TASTE and knowledge can likewise be connected, since *sapere* also expresses 'know, be wise'. In Spanish, *saber* can still mean 'taste' as well as 'know', while in French *savoir* is restricted to 'know'.

As I will show in the next section, the observation that verbs in the upper part of the hierarchy are more likely to extend their meaning into the cognitive domain is supported by the etymological development of IE PVs.

3.3. Etymological evidence. Etymologically, the meaning extension from one sense modality to a different one as well as the extension into the cognitive domain are common phenomena. In addition

to the meaning extensions observed within the domain of perception, there are some non-sensory sources for the domain of perception including words expressing ‘know’, ‘seize, take’ or ‘stretch out, direct one’s attention to’ as is shown further below.

BUCK (1949) notices that most verbs for general sense perception, e.g. *sentire*, are also used in the sense of ‘perceive’ mentally or ‘feel’ emotionally. These additional usages have not necessarily been acquired secondarily. For example, *perceive* developed from Latin *percipere* ‘seize, get, perceive (by mind or senses of sight or hearing), feel (pain, joy, etc.)’, which in turn is a compound of *capere* ‘seize, take’. The Old Norse *kenna*, which literally meant ‘know, recognize’, also covered sense perception, especially for SMELL, TASTE, and TOUCH, which Swedish *känna* still does today. In other words, a non-sensory meaning is sometimes the etymological source for verbs expressing general sense perception.

In IE, VISION and knowledge go back to the same root **weid*. The meaning ‘know’ is probably a secondary one derived from the perfect of **weid*, **woida*, which meant ‘have seen’ and later on ‘know’.

The general tendency regarding the semantic change for the sense of HEARING is that sense perception develops into cognitive insight, e.g. ‘understand’ or ‘obey’ (Latin *auscultare*, New High German *gehörchen*). This can also be observed in nouns that etymologically developed from ‘hear’. They often denote ‘what is heard from speech’, e.g. ‘report, news, fame’ or ‘word’ (BUCK (1949), 1036). An uncommon development can be traced in French for *entendre* ‘hear’, which does not stem from a PV but from Latin *intendere* ‘stretch out, direct one’s attention to’. *Entendre* replaced the older verb for HEARING, *ouïr*. Along with Italian *intendere* and Spanish *entender*, *entendre* originally meant ‘understand’ and semantically extended into the perception domain to cover HEARING.

The etymologically verified connection between SMELL and TASTE, and to a degree also TOUCH, in the IE languages (BUCK, 1949) explains in part the difficulty to order these three sense modalities along the hierarchy. For example, Middle English *fele* ‘feel’ was used basically for TOUCH, but also for SMELL and TASTE. On the other hand, there are cases of etymologically older words for general sense perception that have been restricted in the modern languages to a particular sense. An example is Latin *sentire* ‘perceive’, which in Modern Italian was narrowed down to mean ‘hear’ (instead of the older lexicalization for HEARING, *udire*) and ‘smell’ (instead of the older lexicalization for SMELL, *odorare*). In French, *sentir* designates ‘smell’. On the other

hand, *sentire* developed in Middle and New High German into the cognitive verb *sinnen* ‘think’.

3.4. Summary. In sum, I have shown that the lexicalization pattern for perception verbs, i.e. the sense modality hierarchy as presented in section 2, is connected to meaning extensions along the hierarchy and into the cognitive domain. PVs higher up on the hierarchy can cover meanings lower in the hierarchy while the reverse is never the case. In the cases of meaning extension into the cognitive domain, the organization of the hierarchy does not remain stable. Many Australian languages prefer to extend their HEARING rather than their VISION verbs into the cognitive domain. Additional observations regarding the lexicalization of morphological evidentials based on perception verbs indicate that auditory evidentials are primarily grammaticalized followed by non-visual sensory evidentials and only then by visual evidentials. The extension into the cognitive domain follows a hierarchical ordering according to degree of certainty depending on the complement type. In this case the lexicalization hierarchy applies again: passive PVs in the upper part of the hierarchy that extend into the cognitive domain, in English *see*, express a higher degree of certainty when followed by a finite *that*-complement than those in the lower part of the hierarchy, in English the verb *feel*. The etymological development that can be traced for the domain of perception supports Viberg’s sense modality hierarchy. The connection between knowledge and vision is etymologically attested, as well as the hierarchical tendency for PVs to extend into the cognitive domain. Non-perceptual sources for PVs can be found and the difficulty to order TOUCH, SMELL, and TASTE along the hierarchy is reflected in historical developments. I restricted the ensuing investigation of PVs and their complements to passive PVs in the upper part of the lexicalization hierarchy: *see*, *hear*, and *feel*.

4. Perception verb complements

Any typological study of PVCs should take the typology of complementation into consideration. I base my investigation of PVCs in Akatek on the typological studies of complementation by NOONAN (1985) and CRISTOFARO (1998). Furthermore, results of earlier studies dealing with the typological classification of perception verb complements by DIK & HENGEVELD (1991); MÖNNICH (1992b); HORIE (1993) are presented. In chapter 6, I use Noonan’s typology of complementation to develop a typology of perception verb complements. Cross-linguistically each type of complement identified by NOONAN (1985) can function as a PVC.

As has been mentioned in section 1, passive PVs in English are able to embed a number of different complement types (PVCs): NPs (16), naked infinitives as in example (17), gerunds as in (18), *ing-of* complements as in (19), infinitival complement clauses, see (20), or tensed complement clauses with the complementizer *that* as in example (21).

- (16) Dick saw Rosemary.
- (17) Dick saw Rosemary remove the crucial part of the Watergate tape. BARWISE (1981)
- (18) John felt Mary trembling beneath her coat. CAPLAN (1973)
- (19) I felt the trembling of the earth. VENDLER (1967), 138
- (20) I felt him to possess the necessary qualifications.
BOLINGER (1974)
- (21) Dick saw that Rosemary removed the crucial part of the Watergate tape. BARWISE (1981)

Recall from section 3.2 that passive PVs can extend their meaning into the cognitive domain. Recall furthermore from chapter 1 that, semantically, I distinguished three different kinds of objects of perception: OBJECTS, EVENTS, and PROPOSITIONS, the latter two of which constitute the center of my endeavour regarding PVCs. The hypotheses established in chapter 1 are repeated here for convenience:

1. Hypothesis I
Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS.
2. Hypothesis II
At least one PVC type is exclusively EVENT denoting.
3. Hypothesis III
PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting.
4. Hypothesis IV
The ability to be embedded by the matrix predicate '*know*' distinguishes the exclusively EVENT denoting PVCs from the primarily PROPOSITION denoting ones.

The semantic characteristics of events and propositions are manifest in the different complement types. Both semantic types also have structural repercussions. In section 4.1, I present semantic properties

that have been attributed to PVC types. In section 4.2, basic structural properties of complement types in general and PVCs in particular are discussed. As an addendum, in section 4.3 I consider non-PV matrix predicates that are able to embed some of the same complement types which occur with PV matrix predicates. This serves as the typological basis for the ensuing investigation of non-PV matrix predicates of PVC types in English and Akatek.

4.1. Semantic properties. The following semantic properties of EVENT denoting PVC types have been noted: EVENT denoting PVC types need to be temporally simultaneous with the matrix PV, they need to express something perceivable, they cannot be negated, and cannot alternatively be embedded by knowledge predicates (DIK & HENGEVELD, 1991). PROPOSITION denoting PVC types, on the other hand, can, but need not, be simultaneous, can, but need not, convey perceivable content, can be negated and can be embedded by knowledge matrix predicates. In addition, the modification of a PVC with sentential adverbials or evidentials ensures a propositional interpretation (GEE, 1977; MÖNNICH, 1992b).

An observation shall be added here regarding the behavior of the matrix PV. There is a restriction for PROPOSITION denoting PVCs that their matrix PVs cannot admit the progressive. This is due to the fact that stative, i.e. here cognitive, predicates in general lack the ability to occur in the progressive form.

- (22) a. We're seeing Apollo 19 take off.
KIRSNER & THOMPSON (1976), 221
- b. *We're seeing that Apollo 19 takes/is taking off.
DECLERCK (1983), 34
- c. *We're seeing the figure to be a woman.
DECLERCK (1983), 37

The only two semantic properties considered in this section are the simultaneity requirement for EVENT denoting PVCs and the use of evidentials for PROPOSITION denoting PVCs. Detailed accounts of the semantic properties of PVCs in English and in Akatek are presented in chapters 3 and 5, respectively.

In order for a PVC to be EVENT denoting, simultaneity between the act of perception and the perceived EVENT is obligatory. Simultaneity can either be assured by complements lacking tense/aspect or by complements adhering to specific tense/aspect restrictions as shown in chapter 6, section 2.7. Primarily PROPOSITION denoting PVCs are aspectually and temporally unrestricted (among others, GUASTI (1993)).

A strategy for languages with a highly reduced system of complementation is the use of evidential markers. Evidential markers ‘indicate something about the source of the information in the proposition’ (BYBEE (1985), 184). More specifically, morphological markers of evidentiality are defined in the following way (ANDERSON, 1986):

- (23) a. Evidentials show the kind of justification available to the speaker for a claim she makes:
1. Direct evidence or
 2. Evidence plus inference or
 3. Inference or
 4. Reasoned expectation from logic and other observations
- b. Evidentials are a specification added to a claim.
- c. Indication of evidence is the primary meaning of evidentials.
- d. Evidentials can be inflections, clitics, or other free syntactic elements.

As indicated in (23-a), evidentials express the source of the information to indicate the degree of certainty regarding the content of the information. Typically, they tell the listener or reader whether the information is based on perception, inference or hearsay.⁸ In other words, the presence of an evidential excludes the interpretation of the PVC as an event. Evidentials force a propositional reading.

4.2. Structural properties. As structural properties of PVCs DIK & HENGEVELD (1991) and HORIE (1993) identify the complementizer and the complement type. Cross-linguistically, complementizers can be words, particles, clitics, or special affixes. The presence of complementizers can be optional or obligatory. Complementizers can occur alone, in combination, or be completely absent. Historically, complementizers often developed from pronouns, conjunctions, adpositions or case markers (NOONAN, 1985). As a structural parameter, complementizers can be either absent or present. Semantically, complementizers can contribute to the interpretation of the complement. Presupposing that every language has at least one EVENT denoting PVC type and one PROPOSITION denoting PVC type, there are four logically possible combinations of complementizers (COMPs) shown in Table 4.

⁸See WILLETT (1988) and ANDERSON (1986) for more details.

TABLE 4. Distribution of complementizers

PROPOSITION denoting PVCs	EVENT denoting PVCs	Language
+ COMP	+ COMP	Russian
+ COMP	– COMP	Cambodian
– COMP	– COMP	Cayuga
– COMP	+ COMP	n.a.

The last combination in Table 4, – COMP + COMP, has to my knowledge not been attested, so that I can posit the first implicative correlation:

- (24) Correlation 1:
 If the EVENT denoting PVC has a complementizer, then the PROPOSITION denoting PVC also has a complementizer.

Correlation 1 excludes a situation in which the EVENT denoting PVC has a complementizer while the PROPOSITION denoting PVC lacks one.

The form of the predicate of the complement has been the central criterion for the identification of different complement types. One typological approach to the study of PVCs suggested the distinction between finite and non-finite complements (HORIE, 1993). Under this approach non-finiteness is defined in that the complement is less likely to show tense, aspect and modality marking than a finite complement, which in turn exhibits marking for tense, aspect, and mood. HORIE (1993) makes the following cross-linguistic observations regarding the encoding of EVENT vs. PROPOSITION denoting PVCs:

- (25) Correlation 2.1 (HORIE, 1993):
- a. If a finite PVC denotes events, then a finite PVC also denotes propositions.
 - b. If a non-finite PVC denotes propositions, then a non-finite PVC also denotes events.

That the finite vs. non-finite distinction ‘turns out to be of limited cross-linguistic applicability’ for the definition of structural types has recently been pointed out by CRISTOFARO (1998). First of all, languages differ with respect to the number and type of parameters that might be relevant for defining finite vs. non-finite. Therefore, it is impossible to define a fundamental set of morphological parameters to define the notion of finiteness. Secondly, distribution is problematic in that verb forms lacking a number of verbal categories, e.g. imperatives, can only occur in independent clauses while there are verb forms

that are morphologically restricted to dependent sentences, which are still marked like verbs in independent sentences. The latter is a case of so-called independent mood occurring e.g. in West Greenlandic. Finally, in languages where verbs are not inflected for any parameter or always only for a single one, e.g. aspect, the opposition between finite and non-finite cannot be established at all. This is the case in most isolating languages, e.g. in Chinese.

As an alternative to the notion of finiteness, CRISTOFARO (1998) suggests a combination of Stassen's *balancing* and *deranking* strategies (STASSEN, 1985) and Haspelmath's *dependent* and *independent* verb forms (HASPELMATH, 1995). A verb form is defined as dependent, if it cannot occur in an independent declarative clause, no matter by what means this is indicated.⁹ In other words, while independent clauses can by definition only contain independent verb forms, complement clauses can contain either independent or dependent verb forms. The main strategies for marking the dependent status of a verb form are:

1. reduction of verbal morphology
2. special morphemes
3. indications of category change like exhibition of nominal or adjectival features (CRISTOFARO, 1998)

CRISTOFARO (1998) analyzed the cross-linguistic distribution of dependent and independent complements occurring with different matrix predicate classes. Her total sample consisted of 81 languages. I used the results of her study to investigate the distribution of dependent (D) and independent (I) PVCs. All the logically possible combinations of D, I and D/I are presented in Table 5. According to CRISTOFARO (p.c.), cases in which perception verbs function as knowledge predicates were subsumed under knowledge predicates. Regarding PVCs this means that EVENT denoting PVCs are perception predicate complements in her study, and PROPOSITION denoting PVCs are among the complements of knowledge predicates. I presuppose the extension of PVs into the cognitive domain to be a universal, so that I assume that PROPOSITION denoting PVC types are among the complement types of knowledge matrix predicates of her study. Since not for all languages in Cristofaro's sample sufficient information was available for complement types of both perception and knowledge predicates, the sample had to be reduced to 35 languages. The results of my analysis of Cristofaro's data are depicted in Table 5. It shows the distribution of independent

⁹Even though Cristofaro uses Stassen's terminology, for reasons of perspicuity I prefer to use Haspelmath's terms *dependent* and *independent* in the following.

TABLE 5. Distribution of independent (I) and dependent (D) verb forms (based on CRISTOFARO (1998))

	Complements of perception predicates (EVENT denoting)	Complements of knowledge predicates (PROPOSITION denoting)	no. of attested languages (total: 35)	Example
1	D	D	2	Maricopa
2	D	D/I	5	Maori
3	D	I	3	Shoshone
4	D/I	D/I	6	Italian
5	D/I	I	5	Basque
6	I	I	14	Chinese
7	I	D/I	0	—
8	D/I	D	0	—
9	I	D	0	—

vs. dependent verb forms in complements of perception and knowledge predicates.

Correlation 2.2 reflects the observation that the last three combinations in Table 5 are unattested in the sample: (26-a) predicts that patterns 8 and 9 do not occur and (26-b) explains the absence of patterns 7 and 9.

(26) Correlation 2.2 (based on CRISTOFARO (1998))

- a. If an independent verb form occurs after perception predicates, then an independent verb form also occurs after knowledge predicates.
- b. If a dependent verb form occurs after knowledge predicates, then a dependent verb form also occurs after perception predicates.

Correlation 2.2 confirms the observations stated in Correlation 2.1 provided that finiteness is equated with independency and non-finiteness with dependency.

The number of languages using only independent verb forms in both complement types in Table 5, i.e. 14 out of 35, is conspicuously high. A closer look at the data provided in CRISTOFARO (1998), revealed that seven of the 14 languages use dependent as well as independent verb forms in all types of complement constructions. In other words, even though their complementation system includes dependent complement types, they use independent complement types with both perception and knowledge predicates. The other seven languages seem to

have no dependent verb forms at all. They are Banda Linda (Niger-Congo), Chinese (Sino-Tibetan), Hmong Njua (Miao-Yao), Kayardild (Australian),¹⁰ Slave (Na-Dene), Tok Pisin (Creole), and Vietnamese (Mon-Khmer). As was already noted above, the other major strategy for distinguishing EVENT denoting from PROPOSITION denoting PVCs is the use of complementizers. Languages like Russian or Cambodian, which use independent complement types with both perception and knowledge predicates, are still able to distinguish EVENT denoting PVCs from PROPOSITION denoting PVCs via the use of complementizers as has been illustrated in Table 4. However, in a language like Chinese, there are no complementizers. Therefore, even though it is clear that languages with independent verb forms in PVCs denoting events as well as in PVCs denoting propositions can use complementizers, the case of Chinese indicates that there must be an additional strategy. The complementation system in Chinese consists in mere juxtaposition of the form NP V NP V NP V etc. An example for a PVC in Chinese is provided in (27). The sentence is ambiguous between denoting the perception of an EVENT and the interpretation as a cognitive insight in form of a proposition.

- (27) Wǒ kànjiàn tā zài nàr xiě-xìn.
 I see he CoV there write-letter
 ‘I saw that he was writing a letter.’
 ‘I saw him write a letter.’ CHAO (1986), 126 (quoted from
 BISANG (1992), 192)

The interpretation of complex constructions in Chinese depends on inference based on language-dependent knowledge, pragmatic factors, language independent knowledge, and universal linguistic principles (LI & THOMPSON, 1978).

¹⁰The PV *kurri* ‘see’ in Kayardild can take a nominalized PVC as illustrated in example (i).

- (i) ngada kurri-ja bilwan-ji bakii-n-ki
 NOM1s see-ACTU them-ACTU all-NMZR-ACTU
 kalajala-n-ki.
 wander.around-NMZR-ACTU
 ‘I saw them all wandering about.’ EVANS (1994), 215

The nominalized and hence dependent verb form of the PVC in example (i) suggests that Kayardild is not among the languages using only independent verb forms in complements.

As opposed to HORIE (1993) and CRISTOFARO (1998), who distinguish between two basic complement types, NOONAN (1985) identifies six different complement types: indicative complements, subjunctive complements, paratactic complements, infinitives, nominalizations and participles.

Indicative (INDs) and subjunctive (SUBs) complements are both sentence-like, subjunctive complements occur in languages that also have indicative complements. Subjunctive complements differ from indicatives in mood, which can be realized in a variety of ways: either they have a non-indicative verb form or conjugation, or they occur with modal particles or special complementizers. Example (28) shows an indicative PVC in Greek with the complementizer *óti* (COMP), which differs from the subjunctive PVC in (29) marked as subjunctive by the particle *na* (SP).

- (28) Esthánthike [óti i sizítisi ítane perittí]
 feel.3s.PT [COMP the discussion be.3s.PT redundant]
 ‘He felt that the discussion was redundant’
 ALEXIA KALLIA (p.c.)

- (29) Ton vlepo [na kolimbá]
 ACC3s see.1s.PRES [SP swim.3s.PRES]
 ‘I see him swim.’ ALEXIA KALLIA (p.c.)

In paratactic complements (PARAs), the notional subject of the complement does not form a constituent with the complement predicate but is retrieved from the preceding clause. Paratactic complements can be used as independent sentences, they cannot take complementizers. An example for a paratactic PVC in Hausa is provided in (30).

- (30) Ná gán shì [yanà aikì]
 1sPERF see him [be.at.3s work]
 ‘I saw him, he is working. (I saw him working.)’
 NOONAN (1985), 56

In Noonan’s typology of complement types infinitives (INFs) are defined as verb-like entities that lack syntactic relations to their notional subject. Except for subject agreement and mood, infinitive complements may be inflected for all verbal categories such as tense-aspect, voice, object agreement, etc. Example (31) shows an infinitive PVC in Spanish.

- (31) Juan vió a Maria [cruzar la calle]
 John saw to Mary [cross the street]
 ‘John saw Mary cross the street.’

Nominalized complements (NMLZs) have the internal structure of noun phrases. The arguments of the former verb tend to assume genitive relationships to the nominalization. Nominalized complements can occur with articles, case markers, and sometimes even a plural marker. A nominalized PVC in Fijian is shown in (32).

- (32) au aa raica [a 'e-na va'a-mate-i a pua'a]
 1s PT see [ART Class-3s make-dead-PASS ART pig]
 ‘I watched the pig’s being killed.’ DIXON (1988), 277

Participial complements (PARTs) are adjectival or adverbial forms of verbs, which function as attributive adjectives to their subject NP. In PV constructions, the object of perception is modified by the participle as illustrated in the participial PVC in Classical Greek in example (33).

- (33) Eíde autèn [paúousan/
 saw.3s she(ACC) [stop(PART.PRES.f.s.ACC)/
 paúsāsan]
 stop(PART.AOR.f.s.ACC)]
 ‘He saw her stopping/ stop.’ NOONAN (1985), 63

Adverbial participles as PVCs, which are invariant and do not change for e.g. number, occur in Catalan:

- (34) Vaig veure la dona/ les dones passant per
 I.go see(INF) the woman/ the women go(PART) through
 la duana
 ART customs
 ‘I saw the woman/ the women go through customs.’
 NOONAN (1985), 64

Table 6 summarizes the six complement types established by NOONAN (1985). The complement types are characterized in relation to the subject-predicate relation, the range of inflectional categories and the word class of the predicate.

In sum, I have shown two major issues involved in the structural typology of PVCs: the role of complementizers and the variety of complement structures. Complementizers can play a role in distinguishing EVENT denoting from PROPOSITION denoting PVCs, especially, when

TABLE 6. Complement types across languages (adopted from NOONAN (1985), 65)

Type	Subject-predicate relation	Inflectional categories	Word class
IND	same as main clause	same as main clause	V
SUB	same as main clause	typically reduced	V
PARA	no constituency	same as main clause	V
INF	no constituency	reduced	V
NMLZ	associative	reduced	N
PART	head-modifier	reduced	ADJ/ADV

both PVC types are expressed via independent complement types. Correlation 1 (24) expresses the dependency between the occurrence of complementizers and the semantic type of a PVC. *EVENT* denoting PVC types can only then be marked by a complementizer if *PROPOSITION* denoting PVC types are also accompanied by one. The distinction between finite and non-finite or independent and dependent complement types only allows to make very limited predictions regarding the typology of PVCs. Those were presented in Correlations 2.1 and 2.2, (25) and (26), respectively. Therefore, a more differentiated typology of complementation is called for as a basis for a typology of PVCs. NOONAN (1985) differentiates six complement types as summarized in Table 6, two of them independent and four dependent. The typology of *EVENT* vs. *PROPOSITION* denoting PVC types developed in chapter 6 is based on the classification of complement types presented in Table 6.

4.3. Non-PV matrix predicates. Following the classification of complement taking predicates in NOONAN (1985), CRISTOFARO (1998) investigates the complements of the following matrix predicate classes: modal and aspectual predicates, desiderative predicates, manipulative predicates, perception predicates, predicates of knowledge, predicates of propositional attitude, and utterance predicates. Based on a sample of 81 languages, her results indicate that the preference of these predicate classes to take complements with independent or with dependent verb forms follows the implicational hierarchy in (35).

- (35) Modals/ Aspectuals > Desideratives, Causatives > Perception
> Knowledge, Propositional attitude > Utterance

The probability that a matrix predicate will take a complement with a dependent verb form decreases from modal predicates to utterance predicates, while the likelihood increases that an independent verb form occurs. The hierarchy supports the observations that are made

for English in chapter 3 regarding the choice of matrix predicates for different complement types. In English, aspectual verbs, causatives, and perception verbs are able to take the same complement types, i.e. dependent *ing*-clauses and naked infinitives. These dependent complement types are not grammatical with PROPOSITION denoting PVs, knowledge or utterance predicates. Likewise, the hierarchy in (35) supports my analysis of matrix predicates for type2 complements in Akatek in chapter 5. Type2 complements are characterized by dependent verb forms. Type2 complements in Akatek can be embedded by perception verbs, modals, aspectual verbs, and causatives. The independent type1 complement can be embedded by cognitively extended PVs and by knowledge and utterance predicates.

4.4. Summary. In this section, I have presented semantic and structural characteristics that serve to describe PVC types cross-linguistically. The two-way distinction between finite/ independent and non-finite/ dependent complement types is only of limited applicability regarding a cross-linguistic description of PVC systems. Instead, I decided to base the investigation of PVC types on Noonan's typology of complementation, in which six different complement types are distinguished. Typological investigations of complement taking predicates established a hierarchy in which perception and knowledge predicates are neighbors. These findings are taken as a starting point to investigate which non-PV matrix predicates in English and in Akatek can take complement types that occur with PV matrix predicates (see chapter 3, section 2, and chapter 5, sections 3.4 and 4.2.4).

5. Conclusion

In this chapter, I have discussed the lexicalization of perception verbs, their meaning and the complements they can take. Among the many PVs that languages use, I selected basic passive PVs like for example, *see* or *hear*, as opposed to non-basic PVs like *eye*, active PVs like *watch* or copulative PVs like *sound* (section 1). In English, the basic passive PVs are *see*, *hear*, *feel*, *smell*, and *taste*. Cross-linguistically, not all languages lexicalize a separate passive PV for all five sense modalities. However, perception verbs lexicalize along a sense modality hierarchy, which starts with the sense of VISION, followed by HEARING, and TOUCH, SMELL and TASTE (section 2). This hierarchy does not only reflect the lexicalization sequence passive PVs follow, but also, which additional meanings along the sense modality hierarchy a passive PV can cover and which passive PVs are more likely to extend their meaning into the cognitive domain than others (section 3). I treated the

assumption that PVs extend into the cognitive domain as a tentative universal. I have shown that there is etymological evidence in support of the sense modality hierarchy, even though there are a number of exceptions. The hypotheses developed in chapter 1 have been taken up again in section 4. Passive PVs that have acquired an additional cognitive meaning are special matrix predicates. In languages with a complementation system, passive PVs can take at least two different complement types provided that the cognitive extension of passive PVs is universal (Hypothesis I). These different complement types can be characterized according to their semantic and their structural characteristics (sections 4.1 and 4.2, respectively) and are assigned either an EVENT interpretation or a propositional reading. One PVC type is exclusively EVENT denoting (Hypothesis II) and at least one PVC type is primarily PROPOSITION denoting (Hypothesis III). There are two correlations between the structural characteristics of EVENT denoting and of PROPOSITION denoting PVCs (HORIE, 1993; CRISTOFARO, 1998). First, an EVENT denoting PVC can only have a complementizer if the PROPOSITION denoting PVC also has one. Second, an EVENT denoting PVC can only be finite/ independent if the PROPOSITION denoting PVC is also finite/ independent while a PROPOSITION denoting PVC can only then be non-finite/ dependent if the EVENT denoting PVC is the same. Instead of a distinction between finite/ independent and non-finite/ dependent complement types, I apply a finer distinction between complement types as e.g. suggested by NOONAN (1985). The six complement types he identified cross-linguistically are the basis for my attempt to delineate a typology of PVCs in chapter 6. As a result of the desire to uncover typological implications between a number of parameters, I investigate a possible correlation between complement types of PVs and non-PV matrix predicates of these complement types for English and Akatek (see chapters 3 and 5). The ability of a PVC type to be embedded by a knowledge predicate, e.g. *know* in English, is hypothesized to be a defining characteristics of PROPOSITION denoting PVC types (Hypothesis IV).

CHAPTER 3

Perception verb complements in English

1. Introduction

The purpose of this chapter is to provide a description of PVCs in English. The structural and semantic characterization of English PVCs serves as the basis of comparison for the description of PVCs in Akatek in chapter 5. The description of English PVCs is not exhaustive because it is beyond the scope of this thesis to discuss all properties relevant to PVCs in English. The theoretical implications and problems that have been discussed in connection with various properties of English PVCs are left for the reader to explore in the extensive literature.¹ The structure of the chapter is as follows.

The introduction provides an overview of the structural and semantic types (sections 1.1 and 1.2) that were identified for the investigation of PVCs in chapters 1 and 2. Furthermore, the hypotheses regarding the correlations between structural types of PVC and semantic types stated in the first two chapters of this thesis are restated with respect to English PVCs (section 1.3). In section 2, I investigate different PV and non-PV matrix predicates of the five PVC types and the INOM complement, which was added to the description of PVC types for means of comparison. In the next two sections, 3 and 4, structural and semantic descriptions of the PVC types are presented. In the conclusion (section 5), I reconsider the hypotheses stated in section 1.3. Based on the results, I classify the five different PVC types in English within Noonan's typology of complementation (NOONAN, 1985), which was presented in chapter 2. The typology of complementation serves as the basis for the typology of PVCs that is developed in chapter 6.

1.1. Structural types. In English, there are at least eleven different PVC types (BERMAN, 1998). Finite complement clauses with the optional complementizer *that*, interrogative and adverbial clauses, full and naked infinitives, present and past participles, AdjPs, PPs,

¹Among others BARWISE & PERRY (1983); BOLINGER (1974); DECLERCK (1983); DRETSKE (1969); FELSER (1995); GEE (1975, 1977); HIGGINBOTHAM (1994b); KIRSNER & THOMPSON (1976); MITTWOCH (1990); VENDLER (1967).

and NPs, and last, but not least, the *-ing of* nominalization. In Table 1 the morphological characteristics of the PVC types are listed.

TABLE 1. Types of PVC in English (adopted from BERMAN (1998))

PVC type	morphological characteristics
1. finite	\emptyset , <i>that</i>
2. interrogative	<i>if</i> , <i>wh</i> -phrase
3. adverbial	<i>as if</i> / <i>as though</i> , <i>like</i>
4. full infinitive	<i>to</i>
5. naked infinitive	
6. present participle	<i>-ing</i>
7. past participle	<i>-ed</i>
8. AdjP	
9. PP	
10. NP	
11. nominalization	<i>-ing of</i>

I do not, however, consider all possible PVC types in English. Interrogative (1) and adverbial (2) PVCs, past participles (3), as well as NP complements (4) and secondary predicates of the AdjP (5) or PP (6) adjunct type have been excluded.

- (1) John saw what she had brought.
- (2) Sue looked as if she was ready to run.
- (3) I felt my foot kicked. GEE (1975), 201
- (4) He saw Harriet.
- (5) He saw Harriet alive. WINKLER (1994), 29
- (6) She saw a fireman in the house. WINKLER (1994), 29

The above exclusions result in the following list of structural types, all of which occur with the matrix passive PVs *see*, *hear* and *feel*:

1. Finite *that*-complements,
2. *to*-infinitives,
3. *ing*-constructions (present participle and *-ing of* nominalization),
4. naked infinitives.

The greatest structural and - as we will see semantic - opposition exists between the first and the last complement type in the above list. The finite *that* complements and the naked infinitives. Following a

terminology in AKMAJIAN (1977), I refer to finite PVCs as *that*-PVCs (7) and to naked infinitive PVCs as NI-PVCs (8).

(7) John saw [that [Jim brought a bottle of wine]].

(8) John saw [him bring a bottle of wine].

That-PVCs consist of a finite clause that is optionally marked by the complementizer *that*. NI-PVCs basically consist of an accusatively marked logical subject followed by the verb in its infinitive form and an accusative direct object.

To-infinitives, that are embedded by a PV, are in the following referred to as *to*-PVCs (9).

(9) I felt [him to possess the necessary qualifications].

BOLINGER (1974)

To-PVCs basically consist of an accusative logical subject followed by the infinitive marker *to*, the verb in the infinitive form and - if transitive - an accusative object. As illustrated in (10), *to*-PVCs are restricted. Their predicate must either contain a form of *be* as in (11), or it must be possible to paraphrase the predicate with a form of *be* as shown in (12).

(10) *I saw him to cross the street. VENDLER (1968), 66

(11) I saw them to be obnoxious. BOLINGER (1974), 66

(12) The tasters felt it to surpass all the others. (= to be better)

BOLINGER (1974), 72

The most diverse group of PVCs are the *ing*-clauses. I distinguish three types of *ing*-clauses. The two PVC types listed in Table 1: present participles and *ing-of* nominalizations. The third type is a nominalization that is not a PVC type but is added to the list of complement types for contrastive purposes regarding the *ing-of* nominalization. The present participle is traditionally referred to as ACC-*ing* (13-a). The additional non-PVC nominalization is the POSS-*ing* construction (13-b). The nominalized PVC is called the *ing-of* (13-c) type.

(13) a. John heard [him singing the Marseillaise].

b. John remembered [his singing the Marseillaise].

c. John heard [his singing of the Marseillaise].

The ACC-*ing* type in (13-a) is characterized by a logical subject in the accusative while both POSS-*ing* (13-b) and *ing-of* (13-c) complements

take genitive subjects. The ACC-*ing* and POSS-*ing* complements have accusative objects whereas the *ing-of* has an indirect object marked by the preposition *of*. ACC-*ing* clauses that function as PVCs are called *ing*-PVCs henceforth. In his classification of nominalizations into perfect and imperfect nominals, Vendler's perfect nominals are *ing-of* clauses and his imperfect nominals subsume POSS-*ing* clauses and tensed complement clauses with the complementizer *that* (VENDLER, 1967). In the following, I refer to POSS-*ing* constructions alone as imperfect nominals (INOMs). *Ing-of* clauses with matrix PVs I call perfect nominals (PNOMs), thereby deviating from Vendler's definition of the terms perfect and imperfect nominals in restricting specifically imperfect nominals to POSS-*ing* clauses.

In example (14), an INOM is shown to be grammatical with the matrix verb *remember* but ungrammatical with a PV like *hear*. Example (15) provides an example of a PNOM as a PVC and example (16) shows an *ing*-PVC. Even though INOMs are not PVCs, they are included in the investigation for contrastive purposes.

- (14) a. I remember [John's singing the song].
 b. *I heard [John's singing the song].
- (15) I heard [John's singing of the song].
- (16) John felt [Mary trembling beneath her coat]. CAPLAN (1973)

Regarding ACC-*ing* clauses, the situation is more complicated, because ACC-*ing* constructions are structurally ambiguous. DECLERCK (1982b) distinguishes three kinds of ACC-*ing* constructions that occur after matrix PVs:

1. NP + pseudo-modifier/ reduced relative clause
2. NP + participial adjunct clause
3. *Ing*-PVC

Example (17-a) shows a sentence with a pseudo-modifier, also called reduced relative clause, example (18-a) an adjunct clause,² and (19) an *ing*-PVC with a true perception interpretation:

- (17) a. I saw the ladder [leaning against the side of the house].
 KIRSNER & THOMPSON (1976), 220
 b. I saw the ladder, which was leaning against the side of the house.
- (18) a. I saw Mary [entering the house].

²Cases in which the adjunct clause is interpreted as modifying the PV subject are not considered here, e.g. *I*, instead of the PV object *Mary* in example (18-a).

- b. I saw Mary while she was entering.
 HIGGINBOTHAM (1994a), 33
- (19) Rover heard [it thundering]. (does not entail Rover heard ‘it’).
 KIRSNER & THOMPSON (1976), 210

Many ACC-*ing* constructions are ambiguous between two or all three of the above subtypes. For example, the gerund in (20) can either mean *the moon which was rising over the mountain* if interpreted as a reduced relative clause, or *the moon as it was rising over the mountain* (adjunct clause), or the perceptual reading (i.e. as *ing*-PVC) *the event of the moon’s rising over the mountain*.

- (20) I saw the moon rising over the mountain.
 DECLERCK (1982b), 2

Similarly, a sentence with an ACC-*ing* construction like (21-a) can either be the progressive counterpart of the NI-PVC in (21-b) or receive the adjunct reading in (21-c).

- (21) a. I saw him crossing the street.
 b. I saw him cross the street.
 c. I saw him while (or when) he was crossing the street.
 VENDLER (1968), 58

While pseudo-modifiers and adjuncts cannot alternate or be conjoined with NI-PVCs, *ing*-PVCs are the progressive counterparts of NI-PVCs and therefore can alternate or be conjoined with them:

- (22) We heard the farmer slaughter/ slaughtering the pig.
 KIRSNER & THOMPSON (1976), 210

Offhand, *ing*-PVCs resemble ACC-*ing* complements embedded by matrix verbs like e.g. *remember*, *regret*, or *enjoy*. However, *ing*-PVCs differ in a number of ways from ACC-*ing* complements: Whereas ACC-*ing* complements allow PRO-subjects and passivization of the whole complement which in turn *ing*-PVCs do not, *ing*-PVCs permit anaphoric subjects and adjunct extractions, and can alternate freely with NI-PVCs (for an overview refer to FELSER (1995), 102ff.).

Table 2 shows the different PVC types that are considered in this chapter together with the non-PVC type referred to as INOM. The PVC types are referred to as *that*-PVCs, *to*-PVCs, PNOMs, *ing*-PVCs and NI-PVCs. Their structural variety is illustrated in the Table. Preverbal NPs denote the logical subject of the complement. For the five

non-sentential complement types, the logical subject is either in the accusative or in the genitive case. With the exception of PNOMs, where the object takes the form of a PP with the preposition *of*, all objects remain in the accusative case. The verb in the non-sentential complements takes the form of either the infinitive with or without *to* or of the gerund *-ing*.

TABLE 2. Complement types under consideration

Complement type	Structure	PVC	Name
Finite complement	\emptyset / <i>that</i> + sentence	+	<i>that</i> -PVC
<i>To</i> -infinitive	ACC-NP <i>to</i> V (ACC-NP)	+	<i>to</i> -PVC
POSS- <i>ing</i>	(GEN-NP) V- <i>ing</i> (ACC-NP)	-	INOM
<i>Ing</i> -of	(GEN-NP) V- <i>ing</i> (<i>of</i> NP)	+	PNOM
ACC- <i>ing</i>	ACC-NP V- <i>ing</i> (ACC-NP)	+	<i>ing</i> -PVC
Naked infinitive	ACC-NP V (ACC-NP)	+	NI-PVC

1.2. Semantic types. For the interpretation of natural language, following VENDLER (1967), I distinguish three classes of ontological entities:³

1. Physical objects \rightarrow OBJECTS
2. Events, processes, actions \rightarrow EVENTS
3. Propositions, facts, results \rightarrow PROPOSITIONS

For ease of reference, in the following the terms OBJECT, EVENT and PROPOSITION are used to refer to each of the above classes. OBJECTS, EVENTS and PROPOSITIONS are characterized in the following way: OBJECTS are located in space. They are, however, not located in time since they do not happen, begin or end like EVENTS do. Nevertheless, they do exist for a certain length of time, their existence begins, lasts and ends. It follows that OBJECTS entertain an indirect relationship to time and a direct one to space and that they are part of the world. The opposite holds true for EVENTS. EVENTS primarily exist in time, they begin, last and end. Thus, they directly relate to time. EVENTS happen at a certain location but they are not located in space. They relate to space in the way OBJECTS relate to time, i.e. indirectly. Both physical OBJECTS and EVENTS are part of the world, which distinguishes them from PROPOSITIONS. PROPOSITIONS are neither located in space nor in time, they do not happen. PROPOSITIONS are *about* things in the

³LYONS (1977, 1989) establishes a very similar three-way classification of ontological entities. He calls OBJECTS first-order entities, EVENTS second-order entities, and PROPOSITIONS third-order entities and assigns the same properties to them as Vendler.

world in the sense of *talking about something*. As a consequence, they are outside the world (VENDLER, 1967). For an overview see Table 3.

TABLE 3. The relationship of different entities to time, space and the world (VENDLER, 1967)

	OBJECT	EVENT	PROPOSITION
TIME	indirect	direct	outside
SPACE	direct	indirect	outside
WORLD	part of	take place in	outside

Considering perception, of course OBJECTS and EVENTS can be perceived due to their characterization as being part of the world and as taking place in the world, respectively. The third class of entities, PROPOSITIONS, are outside space and time, and therefore outside the world. Thus, it is not possible to physically perceive them. This type of entity can only be mentally grasped. Put differently, PROPOSITIONS are the abstract objects of speech and thought and EVENTS and OBJECTS are the concrete objects of perception. As a result of the semantic extension of passive PVs like *see* and *hear* into the cognitive domain described in chapter 2, these perception verbs - due to their dual semantic character - can describe physical OBJECTS and EVENTS as well as abstract PROPOSITIONS.

1.3. Correlations. That passive PVs can describe EVENTS as well as PROPOSITIONS is not solely a result of the attested polysemy of passive perception verbs. As has been demonstrated in chapter 2, the polysemy is further supported by structure. Different structural types can be used to express EVENTS and to express PROPOSITIONS. If the PVC contains something directly accessible to the senses, then an NI-PVC or *ing*-PVC (23-a) is preferred to both *to*-PVCs (23-b) and *that*-PVCs (23-c) (KIRSNER & THOMPSON, 1976).

- (23) Henrietta felt
- a. the cold stethoscope glide across her shoulder blades.
 - b. *the cold stethoscope to glide across her shoulder blades.
 - c. ?that the cold stethoscope glided across her shoulder blades.
- KIRSNER & THOMPSON (1976), 208

On the other hand, if the PVC contains something that cannot be perceived directly through the senses, the usage of the NI-PVC or *ing*-PVC is ungrammatical whereas *to*-PVCs and *that*-PVCs are acceptable.

- (24) From what Sue told me about her meeting with Fred, I feel
- a. *him growing rather hostile.
 - b. him to be growing rather hostile.
 - c. that he is growing rather hostile.
- KIRSNER & THOMPSON (1976), 207

There are, however, ambiguous cases of *that*-PVCs, where in addition to a propositional reading an EVENT interpretation is available as will be shown further below. According to VENDLER (1970), INOMs are PROPOSITION denoting while PNOMs express EVENTS. Example (25) demonstrates that whereas PNOMs can be complements of active perception verbs like *watch* (25-a), which do not extend their meaning into the cognitive domain (refer to chapter 2), INOMs are ungrammatical as complements of *watch* (25-b), but grammatical with a matrix predicate like *be surprising* (25-c), which also accepts PNOMs (25-d).

- (25) a. Mary watched John's fixing of the sink.
 b. *Mary watched John's fixing the sink.
 c. John's fixing the sink was surprising. ABNEY (1987), 245
 d. John's fixing of the sink was surprising.

More details regarding the type of matrix predicates that can embed the complement types chosen for investigation is presented in section 2.

The three different semantic types, which have been termed OBJECTS, EVENTS and PROPOSITIONS in section 1.2, can be correlated with five different PVCs. One semantic type can be excluded because none of the complements under consideration denotes physical OBJECTS. As a result, EVENTS and PROPOSITIONS can be assigned as interpretations to five different complement types: *that*-PVCs, *to*-PVCs, PNOMs, *ing*-PVCs, and NI-PVCs. Most of the literature on PVCs in English has treated *that*-PVCs and *to*-PVCs as PROPOSITION denoting and NI-PVCs and *ing*-PVCs as EVENT denoting. Vendler suggests that PNOMs are EVENT denoting and that the (non-PVC) INOMs are PROPOSITION denoting, or at least what I chose the term PROPOSITION to cover, namely propositions, facts and results. However, DRETSKE (1969), and after him at least CAPLAN (1973) and UWE MÖNNICH (p.c.) have analyzed *that*-PVCs as ambiguous between propositional and EVENT readings under certain circumstances.⁴

⁴The interpretation of a *that*-PVC as an EVENT depends mainly on whether the complement expresses a perceptible process or a non-enduring state and on whether the complement expresses simultaneity with the matrix PV. For details see section 4.

Taking up the latter claim, I follow up four specific hypotheses for PVCs in English:

1. Hypothesis 1
NI-PVCs, *ing*-PVCs, and PNOMs are exclusively EVENT denoting.
2. Hypothesis 2
To-PVCs are exclusively PROPOSITION denoting.
3. Hypothesis 3
That-PVCs are primarily PROPOSITION denoting, but under special conditions *that*-PVCs can also be EVENT denoting.
4. Hypothesis 4
Only PROPOSITION denoting PVC types can alternatively be embedded by the matrix predicate *know*.

The semantic type attributed to a complement type depends on the one hand on the type of the complement, more specifically on the complement's structural and semantic properties, and on the other hand on the kind of matrix predicate it occurs with. The above hypotheses refer explicitly to English PVCs. If I speak of the complement types in non-PV environments, I do not refer to them as PVCs, but as *that*-clauses, *to*-infinitives, ACC-*ing* clauses and NI-clauses. PNOMs are always referred to as PNOMs. INOMs cannot occur with PVs and therefore do not qualify as PVCs. The kind of typology pursued in this study is aimed at discovering clusters of interrelated features. Therefore, one of my secondary goals is to investigate alternative environments of the designated complement types. In other words, what is the variety of matrix predicates each complement type can occur with? In chapter 5, I raise the same question regarding PVC types in Akatek, so that both results can be compared.

2. Matrix predicates

Typologists are interested in discovering correlations between features. In other words, they are not only concerned with a single construction that has a single function, but extend their endeavours to both functional and constructional variation. Therefore, besides looking at the structural and semantic variety of PVCs, I include in this study the types of matrix predicates these complement types can occur with. The complement types which have been selected for characterization above, i.e. *that*-clauses, *to*-infinitives, INOMs, PNOMs, ACC-*ing* clauses and NI-clauses, can also occur with non-PV matrix predicates. It is important to realize that the meaning of a complement also depends on the type of matrix predicate. Therefore, it is necessary to

investigate not only the internal structure (section 3) and the internal semantics (section 4) of PVCs, but also the question as to which complement types can occur with which kind of matrix predicate. The original observation of the interdependency of complement types and matrix predicates was made by Vendler with regard to perfect and imperfect nominals, i.e. PNOMs and INOMs, respectively. These two types of nominalizations can be distinguished by their differing ability to be embedded by two groups of matrix predicates which he termed NARROW and LOOSE CONTAINERS (VENDLER, 1967). Narrow containers designate matrix predicates which accept PNOMs but not INOMs or *that*-clauses, while loose containers can take both PNOMs and INOMs as well as *that*-clauses. Both predicate classes contain adjectival, verbal, or nominal predicates. PNOMs can additionally occur with temporal prepositions. Examples for each container type are provided in Table 4. The complement types (indicated by X) function as either subjects or objects of the matrix predicates, i.e. of the container predicates. For adjectival, postnominal verbal and nominal predicates, the complements function as subjects. Only for prenominal verbal predicates do they function as objects.

TABLE 4. Two classes of matrix predicates: narrow and loose containers (VENDLER, 1967)

	NARROW CONTAINERS (PNOM)	LOOSE CONTAINERS (PNOM, INOM, <i>that</i> -clauses)
adjectival	<i>X be gradual/ slow/ sudden/ fast/ prolonged</i>	<i>X be unlikely/ probable/ certain</i>
postnominal verbal	<i>X occur/ take place/ begin/ last/ end</i>	<i>X surprise s.o./ cause s.th.</i>
prenominal verbal	<i>see/ watch/ hear/ feel/ observe/ cause X</i>	<i>mention/ deny/ remember X</i>
nominal	<i>X be an event/ process/ action</i>	<i>X be a fact/ result of</i>
temporal PREP	<i>before/ after/ until X</i>	

(note: X indicates a subject or object complement.)

In addition to active and passive perception verbs and aspectual expressions, which are discussed in more detail below, adjectival predicates such as *X be slow* (26), nominal predicates such as *X be a deliberate action* (27), and certain temporal prepositions such as *until X* (28) function as narrow containers. The examples show that narrow containers are defined by accepting PNOMs but not INOMs as complements.

(26) a. *John's singing the Marseillaise was slow.

- b. John's singing of the Marseillaise was slow.
- (27) a. *John's singing the Marseillaise was a deliberate action.
 b. John's singing of the Marseillaise was a deliberate action.
- (28) a. *Everything was quiet until his singing the Marseillaise.
 b. Everything was quiet until his singing of the Marseillaise.

Similar to narrow containers, loose containers, which accept both PNOMs and INOMs as well as *that*-clauses, can also be adjectival, verbal, or nominal. Examples for adjectival predicates are *X be probable, good* or *unlikely*. As verbal predicates Vendler lists *mention, deny X*, or *X surprise s.o.*, and nominal predicates like e.g. *X be a fact* or *X be a result of*.

- (29) John's singing (of) the Marseillaise is unlikely/ surprises me/
 is a fact.

Apart from PNOMs, INOMs and *that*-clauses, I am interested in naked infinitives, *to*-infinitives, and ACC-*ing* clauses. The question is whether Vendler's container distinction is also relevant for the latter three complement types in English. The answer to this question enables us to predict whether the classification of matrix predicates into narrow and loose containers is of any cross-linguistic relevance. First, I take a look at a number of narrow containers, i.e. perception verbs and aspectual verbs, and how they relate to naked infinitives, ACC-*ing* clauses and *to*-infinitives. Second, I introduce the loose container that will be used mostly for contrastive purposes in the present chapter, namely *remember*, and test another loose container, *surprise s.o.*, to see whether any differences among loose containers emerge regarding the relation to the infinitives and the ACC-*ing* clause. Finally, I consider matrix predicates that have played a role in investigations of PVCs but cannot be subsumed under Vendler's containers. These are *know* and a number of causative verbs.

2.1. Narrow containers. Vendler makes the following observation for the predicates in the narrow container class:

It is events, processes, and actions, and not facts or results, that occur, take place, begin, last, and end. The former, and not the latter, can be watched, heard, followed, and observed; they can be sudden, gradual, violent, or prolonged. VENDLER (1967), 141

This observation excludes cognitive usages of passive PVs like *see, hear*, and *feel* from the narrow container class. Active PVs like *watch* embed

NI-PVCs, *ing*-PVCs and PNOMs as illustrated in (30). However, as can be seen in examples (31-a) to (31-c), active PVs cannot take *that*-PVCs, *to*-PVCs or INOMs.

- (30) a. Dick watched Rose throw the ball into the basket.
 b. Dick watched Rose throwing a ball into the basket.
 c. Dick watched her skillful throwing of the ball into the basket.
- (31) a. *Dick watched that Rose read a book.
 b. *Dick watched Rose to be obnoxious.
 c. *Dick watched Rose's reading a book.

Passive perception verbs are the most versatile among the matrix predicates discussed here. With the exception of INOMs as in (32-a), passive PVs like *hear* can take all the complement types, i.e. naked infinitives, ACC-*ing* clauses, PNOMs, *to*-infinitives and *that*-clauses.

- (32) a. *I heard John's singing the Marseillaise.
 b. I heard John sing(ing) the Marseillaise.
 c. I heard John's singing of the Marseillaise.
 d. I heard John to have been obnoxious.
 e. I heard that John had been singing the Marseillaise.

Passive PVs accept *that*-complements, which Vendler subsumes in the class of imperfect nominals together with INOMs. INOMs, however, are the only complement type that is not accepted by passive PVs. Hence, passive PVs do not seem to fit the container differentiation as it is: being narrow containers, passive PVs should not accept *that*-complements. The classification of passive PVs as narrow containers is only acceptable under the condition that their cognitive usage, e.g. *see* with a *that*-clause, is excluded. Moreover, passive PVs do not classify as loose containers due to the fact that they do not accept INOMs as complements, a fact that I cannot fully explain at the moment.⁵

Aspectual verbs like *X last* are among the narrow containers which require subject complements (termed postnominal verbal in Table 4). They can take PNOMs as subjects like in (33-a) but not INOMs (33-b).

- (33) a. John's playing of the guitar lasted till midnight.
 b. *John's playing the guitar lasted till midnight.

⁵A clue is provided below. It turns out that INOMs cannot be embedded by *know* either. INOMs denote facts or results, and facts cannot be realized or known, but remembered, denied, or mentioned. For a more detailed discussion refer to HAMM ET AL. (1998).

NI complements and ACC-*ing* clauses as well as *to*-infinitives and *that*-clauses are ungrammatical as subject complements of postnominal verbal narrow containers.

- (34) a. *John play(ing) the guitar began at noon.
 b. *John to be obnoxious began at noon.
 c. *That John played the guitar began at noon.

Apparently, only PNOMs are suitable subject complements for narrow containers. NI complements, ACC-*ing* clauses, *to*-infinitives and *that*-clauses are ungrammatical with narrow adjectival and nominal containers as well.

- (35) a. *John play(ing) the guitar was prolonged/ was an event.
 b. *John to be obnoxious was prolonged/ was an event.
 c. *That John played the guitar was prolonged/ was an event.

There is one verb in Table 4 that can function as a narrow prenominal verbal container or as a loose postnominal verbal container: *X causes Y* is a narrow container for *Y* (36) and a loose one for *X* (37).

- (36) The explosion caused [the collapse of the building].
 VENDLER (1967), 164
- (37) [His not seeing the red light] caused the crash.
 VENDLER (1967), 170

As a narrow container, *cause X* accepts PNOMs, but also *to*-infinitives. While the PNOM carries a notion of ‘performance’, the *to*-infinitive is associated with ‘potentiality’ (QUIRK ET AL., 1985).

- (38) a. *Mary caused John play(ing) the guitar.
 b. Mary caused John’s playing of the guitar.
 c. *Mary caused John’s playing the guitar.
 d. Mary caused John to play the guitar.
 e. *Mary caused that John played the guitar.

In chapter 5 I show that certain causative verbs in Akatek can also take two different complement types, one resembling the PNOM, the other being similar to the *to*-infinitive.

2.2. Loose containers. The loose container used in the following for purposes of illustration is *remember*:

- (39) a. *John remembered Mary buy eggs.
 b. John remembered the farmer slaughtering a pig.

- c. John remembered his mother's beautiful singing.
- d. John remembered Mary's having bought eggs.
- e. ?John remembered her to be friends with everyone.
- f. John remembered that Mary bought eggs.

Loose containers taking subject complements are *X surprise* and *X cause*:

- (40)
- a. *Mary buy eggs surprised John/ caused a riot.
 - b. The farmer slaughtering a pig surprised John/ caused a riot.
 - c. *It raining surprised John/ caused a riot.
 - d. His mother's beautiful singing surprised John/ caused a riot.
 - e. Mary's having bought eggs surprised John/ caused a riot.
 - f. *Her to be friends with everyone surprised John/ caused a riot.
 - g. That Mary bought eggs surprised John/ caused a riot.

Obviously, neither naked infinitives nor *to*-infinitives are prone to occur with loose containers like *X surprise/ cause* and *remember X*.⁶ In addition, ACC-*ing* complements cannot fill the subject position of *X surprise* when the subject of the complement is an expletive *it* as in (40-c).

2.3. Others. There are matrix predicates in English that accept neither PNOMs nor INOMs. First, I consider the verb *know*, which was hypothesized above to distinguish EVENT denoting from primarily PROPOSITION denoting PVC types. Second, I take a look at certain causative verbs, which in many respects exhibit qualities similar to perception verbs (GEE, 1977; HIGGINBOTHAM, 1983; MITTWOCH, 1990; GUASTI, 1993; HIGGINBOTHAM, 1994b).

Object complements of *know* like the *that*-clause and the *to*-infinitive in (41) are interpreted as PROPOSITIONS. In fact, *know* can only take complements that are PROPOSITION denoting. Hence, *know* cannot embed EVENT denoting complement types like naked infinitives and ACC-*ing* clauses (42).⁷ Also, the two types of nominalizations dealt

⁶Note that *remember* accepts *to*-infinitives in raising constructions:

- (i) John remembered to buy eggs.

⁷Except for a usage found mainly in British English, which is restricted to the perfective aspect form *have known* and optionally allows the insertion of *to* (QUIRK ET AL., 1985):

with, i.e. PNOMs and INOMs, cannot be complements of *know* (43). The open question resulting from this observation is why INOM complements, if they are not EVENT denoting, are not accepted as complements of *know*.

- (41) a. Mary knew that John possessed the necessary qualifications.
 b. Mary knew him to possess the necessary qualifications.
- (42) a. *John knew them shout.
 b. *John knew Mary trembling beneath her coat.
- (43) a. *Mary knew John's singing of the song.
 b. *Mary knew John's singing the song.

The causative verbs *make*, *have*, and *let* are the only matrix predicates besides active and passive PVs that take NIs as object complements. However, unlike PVs, causative verbs do not show uniform behavior regarding the complements they take. Causatives like *make*, *have*, and *let* all accept NI complements. As Higginbotham noted, this results from the fact that EVENTS can be “made-happen, let-happen, helped-to-happen, or had-happen” HIGGINBOTHAM (1983), 117.

- (44) Mary made/ had/ let John bring the car.

However, only *have* but not *make* and *let* select for ACC-*ing* clauses (HIGGINBOTHAM, 1994b):

- (45) a. Mary had John bringing the car.
 b. *Mary let/ made John bringing the car.

2.4. Summary. Table 5 shows which of the complement types under investigation can be selected by which matrix predicates. The complement types are naked infinitives (NI), ACC-*ing* clauses, *ing-of* clauses (PNOM), POSS-*ing* clauses (INOM), *to*-infinitives (*to*-INFs) and *that*-clauses. The types of matrix predicates considered are the narrow containers *watch X*, *see X*, *X last/ begin*, and *cause X*. The loose containers under investigation are *remember X* and *X surprise/ cause*. In addition, the cognitive matrix predicate *know X* and the causative verbs *make/ let X* and *have X* are considered. The latter ones do not fit into Vendler's container classification. Table 5 illustrates that Vendler's container distinction is not relevant for naked infinitives,

(i) She'd never known a man (to) speak so softly . . . BERMAN (1998), 17

TABLE 5. Selection of matrix predicates

Container	NI	ACC- <i>ing</i>	PNOM	INOM	to-INF	that-clause
<i>watch X</i>	+	+	+	-	-	-
<i>see X</i>	+	+	+	-	+	+
<i>X last/ begin</i>	-	-	+	-	-	-
<i>cause X</i>	-	-	+	-	+	-
<i>remember X</i>	-	+	+	+	?	+
<i>X surprise/ cause</i>	-	+	+	+	-	+
<i>know X</i>	-	-	-	-	+	+
<i>make/ let X</i>	+	-	-	-	-	-
<i>have X</i>	+	+	-	-	-	-

(note: X indicates a subject or object complement.)

ACC-*ing* clauses and *to*-infinitives. However, there are several correlations between type of matrix predicate and complement choice:

Only NI, ACC-*ing* clauses and PNOMs can occur with active perception verbs like *watch*, which can only take EVENT denoting complements. Second, except for the INOM, all complement types occur with passive perception verbs like *see*. Third, aspectual verbs are among Vendler's narrow containers. They accept only PNOMs as subject complements, but not INOMs or any other complement type listed here. Fourth, the verb *cause* can either take PNOMs or *to*-infinitives as object complements or take subject complements. In the latter case *cause* is a loose container like *surprise*. Fifth, loose containers like *surprise* and *remember* can take all complement types except for the two infinitives. Sixth, the verb *know* demands a conceptual, i.e. a propositional reading, of the complement so that only PROPOSITION denoting complements occur with *know* as a matrix verb. These turn out to be the *to*-infinitive and the *that*-clause. Finally, the causative verbs *make* and *let* are the only matrix predicates besides PVs that can embed NI complements. The causative *have* can embed NIs as well as ACC-*ing* clauses.

When comparing the group of narrow containers with the loose containers the only correlation that becomes obvious in Table 5 is that prenominal loose containers also accept ACC-*ing* constructions. When contrasted with the neither-nor group, i.e. *know* and the causatives, the main observation to be gained is that neither of these matrix predicates allows PNOMs or INOMs. That only the active and passive PVs can take both NI and ACC-*ing* complements supports the hypothesis that these two complement types - if functioning as PVCs - differ only minimally in aspectual orientation, the ACC-*ing* clause implying progressiveness.

In the next section the six complement types are characterized according to a variety of structural characteristics. These characteristics have been selected on the one hand because I consider them essential for an adequate characterization of each complement type and on the other because they are applicable to the description of PVCs in Akatek. Hence, they form the structural basis of the cross-linguistic comparison between English and Akatek PVC types at the end of chapter 5.

3. Criteria for the structural characterization

In his study of PNOMs and INOMs in English, VENDLER (1967) demonstrates that one of these two kinds of nominalizations retains verbal characteristics such as tense, auxiliaries and adverbs. The other kind has ceased to be verbal and has become fully nominal, i.e. it can occur with articles, prenominal adjectives, and the objective genitive. Cross-linguistically, COMRIE & THOMPSON (1985) show that for action nominals the situation is similar. Action nominals are nominalizations derived from action verbs. In general, what is observable is the extent to which a nominalized construction retains verbal characteristics. More specifically COMRIE & THOMPSON (1985) establish the following parameters for the description of action nominals:

1. The number of verbal versus nominal categories shown by the head noun of the action nominal.
2. The case marking of the NPs in comparison with the corresponding sentence.
3. The modification of the action nominal by adverbs or by adjectives.

According to NOONAN (1985), for a cross-linguistic investigation of complement types, the morphology of the complement verb, the syntax of the complement clause, and the role of complementizers have to be examined as well as the external syntactic relation of the complement construction. In English, PVC types are by definition the direct objects of a PV, i.e. the PV can take either an NP or one of a number of PVCs, but not both. As will be explained below, this observation is one argument for the constituency of the PVC types under investigation. Which constituent type the different PVCs should be classified as has been the center of much debate. Of the many constituency tests that have been applied to PVCs (see e.g. AKMAJIAN (1977)), I consider two in detail: passivization and clefting. Passivization and clefting were chosen because they have clear counterparts in Akatek and therefore lend themselves most easily to comparison. For passivization, I consider two possibilities. Either the whole PVC is moved into the subject

position of the passivized PV, or only the PVC subject. Regarding clefting, I compare clefting of the PVC subject, of the PVC object, and of the whole PVC. Summing up the discussion of the structural description of complement types, I draw up the following list of criteria for investigation:⁸

1. Does the PVC type take a complementizer?
2. What is the case of the subject/object of the PVC type?
3. Does the predicate of the PVC have agreement markers?
4. Is the PVC marked for tense or aspect?
5. Can adverbs or prenominal adjectives occur in the PVC?
6. Can the PVC as a whole take a determiner or a plural marker?
7. Is the PVC a constituent?
8. Can the subject of the PVC or the whole PVC be raised to the subject position of the passivized PV?
9. Can the PVC, its subject, or its object be clefted?

In the following, these criteria are applied to the complement types in English that were selected as a means of comparison for the analysis of PVCs in Akatek: NI-PVCs, *ing*-PVCs, PNOMs, INOMs, *to*-PVCs and *that*-PVCs. Recall that the INOM is not a PVC, but has been included for contrastive purposes mainly in opposition to PNOMs. Hence, to test the criteria regarding INOMs, I cannot use a PV matrix verb, and selected the loose container verb *remember* instead.

3.1. Complementizer. As the name indicates, *that*-PVCs contain the complementizer *that*:

(46) John felt that he had lost the argument.

The complementizer in *that*-PVCs is optional.⁹ *That* indicates that the clause it introduces is finite and that it is the complement of a matrix predicate (RADFORD, 1997).

According to JESPERSEN (1940) the infinitival *to* originally was a preposition of direction. As opposed to the optional *that* complementizer in the object position, infinitival *to* is obligatory. Infinitival *to* has been classified as a marker of infinitives (QUIRK ET AL., 1985), as a particle functioning as a complementizer (NOONAN, 1985), or as

⁸For more detail and discussion of the structural properties of English PVCs refer to AKMAJIAN (1977); BARWISE & PERRY (1983); BENNIS & HOEKSTRA (1989); BERMAN (1996); BOLINGER (1974); DECLERCK (1983, 1982b); GEE (1977); HIGGINBOTHAM (1983, 1994b); KEENAN (1996); KIRSNER & THOMPSON (1976); MITTWOCH (1990); MÖNNICH (1992b); VENDLER (1967); ZUCCHI (1993)

⁹In *that*-PVCs of *smell* and *taste* the complementizer is obligatory, see chapter 2.

patterning like an auxiliary (MITTWOCH, 1990; RADFORD, 1997). The latter claim is illustrated by the parallelism of the two sentences below:

- (47) a. It's vital that John should show any interest.
 b. It's vital for John to show any interest.
 RADFORD (1997), 48

It is beyond the scope of this thesis to resolve the issue as to which category the infinitival *to* should be associated with. *To*-PVCs are not introduced by *to* the way *that*-PVCs are introduced by *that*. Instead, the *to* directly precedes the predicate of the complement. In this respect, *to* is similar to the subjunctive particle *na* in Greek, which is shown in chapter 6. For the sake of simplicity, I will call the infinitival *to* in the following a particle and investigate it together with the complementizer.¹⁰

3.2. Subject/object case. In section 1.1, I have already outlined the changes in case marking that the core arguments of each complement type are subjected to (see Table 1). Regarding the PVC subject, I noted the following: *that*-PVCs are the only PVC type retaining the nominative case for their subject (48-a). NI-PVCs (48-b), *ing*-PVCs and *to*-PVCs have accusative subjects while the two nominalizations, PNOMs (48-c) and INOMs, have genitive subjects.

- (48) a. Jim saw that he arrived.
 b. Jim saw him arrive.
 c. Jill heard his singing of the song.

Regarding the case of the PVC objects, except for PNOMs, all remain in the accusative. A PNOM takes an indirect object in the form of a PP consisting of the preposition *of* and an accusative object NP. This type of indirect object is called the objective genitive. However, VENDLER (1968) notes that for certain transitive verbs that can optionally be intransitive, the *of*-phrase can also contain a genitive NP denoting the subject, i.e. a subjective genitive: *the shooting of the prisoners* can be interpreted as either *The prisoners shoot* or as *Somebody shoots the prisoners*. This becomes apparent when using personal pronouns as in example (49). The genitive pronoun *his* in (49-a) can refer either to the patient like in the objective genitive *of him* in (49-b) or to the agent as in the subject genitive *of his* in (49-c).

¹⁰Regarding the semantic potential of the particle *to* refer to section 4.5.

- (49) a. his shooting
 b. the shooting of him
 c. the shooting of his VENDLER (1968), 48

3.3. Agreement. Agreement of the complement verb and its arguments can only occur in *that*-PVCs (50-a). A contrastive ungrammatical example of an NI-PVC with agreement is provided in (50-b).

- (50) a. Jim heard that she sings a song.
 b. *Jim heard her sings a song.

3.4. Tense/aspect. Similar to what was noted for agreement marking, tense marking like the past tense suffix *-ed* can only occur on *that*-PVCs.¹¹ A contrastive ungrammatical example is again provided for an NI-PVC:

- (51) a. I saw that he arrived.
 b. *I saw him arrived.

The aspectual auxiliary *have* is ungrammatical with NI-PVCs, *ing*-PVCs and PNOMs, see (52), but grammatical with all the other complement types as shown in (53).

- (52) a. *I saw Mary have left. MITTWOCH (1990), 111
 b. *Peter saw Mary having left.
 c. *[Peter saw] John's having cooked of the dinner.
 VENDLER (1967), 130
- (53) a. Peter remembered John's having cooked dinner
 b. I see them to have arrived. BOLINGER (1974), 77
 c. Peter saw that they had arrived.

I follow FILLMORE (1963) and FELSER (1999) in assuming that *ing*-PVCs are the progressive counterparts of NI-PVCs. NI-PVCs and *ing*-PVCs differ only in their specification for the feature [\pm progressive]. Example (54) supports the hypothesis that NI-PVCs and *ing*-PVCs differ only minimally with respect to their aspectual specification because they can be conjoined, and 'constituents that can be conjoined are necessarily of the same type.' DECLERCK (1982b), p. 3.

¹¹Bolinger notes that tense marking is acceptable in secondary predications, which were excluded from the considerations in this chapter. The sentence in (i) can either be interpreted as him being in a rejected state or as him being actively rejected by someone.

- (i) I saw him rejected. BOLINGER (1974), 69

- (54) Tom heard [a door open] and [someone approaching].
DECLERCK (1982b), 3

3.5. Adverbs/adjectives. Adverbs cannot occur with PNOMs, but with INOMs and all the other complement types under investigation:

- (55) a. [Everybody watched] *John's quickly cooking of the dinner. VENDLER (1967), 130
b. John's quickly cooking dinner surprised everybody.

In turn, prenominal adjectives can only occur with PNOMs but not with INOMs or any of the other complement types:

- (56) a. [Everybody listened to] his continuous singing of arias. VENDLER (1968), 42
b. [Everybody remembered] *his slow singing the Marseillaise. VENDLER (1968), 42

3.6. Determiners/pluralization. The ability of a complement type to be pluralized or modified by determiners is an indicator of its nominal character. Hence, the modification with articles is only grammatical for PNOMs, but not for INOMs or any of the other complement types.

- (57) a. [Everybody listened to] the singing of the Marseillaise. VENDLER (1967), 137
b. *Everybody remembered the singing the Marseillaise.

Since an article is grammatical with PNOMs, a singular quantifier like *each* and a plural quantifier like *most* in combination with a plural *s* are also grammatical:

- (58) a. They listened to each singing of the Marseillaise.
b. They listened to most singings of the Marseillaise.

3.7. Constituency. Regarding constituency, two issues are involved: one is whether what was defined in section 1.1 as a PVC type is in fact a constituent. The other question is what kind of constituent the PVC type is. In order to test whether a PVC is a constituent, one can apply a number of constituency tests such as movement, coordination, pronominalization or ellipsis. I choose pronominalization and coordination to see whether the identified PVC types are constituents.

All the complement types investigated here allow pronominalization and coordination. (59), for example, shows the pronominalization of NI-PVCs, and (60) the conjunction of NI-PVCs and *ing*-PVCs:

(59) I saw [John hit the little girl] and Mary saw it too.
GEE (1977), 468

(60) I saw [John hit the little girl] and [Mary looking away].

An argument against the constituency of NI-PVCs is that they resist passivization (61-a), and that they cannot appear in cleft constructions (61-b) (AKMAJIAN, 1977). In the sections below on passivization and cleft, a fuller picture of these transformations is provided.

(61) a. *[John draw a circle] was seen last night.
b. *It was [John draw a circle] that we saw.

The logical subject of NI-PVCs and *ing*-PVCs is marked with the accusative case, i.e. superficially it appears to be the direct object of the embedding PV. The main argument against the hypothesis that the accusatively marked logical subject of the PVC is the direct object of the PV and for the clausal nature of NI-PVCs and *ing*-PVCs is the observation that the alleged subject of the complement can be the expletive *it*:

(62) We saw it rain. GEE (1977), 468

(63) Rover heard it thundering.
KIRSNER & THOMPSON (1976), 210

Expletive *it* is also grammatical with *to*-PVCs and with *that*-PVCs:

(64) We felt it to be essential that all take part.
BOLINGER (1974), 66

(65) We felt that it was essential.

With nominalizations taking a genitive subject, expressions with expletive *it* are ungrammatical:

(66) a. *John saw its raining.
b. *John remembered its raining.

The evidence that the expletive *it* can be the subject of most PVCs supports a clausal analysis for NI-PVCs, *ing*-PVCs, *to*-PVCs and *that*-PVCs and a nominal analysis for PNOMs and INOMs. JESPERSEN

(1937) already claimed that NI-PVCs are subject-predicate configurations forming a single unit, hence under a biclausal analysis PVs are assumed to take the NI complement encoding the perceived EVENT as their object complement in the form of a single clausal constituent S:

(67) John [_{VP} saw [_S Mary depart]]

Following STOWELL (1981), NI-PVCs are analyzed as belonging to a class of constructions generally referred to as secondary predicates or small clauses. A small clause (SC) can take the form of either an adjective phrase (AdjP) as in (68-a), a prepositional phrase (PP) as in (68-b), or a verb phrase (VP) as in (68-c).

- (68) a. Mary [_{VP} considers [_{SC} him intelligent]].
 b. Mary [_{VP} believes [_{SC} him in the computer lab]].
 c. Mary [_{VP} made [_{SC} him depart]].

The examples in (69) show the same SC types, i.e. adjectival, prepositional and verbal, with perception verbs. The main difference between (69-a) and (69-b) on the one hand and (69-c) on the other is that as opposed to the latter the former are not complement structures but what WINKLER (1994) refers to as depictive adjunction sentences.

- (69) a. Mary [_{VP} saw [_{SC} him alive]].
 b. Mary [_{VP} saw [_{SC} him in the computer lab]].
 c. Mary [_{VP} saw [_{SC} him depart]].

Recall that in section 1.1 I excluded non-VP small clauses, i.e. AdjP- and PP-small clauses, from the investigation. Stowell's work (STOWELL, 1981) has been the center of much debate and a number of modifications of the original proposal have been suggested since then. Since a discussion is beyond the scope of this thesis, the reader is referred to WINKLER (1994) and references therein.¹²

HIGGINBOTHAM (1983) takes up the hypothesis that NI-PVCs are clausal constituents regarding surface syntax. However, regarding their semantic behavior, he claims that NI-PVCs are like NPs, more specifically that they act like indefinite descriptions of individual events. The only difference between the NI-PVC in (70-a) and the NP in (70-b) is that in the former the description is indefinite and in the latter definite.

- (70) a. John saw Mary depart.

¹²Discussions concentrating on the constituency of PVCs are provided in AKMAJIAN (1977); GEE (1977); DECLERCK (1981, 1982a); BENNIS & HOEKSTRA (1989); MÖNNICH (1992b) and FELSER (1995) among others.

- b. John saw Mary's departure. HIGGINBOTHAM (1983), 107

A further argument for the analysis of NI-PVCs as constituents is advanced in FELSER (1995). Since perception verbs are two-place predicates, they cannot accept two arguments as objects. The ungrammaticality of the double object construction in (71-b) supports the analysis of the NI-PVC in (71-a) as a constituent. The contrastive grammatical example in (71-c) shows a double object construction of the two-place predicate *tell*.

- (71) a. We saw [John leave].
 b. *We saw [John] [that Mary was intelligent].
 FELSER (1995), 40
 c. We told [John] [that Mary was intelligent].

This means that PVCs are single constituents. The question what type of constituent, however, is not resolved by this observation. For the purpose of this study, I consider it sufficient to follow the analysis of expletive *it* and classify NI-PVCs, *ing*-PVCs, *to*-PVCs and *that*-PVCs as clausal and PNOMs and INOMs as nominal constituents.

3.8. Passivization of the PV. When the PV is passivized, either the PVC subject or the whole complement can be raised to subject position. The former is called subject-to-subject (S-to-S) raising and the latter I refer to as complement-to-subject (PVC-to-S) raising.

3.8.1. *Subject-to-subject raising.* Passivization of a PV with S-to-S raising of the subject of an NI-PVC, of a *that*-PVC or of a PNOM is ungrammatical:

- (72) a. *John was seen cook dinner.
 b. *John was seen that (he) cooked dinner.
 c. *John was seen (his) cooking of dinner.

'True' *ing*-PVCs like in example (73) do not allow S-to-S raising in complex passive constructions.¹³

- (73) a. I saw it raining. DECLERCK (1982b), 12
 b. *It was seen raining (by us). DECLERCK (1982b), 13

If S-to-S raising out of an *ing*-PVC occurs as in (74), this *ing*-clause is not a PVC but an adjunct. In other words, if S-to-S raising out of *ing*-constructions with passivized PV matrix predicates is grammatical,

¹³For additional evidence in favor of this analysis refer to DECLERCK (1982b).

then the *ing*-construction must be analyzed as an adjunct clause (refer to section 1.1).

- (74) a. The police caught/saw John stealing apples.
DECLERCK (1982b), 16
b. John was caught/seen stealing apples.
DECLERCK (1982b), 16

INOMs, which cannot occur with PVs but with verbs like *remember*, do not allow passivization of their subject as demonstrated in (75-b).

- (75) a. Everybody remembered John's having cooked an excellent dinner.
b. *John was remembered having cooked an excellent dinner.

Even though passivization of *to*-PVCs is grammatical as shown in (76), it is restricted.

- (76) a. We saw him to be a complete charlatan.
AKMAJIAN (1977), 453
b. He was seen to be a complete charlatan.
AKMAJIAN (1977), 453

The sentences in (77) appear odd, because the potentiality connected with *to*-infinitives cannot be assigned to situations where flood waters tear down bridges or branches snap. These situations are interpreted as performances.

- (77) a. ?The flood waters were seen to tear down the bridge.
MITTWOCH (1990), 118
b. ?The branch was heard to snap. MITTWOCH (1990), 118

It has been suggested that the passive with infinitival *to*, which is sometimes available, is the passive counterpart of active NI-PVCs:

- (78) a. Someone saw/heard Mary slam the door.
b. *Mary was seen/heard slam the door.
MITTWOCH (1990), 118
c. Mary was seen/heard to slam the door.
MITTWOCH (1990), 118

The passive with infinitival *to* is not necessarily the passive of a corresponding active *to*-PVC:

- (79) *Someone saw/heard Mary to slam the door.

However, with active perception verbs like *watch* a passive *to* construction is impossible as demonstrated in (80), an observation which supports the analysis that subjects of EVENT denoting PVCs cannot be passivized with infinitival *to*.

(80) *John was watched to build a boat. MITTWOCH (1990), 119

DECLERCK (1983) presents further evidence against the analysis that the passive with *to* is the passive counterpart of an active NI-PVC. He demonstrates that passives with infinitival *to* share structural and semantic properties of PROPOSITION denoting *to*-PVCs and of *that*-PVCs but not those of EVENT denoting NI-PVCs.

The typological relevance of passivization of PVs with different types of complements becomes apparent by looking at other languages. BENNIS & HOEKSTRA (1989) note that in languages that have passive inflections on the main verb as is the case in Swedish, the PVC subject can be passivized as illustrated in example (81-b). For passive constructions that consist of an auxiliary verb and a passive participle as e.g. in Dutch, English, and Swedish, the PVC subject cannot be passivized as demonstrated for Swedish in example (81-c).

(81) a. Jag hör Peter sjunga en sang.
I hear Peter sing a song
b. Peter hördes sjunga en sang.
Peter was.heard sing a song
c. *Peter blev hörd sjunga en sang.
BENNIS & HOEKSTRA (1989), 37

My analysis of passivization processes in perception constructions in Akatek in chapter 5 supports this analysis. In Akatek, there are three morphological passives that can be applied to PVs with complements. The highly restricted ability of complex perception constructions in English to passivize seems to be either the result of the lack of a morphological passive (BENNIS & HOEKSTRA, 1989), or must be counted as idiosyncratic to English and other European languages.

3.8.2. *Complement-to-subject raising*. Besides the passivization of the PV with S-to-S raising out of the PVC, the whole PVC can also be raised to the PV subject position (PVC-to-S raising). Clearly, NI-PVCs and *to*-PVCs cannot be passivized, while passivization of a *that*-PVC is grammatical:

(82) a. *[John cook dinner] was seen last night.
b. *[Mary to be qualified for the job] was seen by Jim.

- c. [That John was cooking dinner] was seen last night.

INOMs cannot occur with perception verbs. However, they can passivize as a whole when functioning as a complement of *remember*:

- (83) a. Everybody remembered [Mary's having cooked an excellent dinner].
 b. [Mary's having cooked an excellent dinner] was remembered by everybody.

PNOMs can be passivized as a whole as the alternation between active (84-a) and passive (84-b) below shows:

- (84) a. Everyone heard [Mary's singing of the Marseillaise].
 b. [Mary's singing of the Marseillaise] was heard by everyone.

Ing-PVCs cannot passivize as shown in (85-a) and (85-b). If an *ing*-PVC as a whole can be passivized, it is a pseudo-modifier construction as in (86).

- (85) a. *[It raining] was seen. FELSER (1995), 119
 b. *[The farmer slaughtering the pig] was heard by John.
 (86) The ladder [leaning against the barn] was seen by Mary.

In sum, raising the whole complement of a passivized PV to subject position is only grammatical for PNOMs and *that*-PVC. However, GEE (1977) notes that both NI- and *ing*-PVCs in Brazilian Portuguese can be passivized:

- (87) a. Maria roubando o carro foi vista (??visto) por todos os vizinhos. GEE (1977), 467
 b. Maria roubar o carro foi visto (*vista) por todos os vizinhos. GEE (1977), 467

This indicates that the restriction in English, namely that NI-PVCs and *ing*-PVCs cannot be raised to the subject position of a passivized PV does not apply cross-linguistically.

3.9. Cleft. Clefting is another test for constituency. PVCs with expletive *it* and idiomatic expressions like (88-a) and (88-b) represent unambiguous *ing*-PVCs, i.e. no pseudo-modifiers or adjunct clauses. However, neither the expletive *it* nor idiomatic expressions can be clefted when they occur in NI-PVCs or *ing*-PVCs as illustrated in (89).

- (88) a. John heard it raining.

- b. John heard all hell breaking loose.
- (89) a. *It was it that John heard rain/ raining.
 b. ?*It was all hell that John heard break/ breaking loose.

In order to avoid interference with other restrictions, and because object cleft requires transitive PVCs, I used the test sentence in (90). In all the examples below, first the basic PVC is presented, then the a. examples show PVC subject cleft, the b. examples object cleft and the c. examples cleft of the PVC as a whole. Examples (90) and (91) present clefting of an NI-PVC and an *ing*-PVC, respectively. The only ungrammatical construction is the PVC cleft of the NI-PVC in (90-c).

- (90) John heard the farmer slaughter a pig.
 a. It was the farmer that John heard slaughter a pig.
 b. It was a pig that John heard the farmer slaughter.
 c. *It was the farmer slaughter a pig that John heard.
- (91) John heard the farmer slaughtering a pig.
 a. It was the farmer that John heard slaughtering a pig.
 b. It was a pig that John heard the farmer slaughtering.
 c. It was the farmer slaughtering a pig that John heard.

Examples (92) and (93) show the abilities of PNOMs and INOMs to undergo clefting. Both nominalizations can only be clefted as a whole, except for PNOMs, where object cleft appears marginally acceptable.

- (92) John heard the farmer's slaughtering of a pig.
 a. *It was the farmer's that John heard slaughtering of a pig.
 b. ?It was a pig that John heard the farmer's slaughtering of.
 c. It was the farmer's slaughtering of a pig that John heard.
- (93) John remembered the farmer's slaughtering a pig.
 a. *It was the farmer's that John remembered slaughtering a pig.
 b. *It was a pig that John remembered the farmer's slaughtering.
 c. It was the farmer's slaughtering a pig that John remembered.

Since there are predicate restrictions for *to*-PVCs (refer to section 1.1), a different test sentence is used in (94). As opposed to PNOMs and INOMs, *to*-PVCs and *that*-PVCs cannot be clefted as wholes as shown in example (94) and (95) below. Also, the subject cleft of *that*-PVCs

is only more or less acceptable provided that the complementizer is omitted.

- (94) John felt him to possess the required skills.
- a. It was him that John felt to possess the required skills.
 - b. It was the required skills that John felt him to possess.
 - c. *It was him to possess the required skills that John felt.
- (95) John heard that the farmer slaughtered a pig.
- a. ?It was the farmer that John heard (*that) slaughtered a pig.
 - b. It was a pig that John heard that the farmer slaughtered.
 - c. *It was that the farmer slaughtered a pig that John heard.

In sum, clefting the PVC subject is grammatical for NI-PVCs, *ing*-PVCs and *to*-PVCs, questionable for *that*-PVCs and ungrammatical for PNOMs and INOMs. Object cleft shows a very similar pattern, except that it is marginally acceptable with PNOMs and grammatical for *that*-PVCs. Clefting of the whole PVC shows an almost opposite distribution. It is grammatical for PNOMs, INOMs, and *ing*-PVCs.

3.10. Summary. I have characterized the five PVC types and the one non-PVC type under investigation regarding their basic structural properties in the following way (for an overview see Table 6). Only

TABLE 6. Criteria for the structural characterization of English PVC types

	NI-PVC	<i>ing</i> -PVC	PNOM	INOM	<i>to</i> -PVC	<i>that</i> -PVC
COMP	-	-	-	-	(+)	+
Subject case	ACC	ACC	GEN	GEN	ACC	NOM
Object case	ACC	ACC	GEN	ACC	ACC	ACC
Agreement	-	-	-	-	-	+
Tense	-	-	-	-	-	+
Aspectual <i>have</i>	-	-	-	+	+	+
ADV	+	+	-	+	+	+
ADJ	-	-	+	-	-	-
DET/ p	-	-	+	-	-	-
Expletive <i>it</i>	+	+	-	-	+	+
Constituent	clausal	clausal	nominal	nominal	clausal	clausal
Passivization:						
S-to-S	-	-	-	-	+	-
PVC-to-S	-	-	+	+	-	+
S cleft	+	+	-	-	+	?
O cleft	+	+	?	-	+	+
PVC cleft	-	+	+	+	-	-

one of the English PVC types has a complementizer, *that*, which is optional. *That*-PVCs are also the only PVC type which retains sentential case marking, agreement, and tense marking. This clausal complement type accepts expletive *it* and can be modified by aspectual *have* and adverbs but not by adjectives, or determiners. In case the matrix PV is passivized, *that*-PVCs permit PVC-to-S raising but not S-to-S raising. *That*-PVC objects can be clefted, but not their subjects or the whole complement.

To-PVCs are morphologically marked by the preverbal particle *to*, both logical subject and direct object (in case of transitive predicates) are marked with the accusative case. Only the modification with aspectual *have* is grammatical but neither agreement nor tense marking. Clausal *to*-PVCs accept expletive *it*. They can be modified by adverbs but not by adjectives or determiners. *To*-PVCs of passivized PVs allow S-to-S raising but not PVC-to-S raising. The subject as well as the object of a *to*-PVC can be clefted but not the whole PVC.

The nominalized PVC, PNOM, lacks a complementizer and encodes its logical subject as well as its logical object in the genitive case. PNOMs do not permit agreement, tense, aspect marking or adverbs, but are unique among the PVC types considered here in accepting adjectives as well as determiners and the plural *-s*. As nominal constituents PNOMs cannot occur with expletive *it*. Like *that*-PVCs they admit PVC-to-S but not S-to-S raising in passivization. With respect to clefting, PNOMs only allow PVC cleft.

The non-PVC type INOM was investigated because it contrasts with PNOMs. The structural difference between the two nominalization types is that INOMs encode their direct objects in the accusative case and not in the genitive like PNOMs. As opposed to PNOMs, INOMs permit aspectual *have* as well as adverbs, but cannot occur with adjectives, determiners or the plural *-s*. Regarding expletive *it*, passivization and cleft INOMs behave like PNOMs.

I have argued above that *ing*-PVCs are the progressive counterparts of NI-PVCs, differing from NI-PVCs only in the *-ing* suffix on the verb. In fact, both types of PVC exhibit the same structural characteristics: no complementizer; accusative case of logical subject and direct object; no agreement, tense, or aspectual *have*; adverbs but neither adjectives, nor articles or the plural *-s*; no passivization. Expletive *it* is grammatical, so that both NI-PVCs and *ing*-PVCs are analyzed as clausal constituents. Neither subject nor object cleft are grammatical, but the *ing*-PVC permits PVC cleft. This divergence might be due to the fact that neither expletive *it* nor impersonal expressions like *someone* nor

idiomatic expressions can be clefted, and those constitute unambiguous *ing*-PVCs. In other words, many *ing*-PVCs are ambiguous between *ing*-PVCs, reduced relative clauses and NP adjuncts, so that the ability of *ing*-PVCs to undergo PVC cleft might be an instance of reduced relative clauses or NP adjuncts and not of ‘true’ *ing*-PVCs.

In the following section the structural description of the complement types is complemented by their semantic characterization. The semantic description of the PVC types permits assigning one of the two semantic types identified in section 1.2 to each PVC type.

4. Criteria for the semantic characterization

The semantic properties of the complement types characterize the semantic types that were identified in section 1.2: EVENTS, i.e. events, processes, and actions, and PROPOSITIONS, i.e. propositions, facts, and results. EVENTS can only be perceived while they happen. Hence, the complement must be encoded as temporally simultaneous with the matrix clause if EVENTS are expressed. ‘Temporally simultaneous’ expresses the restriction that the temporal reference of the matrix clause and of the complement clause need to be minimally identical. ‘Minimally’ in that the action of perceiving the EVENT and the happening of the EVENT need to overlap to a degree sufficient for observation. For PROPOSITION denoting complement types no restriction of this kind exists.

The type of predicate of the complement also plays a role in distinguishing EVENT denoting PVCs from PROPOSITION denoting PVCs. Two conditions have to be met for a PVC denoting an EVENT. First, the PVC predicate has to express a state, process or action which can be perceived by our senses, and second, the object of perception must be subject to some sort of transformation, i.e. it cannot be stative (MÖNNICH, 1992b). This means that stative predicates, especially those describing imperceptible states, cannot occur in complement types that are restricted to an EVENT interpretation. Especially verbs expressing mental states like *know* should not occur in such a complement type.

Negation transforms processes into states, so that negated complements cannot obtain an EVENT interpretation (VENDLER, 1967; MÖNNICH, 1998). This means that EVENT denoting complement types do not allow sentential negation.

Modality modifies the meaning of a clause in such a way that it reflects the speaker’s judgment regarding the likelihood of the expressed proposition (QUIRK ET AL., 1985; LYONS, 1977). The application of

modality to the complement types under investigation is therefore restricted to PROPOSITION denoting complement types. As a semantic category, modality is realized in languages chiefly by lexical and morphological means. Lexically, sentential or modality adverbs and modal auxiliaries or modal particles are used. Morphologically, mood categories such as subjunctive, imperative, or irrealis are marked on the verb or in the form of modality particles. A special role is assigned to morphological markers of evidentiality, which indicate how the information conveyed in the proposition was obtained, e.g. via perception, inference or hearsay (HOLZAPFEL, 1996; PALMER, 1986). In English, the notion of evidentiality is expressed via modal auxiliaries, perception verbs, adverbs, or idiomatic phrases:

- (96) a. John **must have** arrived. ANDERSON (1986), 274
 b. **I hear** Mary won the prize. ANDERSON (1986), 274
 c. It had **evidently** been under snow. CHAFE (1986), 267
 d. **I have it on good authority that** Mary won the prize.
 ANDERSON (1986), 276

That markers of evidentiality can be used to mark PVC as PROPOSITION denoting has been discussed in chapter 2, section 4.1. Since a detailed investigation of the phenomenon of modality is beyond the scope of this thesis, I restrict my observations regarding English PVC to sentential adverbs like *probably* and modal auxiliaries like *be able to*.

In addition to the above criteria, NOONAN (1985) lists the choice of complementizer as affecting the semantics of a complement type. Since there is only one complementizer in English PVCs, the choice of complementizer does not play a role in English. However, I investigate whether the complementizer *that* and the infinitival particle *to* have any semantic value.

In sum, I have selected the five most salient parameters contributing to the semantic characterization of English PVCs, which I also considered applicable to the analysis of Akatek. The following list of questions is used as a guideline for the semantic description of the complement types under investigation:¹⁴

1. Is the PVC restricted to temporal simultaneity with the matrix predicate?
2. Can the PVC contain imperceptible or stative predicates?
3. Is sentential negation possible?

¹⁴More criteria, especially regarding the truth theoretic properties of PVCs, are discussed in BARWISE & PERRY (1983); DECLERCK (1983); DRETSKE (1969); HIGGINBOTHAM (1983); MITTWOCH (1990), among others.

4. Can the PVC be modified by sentential adverbs or modal auxiliaries?
5. What - if any - is the semantic value of the complementizer?

4.1. Temporal simultaneity. EVENTS can only be perceived at the moment they happen. In other words, the perception of the EVENT necessarily needs to take place at the same time the EVENT takes place. This is achieved either by a complete absence of tense or aspect marking in the complement as in the NI-PVC in English or by the aspectual specification [+progressive] of *ing*-PVCs stipulated in section 3.

NI-PVCs, *ing*-PVCs and PNOMs exhibit no independent time reference, while INOMs, *to*-PVCs and *that*-PVCs - as was already observed in section 3 - can have tense or aspect marking that is independent from the tense or aspect marking of the matrix clause. In other words, the latter three complement types do not necessarily have to be co-temporal with their matrix predicate.

That-PVCs can, but do not have to be, co-temporal with their matrix predicates. Provided that the content of a *that*-PVC as well as its temporal specification allow an EVENT interpretation, the progressive form *be V-ing* of the complement verb facilitates such a reading:

(97) John hears that Mary is shouting. CAPLAN (1973), 270

In other words, the sentence in (97) denotes non-epistemic auditory perception of an EVENT as well as epistemic or abstract, mental perception of a PROPOSITION (DRETSKE, 1969; CAPLAN, 1973).

4.2. Predicate type. There are two requirements a PVC type's predicate must fulfill in order for the PVC type to be EVENT denoting. The first requirement is that the PVC must express something perceptible. In other words, we can only *see*, *hear*, *feel*, *smell* and *taste* certain EVENTS. For example, unlike *bleeding*, *hurting* is not accessible to the sense of vision, while we can *see* other people *look*, but not *feel* a certain way.

- (98) a. The doctor watched my foot bleeding/*hurting badly.
AKMAJIAN (1977), 445
- b. We saw them looking/*feeling pretty sick.
AKMAJIAN (1977), 445

Mental states are intrinsically imperceptible and therefore cannot function as predicates of *ing*-PVCs or NI-PVCs:

- (99) a. *I saw John know that *p*. HIGGINBOTHAM (1994a), 31

- b. *I saw the farmer hope for rain.
HIGGINBOTHAM (1994a), 31

The second requirement regarding the PVC predicate is that EVENTS require some sort of transformation or change over time that can be observed. Whereas PROPOSITION denoting complements can contain predicates expressing perceptible or imperceptible enduring states, this is impossible for purely EVENT denoting complement types. For example, (100-a) expresses a perceptible permanent state in form of a *that*-PVC. The same cannot be conveyed via an NI-PVC as shown in the ungrammaticality of (100-b). An NI-PVC accepts predicates expressing actions like *fall* in example (100-c).

- (100) a. I saw that the lamp stood on the table.
b. *I saw the lamp stand on the table.
AKMAJIAN (1977), 440
c. I saw the lamp fall off the table.

Temporary state predicates with the inherent possibility for transformation or change can also be EVENT denoting, i.e. occur in NI-PVC, as shown in examples (101-a) and (101-b).

- (101) a. I saw John stand on the table. AKMAJIAN (1977), 440
b. I saw John sit in his usual place. MITTWOCH (1990), 105

The observation that predicates like *be ill* are ungrammatical with NI-PVCs and *ing*-PVCs but grammatical with *to*- and *that*-PVCs supports the analysis that NI-PVCs must be interpretable as EVENTS:

- (102) a. *I observed John be(ing) ill.
b. I observed John to be ill.
c. I observed that John was ill. DECLERCK (1981), 87

In turn, predicates of *to*-PVCs appear to be restricted to stative situations as for example in (103) and in (104). Unmistakably non-stative situations cannot be expressed by *to*-PVCs as can be seen in examples (105) and (106).¹⁵

- (103) I saw it to produce no bad effects. (= *there were* none as a result) BOLINGER (1974), 72

¹⁵In passive constructions, however, *to*-PVCs accept non-stative situations:

- (i) She was seen to make friends with everyone. BOLINGER (1974), 73

- (104) I saw somebody to have entered the building.
VAN DER LEEK & JONG (1982), 112
- (105) *I saw her to make friends with everyone.
BOLINGER (1974), 73
- (106) *I saw somebody to enter the building.
VAN DER LEEK & JONG (1982), 112

To-PVCs are the only complement type under scrutiny that cannot contain an action predicate like *paint* (107). In other words, *to*-PVCs cannot denote EVENTS.¹⁶

- (107) a. Jill saw him paint(ing) the wall.
b. Jill saw his painting of the wall.
c. Jill remembered his painting the wall.
d. *Jill saw him to paint the wall.
e. Jill saw that he painted the wall.

Predicates expressing imperceptible states like *own*, are ungrammatical as predicates of NI-PVCs, *ing*-PVCs and PNOMs but grammatical when occurring in INOMs and *that*-PVCs.

- (108) a. *Bill saw John own(ing) a house.
HIGGINBOTHAM (1983), 118
b. *Bill saw John's owning of a house.
c. Bill remembered John's owning a house.
d. Bill saw that John owns a house.

In sum, NI-PVCs, *ing*-PVCs and PNOMs are restricted to predicates expressing perceptible processes or perceptible temporary states. INOMs and *that*-PVCs accept the same predicates as NI-PVCs, *ing*-PVCs and PNOMs, but can also take predicates expressing imperceptible or enduring states. *To*-PVCs can only contain stative predicates.¹⁷

4.3. Negation. Sentential negation of a PVC is impossible for NI-PVCs, *ing*-PVCs and PNOMs, while INOMs, *to*-PVCs and *that*-PVCs can be negated:

- (109) a. *Peter saw the ice not melt[ing]. MÖNNICH (1998), 11

¹⁶Unless *to*-PVCs occur in passivized constructions as in (i).

(i) Jill was seen to paint the wall. STEVE BERMAN (p.c.)

¹⁷With the exception that *to*-PVCs that occur after passivized PVs are not restricted to statives as has already been mentioned in the two preceding footnotes.

- b. [Peter heard] *John's not revealing of the secret.
VENDLER (1967), 130
- c. [Peter heard] John's not revealing the secret.
VENDLER (1967), 130
- d. Jill heard him not to be friends with everyone.
- e. Jill heard that he had not revealed the secret.

Under certain conditions negation of NI-PVC is grammatical. If for example the complement carries an implication of failure like in (110) or if the complement in (111) can be interpreted in such a way that it implies that John saw Mary refrain from smoking.

(110) I saw the car not start. HIGGINBOTHAM (1983), 111

(111) John saw Mary not smoke. HIGGINBOTHAM (1983), 111

4.4. Modality. Sentential adverbs like *possibly*, *hardly*, or *hopefully* enhance or diminish the truth value or force of a sentence. Therefore, these adverbs cannot in general modify EVENT denoting complement types (GEE, 1977). It turns out that in addition to NI-PVCs, *ing*-PVCs and PNOMs, *to*-PVCs do not accept the above sentential adverbs. With INOMs sentential adverbs are questionable, so that only *that*-PVCs fully accept sentential adverbs:

- (112) a. *John watched Mary possibly/ hopefully/ hardly win(ning) the race.
- b. *John saw Mary's possibly/ hopefully/ hardly winning of the race.
- c. ?John mentioned Mary's possibly/ hopefully/ hardly having won the race.
- d. *John saw Mary possibly/ hopefully/ hardly to possess the necessary qualifications.
- e. John saw that Mary possibly/ hopefully/ hardly had the necessary qualifications.

A note of caution regarding the ability of sentential adverbs to modify *that*-complements has been put forth by KOKTOVA (1986). She notes that the acceptability of this type of adverb in *that*-complements depends on the lexical semantics of the predicate of the complement as well as on the semantics of the adverb. For example, the sentential adverbs *surprisingly*, *admittedly* and *tragically* are questionable in *that*-complements of the matrix predicate *know*.

- (113) ?Terry knows that Mary has been surprisingly/ admittedly/
tragically kidnapped. KOKTOVA (1986), 69

Note that not all types of modal adverbs prevent the interpretation of the complement as an EVENT: adverbs of manner (114), frequency (115), or duration (116) can modify EVENTS provided that an interpretation of repeated action or duration is feasible.

- (114) I felt the house tremble violently. VENDLER (1968), 57
- (115) a. I saw John jump once.
b. *I saw John jumping once. GEE (1977), 480
c. ??I saw John rarely walk to work.
HIGGINBOTHAM (1994a), 9
- (116) I saw John sit in his usual place for half an hour.
MITTWOCH (1990), 110

The modal auxiliary *be able to* is grammatical only with INOMs and *that*-PVCs but ungrammatical with all the other complement types: NI-PVCs, *ing*-PVCs, PNOMs and *to*-PVCs:

- (117) a. *He smelled Mary be able to beeswax the floor.
b. *He smelled Mary being able to beeswax the floor.
c. *He smelled Mary's being able to beeswax of the floor.
d. He remembered Mary's being able to beeswax the floor.
e. *He smelled Mary to be able to beeswax the floor.
f. He smelled that Mary had been able to beeswax the floor.

However, VAN DER LEEK & JONG (1982) note that under certain conditions Dutch modals can occur with NI-PVCs as for example shown in (118). On the other hand, modal auxiliaries such as *must* are ungrammatical as modifiers of all complement types except for *that*-PVC:

- (118) Ik heb haar nog nooit zoveel snoep zien mogen eten als die keer.
'I have never seen her be allowed to eat as many sweets as that time.' VAN DER LEEK & JONG (1982), 113
- (119) a. *He saw the president must arrive/ arriving.
b. *He saw the must arriving of the president.
c. *He remembered the president's must having arrived.
d. *He saw the president to must be friends with everyone.
e. He saw that the president must have arrived.
VENDLER (1968), 78

4.5. Complementizer. The issue whether the complementizer has any semantic value is only relevant for *to*-PVCs and *that*-PVCs. In section 3, I classified the infinitival *to* as a particle since it is not a complementizer like *that*. The complementizer *that* carries no distinct meaning. Its role is to indicate that the following complement clause is subordinate to and connected with the main clause. *That* typically introduces a clause. More specifically, *that* creates a dependent PROPOSITION denoting expression (JESPERSEN, 1940; PORTNER, 1991; RADFORD, 1997). In present day English *to* carries an unclear semantic value. ‘After see and hear [the *to*-infinitive] may be used when these verbs do not denote the immediate sense-perception, but rather a logical conclusion...;’ JESPERSEN (1940), 1576. Compare the sense perception in (120) with the inference in (121).

(120) I have seen hastier people than you stay all night.
JESPERSEN (1940), p. 280

(121) I see this to be true. JESPERSEN (1940), p. 280

In cases where a matrix predicate can take either *that*-complements or *to*-infinitives, it turns out that the predicate of a *to*-infinitive often characterizes its logical subject while *that*-complement clauses present neutral reports.

‘With *find*, as with *believe*, objectively viewed propositions about empirically verifiable, either-or matters of fact are most appropriate in *that* clauses, but when *find* is used to describe someone’s personal experience or judgment, an infinitive is more appropriate.’ BORKIN (1984), 56

(122) a. When I looked in the files, I found that she was Mexican.
b. ?When I looked in the files, I found her to be Mexican.
BORKIN (1984), 56

(123) a. ?I find that Harry is amusing, although everyone else thinks he’s a bore.
b. I find Harry (to be) amusing, although everyone else thinks he’s a bore. BORKIN (1984), 56

Regarding perception constructions the same observations apply: *that*-PVCs are used when the PROPOSITION is neutral and verifiable, while *to*-PVCs are used when the speaker wants to convey a more subjectively oriented attitude or evaluative judgment (MÖNNICH, 1992b; HEGARTY, 1991):

- (124) a. I see/know you to be a kind person.
 BOLINGER (1974), 65
 b. I see/know that you are a kind person.

4.6. Summary. Table 7 presents an overview of how each criterion established at the outset for the semantic characterization of PVCs, manifests for each PVC type. The division between EVENT de-

TABLE 7. Criteria for the semantic characterization of English PVC types

	NI-PVC	<i>Ing</i> -PVC	PNOM	INOM	<i>to</i> -PVC	<i>that</i> -PVC
EVENT denoting	+	+	+	-	-	+
PROPOSITION DE- noting	-	-	-	+	+	+
Temporal						
simultaneity	+	+	+	+/-	+/-	+/-
Perceptible	+	+	+	+/-	+/-	+/-
Process	+	+	+	+/-	-	+/-
Negation	-	-	-	+	+	+
Sentential adverbs	-	-	-	?	-	+
<i>be able to</i>	-	-	-	+	-	+
<i>must</i>	-	-	-	-	-	+

noting NI-PVCs, *ing*-PVCs and PNOMs on the one hand and PROPOSITION denoting INOMs, *to*-PVCs and *that*-PVCs on the other becomes apparent in Table 7.

Only NI-PVCs, *ing*-PVCs, and PNOMs are restricted to temporal simultaneity. The observation that NI-PVCs, *ing*-PVCs, and PNOMs must take a perceptible process or temporary state predicate and cannot take predicates referring to enduring states indicates that all three complement types are unambiguously EVENT denoting. *To*-PVCs in active voice constructions are restricted to stative predicates, so that they cannot denote EVENTS. Only *that*-PVCs accept both perceptible and imperceptible, and stative as well as process predicates, which is taken as evidence that this PVC type has the potential to express both EVENTS and PROPOSITIONS. While the EVENT denoting complements do not allow sentential negation, the reverse is true for the PROPOSITION denoting complements, i.e. they can be negated. Parallel to the restrictions on negation, NI-PVCs, *ing*-PVCs and PNOMs do not accept sentential adverbs or modal auxiliaries like *must* and *be able to*. Sentential adverbs and modals like *must* can only modify *that*-PVCs while *be able to* can modify *that*-PVCs as well as INOMs. Not included

in Table 7 is the semantic value of the complementizer: *that*-PVCs express neutral PROPOSITIONS while *to*-PVCs carry a sense of subjective evaluation or judgment.

5. Conclusion

In this chapter, I have described five PVC types in English: NI-PVCs, *ing*-PVCs, PNOMs, *to*-PVCs and *that*-PVCs. The non-PVC complement type INOM was added to the investigation because on the one hand INOMs contrast well with PNOMs and on the other they share a number of structural and semantic characteristics with *to*-PVCs and *that*-PVCs. In addition to the structural and semantic characterization of the complement types, their ability to occur with a variety of different matrix predicates was investigated. The goal was to establish correlations between complement types, which were described structurally and semantically, and two semantic types: EVENTS and PROPOSITIONS. I tested the following hypotheses, repeated here for convenience from section 1.3:

1. Hypothesis 1
NI-PVCs, *ing*-PVCs, and PNOMs are exclusively EVENT denoting.
2. Hypothesis 2
To-PVCs are exclusively PROPOSITION denoting.
3. Hypothesis 3
That-PVCs are primarily PROPOSITION denoting, but under special conditions *that*-PVCs can also be EVENT denoting.
4. Hypothesis 4
Only PROPOSITION denoting PVC types can alternatively be embedded by the matrix predicate *know*.

Hypotheses 1, 2 and 4 turned out to be valid. Hypothesis 3 is motivated by the structural and semantic flexibility of *that*-PVCs. *That*-PVCs are basically PROPOSITION denoting and are listed as such in the typological considerations following below as well as in chapters 5 and 6. Their structural and semantic flexibility, however, enables *that*-PVCs to also encode EVENTS provided that the restrictions put on EVENT denoting complement types are all met. These restrictions are mainly semantic in nature: temporal simultaneity, perceptible process predicates, no negation, no modal modification.

The five PVC types in English form a pattern within the typology of complementation developed by NOONAN (1985) as depicted in Table 8. In English, there is one indicative (IND) PVC type: *that*-PVC. No subjunctive (SUB) or paratactic (PARA) PVCs exist, but

two infinitive (INF) PVC types: NI-PVC and *to*-PVC. The progressive counterpart of the NI-PVC, the *ing*-PVC, is also listed as a complement of the INF type. Participial adjunct clauses (PARTs) were excluded from the investigation of PVCs in section 1.1. Furthermore, there is a nominalized (NMLZ) PVC, PNOM. The semantic interpretation as either PROPOSITION denoting or EVENT denoting allows a hierarchical ordering of the PVC types ranking from IND to NMLZ. The INF complement type includes a PROPOSITION denoting as well as two EVENT denoting subtypes: the marked *to*-PVC denotes a PROPOSITION while the unmarked NI-PVC and its progressive counterpart, the *ing*-PVC, refer to an EVENT. PROPOSITION and EVENT denoting PVC types

TABLE 8. English PVCs and the typology of complementation

Complement types	PVC types	Semantic types	<i>know</i>	active PVs
IND	<i>that</i> -PVC	PROPOSITION (EVENT)	+	-
SUB	—			
PARA	—			
INF	<i>to</i> -PVC	PROPOSITION	+	-
	NI-PVC	EVENT	-	+
	<i>ing</i> -PVC	EVENT	-	+
NMLZ	PNOM	EVENT	-	+

are in complementary distribution regarding two of the non-PV matrix predicates that were investigated in section 2, *know* and active PVs like *watch*. The PROPOSITION denoting PVC types can occur with *know* as a matrix predicate, but not with active PVs like *watch*, while EVENT denoting PVC types can be embedded by active PVs but not by *know*.

CHAPTER 4

Akatek, a ‘typical’ Mayan language

The purpose of this chapter is to familiarize the reader with the basic grammatical and typological characteristics of Akatek, which is a typical Mayan language. The foundation laid in this chapter complements the criteria laid out for the description of perception verb complements in chapter 3. Together, they serve as the basis for the investigation of Akatek perception verb complements in chapter 5.

Mayan languages are spoken today in southern Mexico, Guatemala, and Belize. Although the Mayan family of languages has no known relatives, the family reflects its membership as a language of Mesoamerica in various aspects (CAMPBELL, 1990; CAMPBELL ET AL., 1986):

1. Vigesimal numeral system
2. Nominal possession of the form affix-possessed possessor
3. Relational nouns
4. Non-verb-final basic word order

The Mayan family may be classified into four major groups: the Yukatek and the Huastek complex, and a Western and an Eastern division. The Eastern and Western division each have two major branches with various subgroups as shown in Table 1 (adopted from DAYLEY (1981) based on KAUFMAN (1974), KAUFMAN (1975)). Akatek is a member of the Greater Kanjobalan branch of the Western division. All Mayan languages have an ergative agreement system. About half of the languages - among them Akatek - have an additional split ergative agreement system, which is presented in section 2.5. In Table 1, languages which lack split verb agreement are marked with an e for ergative marking, languages with attested splits with s for split-ergative. For the unmarked languages the relevant information could not be obtained. In general, the Mayan language family is rather coherent regarding case and agreement marking and possessive marking. I therefore treat Mayan languages as a uniform whole that can be positioned within cross-linguistic typology and for the time being ignore the few family internal differences.

The structure of the chapter is as follows: in section 1, the reader is introduced to the grammatical features of Akatek that are helpful for an

TABLE 1. The Mayan language family

DIVISION	BRANCH	GROUP	LANGUAGES
			- Chicomuceltec (extinct), Huastek _e
			- Yukatek _s , Itzá _s , Lakandón _s , Mopán
Western	Greater Cholan	Cholan	- Chol _s , Chontal, Chortí _s , Choltí (extinct)
		Tzeltalan	- Tzeltal _e , Tzotzil _e
	Greater Kanjobalan	Chujean	- Tojolabal _e , Chuj _s
		Kanjobalan	- Kanjobal, Akatek _s , Jakalteq _s , Mochó _s
Eastern	Greater Mamean	Mamean	- Mam _s , Teco
		Ixilan	- Aguacatec _s , Ixil _s
	Greater Quichean		- Uspantec - Kekchí _s
		Quiché	- Quiché _e , Achí, Sacapultec, Sipacapa, Tzutujil _e , Cakchiquel _e
		Pocomam	- Pocomam _s , Pocomchí _s

understanding of the analysis of Akatek PVCs in chapter 5. In section 2, traditional typological characteristics of Akatek as a representative of the Mayan language family are presented.

1. Basic grammatical features

The following grammatical features are presented in this section. Person marking and ergativity in section 1.1, characteristics of pronouns, nouns and verbs in section 1.2, tense-aspect marking and negation in section 1.3, nonconfigurationality in section 1.4, and finally the status of the subject in an ergative language like Akatek in section 1.5.

1.1. Person marking and ergativity. There are two sets of pronominal affixes in Mayan languages each conflating person, number and case. Due to the diversity of their function they are traditionally referred to as set A and set B. For reasons of perspicuity I maintain these notations. Set A affixes are always prefixed and have two instantiations: a prevocalic (_{-V}) and a preconsonantal (_{-C}) one. Set B affixes can occur as prefixes or as suffixes and have only one instantiation. There are markers for first, second and third person in singular and plural. Singular is the default, so that only the plural is specifically indicated in the glosses (p). For example, first person singular Set A is

glossed as A1, and its plural counterpart as A1p. The person markers are listed in Table 2 along with the sentence final clitics, which cooccur with first person singular or plural markers or with second person plural markers as indicated in Table 2.¹

TABLE 2. Pronominal affixes in Akatek

Number	Person	Set A	_C	_V	Gloss	Set B	Gloss	Clitic
singular	1		<i>in-</i>	<i>w-</i>	A1	<i>in</i>	B1	an
	2		<i>a-</i>	<i>aw-</i>	A2	<i>ach</i>	B2	
	3		<i>s-</i>	<i>y-</i>	A3	∅	B3	
plural	1		<i>ku-</i>	<i>k-</i>	A1p	<i>ku</i>	B1p	on
	2		<i>a-</i>	<i>ey-</i>	A2p	<i>ach</i>	B2p	wej
	3		<i>s-</i>	<i>y-</i>	A3p	∅	B3p	

Set A pronominal prefixes occur in three environments: on transitive verbs, on nouns and on prepositions. On verbs, a set A prefix like *a-* in example (1) indicates the subject.

- (1) oj **a**-ten-in-toj an
 FUT **A2**-push-B1-DIR CL1s
 ‘You push me there.’ PENALOSA & SAY (1992)

Prefixed to nouns, set A markers indicate person and number of the possessor. In addition to the pronominal affix, a third person possessor NP or a pronoun like *ix* ‘she’ as in example (2-a) can follow the possessed noun *smuxuk* ‘3rd person’s navel’. For first person possessors indicated by the prefix *in-* on the noun *chee* ‘horse’ in example (2-b) no separate pronoun is available. Instead, first person arguments take the sentence final clitic *an* (CL1s).

- (2) a. **s**-muxuk ix
 A3-navel she
 ‘her navel’ PENALOSA & SAY (1992)
 b. **in**-chee an
 A1-horse CL1s
 ‘my horse’ ZAVALA (1997), 443

¹The orthography established by the Academia de las Lenguas Mayas de Guatemala is used for the Mayan language examples. The following spelling conventions apply: b’ = implosive bilabial, j = voiceless postvelar fricative, ch = voiceless palatal affricate, tx = retroflex voiceless palatal affricate, tz = voiceless alveolar fricative, xh = voiceless palatal fricative, x = retroflex voiceless palatal fricative, ’ = glottal stop, VV = long vowel, C’ = ejective consonant. The abbreviations used in the interlinear glosses can be found in the appendix.

On prepositions, set A prefixes indicate the person and number of the object of the preposition. For example *y-etoj* (A3-with) in example (3) means 'with him/her/it' while *k-etoj* (A1p-with) would indicate 'with us', etc.

- (3) no' mij y-etoj naj pejey
 NCL buzzard **A3**-with NCL toad
 'The buzzard and the toad' FRANCO (1993)

Set B pronominal affixes are used in four environments. First as pre- or suffixes of transitive verbs, second as prefixes of intransitive verbs, third as suffixes of non-verbal predicates (NVP), which can be either nouns or adjectives, and fourth as suffixes to the locative or the dative adposition.

First, set B person markers like e.g. *in-* in example (4) represent direct objects of transitive verbs in the form of verbal prefixes. In addition, set B markers can also be used as verbal suffixes which can be seen in example (1) above.

- (4) x-**in**-a-ten tej
 PERF-**B1**-A2-push DIR
 'You pushed me here.' PENALOSA & SAY (1992)

Second, subjects of intransitive or detransitivized verbs also obtain set B person markers as shown in (5) and (6). Akatek is a language with morphological - as opposed to syntactic - ergativity:² Subjects of transitive verbs are marked differently from subjects of intransitive and detransitivized verbs, which in turn are marked the same way than objects of transitive verbs. In example (6), the transitive verb *ma'* 'hit' is passivized by the passive suffix *-le*. Therefore, *ma'* takes the set B prefix *ach-* as a subject and it is marked by the intransitive thematic vowel *-i* (ITV) as intransitive just like the intransitive verb in example (5).

- (5) x-**ach**-b'ey-i
 PERF-**B2**-walk-ITV
 'You walked.' ZAVALA (1992b), 57
- (6) yet x-**ach**-ma'-le-i
 when PERF-**B2**-hit-PASS-ITV
 'When you were beaten up.'

²The notion of syntactic ergativity is discussed in section 1.5.

Third, set B affixes have a predicative function on non-verbal predicates which can be nouns like *ix* ‘woman’ in (7) or adjectives like *yalixh* ‘small’ in (8).

- (7) **ix-ach**
 woman-**B2**
 ‘You are a woman.’
- (8) yet **yalixh-to-in** an
 when small-still-**B1** CL1s
 ‘When I was small, . . . ’ FRANCO (1993)

Finally, set B pronominal affixes also occur suffixed to the dative and the locative adpositions as shown in (9) and (10), respectively.

- (9) **e-ach**
 DAT-**B2**
 ‘to you’ ZAVALA (1992b)
- (10) **b’ey-ach**
 LOC-**B2**
 ‘where you are’ ZAVALA (1997), 444

Summing up the description of set A and set B pronominal affixes, the following structural descriptions are provided. The general construction involving set A prefixes consists of:

- (11) PREFIX-HEAD DEPENDENT

as reflected in the structure in (12). Synchronically, this constructional similarity between V NP, PREP NP, Possessed Possessor can be accounted for by the principle of cross-categorical harmony (HAWKINS, 1983), which can cause a construction to diachronically spread from one function to another (see also BYBEE (1988) and CROFT (1990)). In Akatek, the head of this structure can be either a noun, a verb, or a preposition, while the dependent can be either empty, or a lexical NP or a pronoun.

- | | Prefix | Head | Dependent |
|------|--------|------|-----------|
| (12) | A- | N | NP/PRO/∅ |
| | A- | V | NP/PRO/∅ |
| | A- | PREP | NP/PRO/∅ |

Set B pronominal affixes do not exhibit the same degree of harmony. They occur as prefixes and as suffixes. Non-verbal predicates, i.e.

nouns and adjectives, and locative and dative adpositions are suffixed, while verbal predicates are prefixed. The transitive verb can alternatively also be suffixed by set B.

	Prefix	Head	Suffix	Dependent
(13)		NVP	-B	NP/PRO/∅
		LOC/DAT	-B	NP/PRO/∅
	B-	V_{intr}		NP/PRO/∅
	B-	$A-V_{tr}$		NP/PRO/∅
		$A-V_{tr}$	-B	NP/PRO/∅

The structure and function of pronouns, nouns and verbs in Akatek is presented in the next section. While pronouns and nouns are optional constituents of a sentence in Akatek, the verbal complex is the only obligatory constituent of the clause.

1.2. Pronouns, nouns and verbs. Historically, the pronominal affixes of set A and set B in Mayan languages developed from affixation of independent pronouns to the verb (ROBERTSON, 1992). As a result of this affixation, there are no independent pronouns in the Mayan language family with the exception of some of the Kanjobalan languages, i.e. Jakaltek, Akatek, Chuj and Kanjobal (CRAIG, 1986). The syntax of these languages shows that they innovated third person independent pronouns from noun classifiers. These pronouns can replace any lexical NP that has the ability to take a noun classifier. A noun classifier is a free morpheme preceding a noun that belongs to one of the classes listed under the heading ‘Meaning’ in Table 3. As shown in Table 3, the noun classifiers in Akatek are clearly derived from nouns (ZAVALA, 1992b). The third person pronouns are morphologically identical to the corresponding noun classifiers, e.g. the independent pronoun for an animal is *no* ‘it (animal)’. Semantically these pronouns encode third person as well as semantic features such as gender, material and consistency. In Akatek, the presence of third person pronouns is optional. The example below illustrates the NCL *no* ‘in pronoun function. As a pronoun *no*’ replaces the possessor NP, an animal that occurred in the preceding discourse, and follows the possessed NP *smul* ‘his/her/its sin’.

- (14) tol ey-∅ s-mul no’
 COMP EX-B3 A3-crime PRO:animal
 ‘Because of his (the animal’s) crime.’
 PENALOSA & SAY (1992)

TABLE 3. Noun classifiers in Akatek (ZAVALA (1992b), 152)

Noun classifier (NCL)	Nominal source	Meaning
na _j	winaj	man
ix	ix	woman
k'o	?	human, known
yab'	?	human, appreciative
no'	no'	animal
te'	te'	wood
ch'en	ch'een	stone
(i)xim	ixim	corn
tx'an	tx'an	rope
tx'otx'	tx'ootx'	earth
(a)tz'am	atz'am	salt
(j)a'	ja'	water
an	?	vegetables
k'a'	k'a'	fire

No noun classifiers are available for first and second person participants, so that no independent pronouns are available. However, in dependency with the cleft particle *ja'* as shown in (15) or prepositions like *et* 'for' in (16), first and second person pronominal affixes of set A and set B - as well as third person pronominal affixes - can function as dependent pronouns as has been described in the previous section.

- (15) eyman chi-w-il el **ja'-in** ti' an
 quickly IMPF-B3-A1-see DIR:out **CFT-B1** DEM CL1s
 'I will learn very quickly.' PENALOSA & SAY (1992)
- (16) a'-∅ wajeb'oj pilan **w-et** an
 give-B3 six pieces **A1s-for** CL1s
 'Give me six eggs!' ZAVALA (1997), 443

Nouns in Akatek are structurally identified as the head of a noun phrase. The following modifiers can precede it: prepositions, determiners, plural markers, noun classifiers, adjectives, and - if the noun is possessed - set A prefixes. The head noun can also be followed by a number of modifiers: possessor NPs, specifying NPs, relative clauses, demonstratives and sentence final clitics. Examples for NP structures in Akatek are provided below. In (17), a determiner, a plural marker, a noun classifier and a set A prefix precede the noun *kaal* 'son', while only a phrase final clitic follows. Example (18) shows a noun phrase

that consists of the possessed head *woyom* ‘my tamal’, which is preceded by a noun classifier and followed by a specifying NP *txitam* ‘pig’ and a demonstrative *tu*’. In (19) the possessed noun *skaal* ‘his son’ is followed by the possessor NP *naj Xhunik*, and modified by a plural marker, a noun classifier, a numeral and an adjective. Finally, example (20) shows a prepositional phrase consisting of the preposition *tet* and the noun phrase *jun ix q’opo tu*’. The NP in turn consists of the head *q’opo* ‘girl’ and several modifiers: a determiner, a noun classifier and a demonstrative.³

- (17) maasanil eb’ naj yalixh in-k’aal an
 DET PL NCL small A1-son CL1s
 ‘all my small sons’ ZAVALA (1992b), 202
- (18) ixim w-oyom txitam tu’
 NCL A1-tamal pig DEM
 ‘my pork tamal’ ZAVALA (1992b), 203
- (19) eb’ naj kaawan yalixh s-k’aal naj Xhunik
 PL NCL NUM small A3-son NCL Juan
 ‘Juan’s two small sons’ ZAVALA (1992b), 207
- (20) tet jun ix q’opo tu’
 PREP DET NCL girl DEM
 ‘for this girl’ ZAVALA (1992b), 50

Next, I present the structure of verb phrases. Verbs constitute the head of the verbal complex. As depicted in (21), the verb can be prefixed either by set A and set B pronominal affixes (B-A-Verb) or only by set B affixes (B-Verb) depending on transitivity. Moreover, negation and aspect markers (NEG/ASP) can precede the verb. Suffixed to the verb stem can be indicators of voice, in final position thematic vowels (ITV/TTV), one or more markers of direction (DIR), and a sentence final clitic (CL):

- (21) NEG/ASP B-(A-) Verb -VOICE -ITV/TTV DIR CL

In addition, a number of aspectual and modality particles can occur either pre- or postverbally. Example (22) illustrates a verbal complex consisting of aspect, set B person marker, the verb *b’ey* ‘walk’ and an intransitive thematic vowel (ITV). As in most languages, in Akatek, verbs are either transitive or intransitive. When occurring in final position like in (22), i.e. when no other constituents follow, verbs

³For the details of this analysis refer to ZAVALA (1992b).

obtain a thematic vowel. For intransitive verbs, this is *-i* while for transitive verbs the thematic vowel can be either *-a'*, *-o'*, or *'u*. The presence of the modality particles *-oj* and *-ab'* as well as the following pronoun in example (23) prevent the occurrence of a thematic vowel. Example (24) shows an intransitive verb *wey* 'sleep' that is transitivized by the causative suffix *tse*. The verb is therefore prefixed with set A as well as with set B pronominal affixes, which are preceded by an aspect marker. Following the causative morpheme are a directional and an irrealis suffix. The verbal complex is supplemented by the pronoun *naj* 'he' that allows to identify the gender of the direct object referent, i.e. male human, and a sentence final clitic for first person singular, *an* (CL1s), that indicates that such a participant plays a role in the expression. Example (24) illustrates that the clitics are indeed sentence final, moving the clitic to the end of the verbal complex, i.e. before the pronoun, would not be acceptable.

- (22) x-ach-b'ey-i
 PERF-B2-walk-ITV
 'You walked.' ZAVALA (1992b), 57
- (23) ∅-b'ey-oj-ab' naj
 B3-walk-IRR-EXH he
 'He should walk!' ZAVALA (1992b), 58
- (24) x-∅-in-wey-tse aa-øj naj an
 PERF-B3-A1-sleep-CAUS DIR-IRR he CL1s
 'I caused him to sleep.' ZAVALA (1992b), 89

In the following section, the tense-aspect-modality marking system of Akatek and its relation to the negation system is presented. Tense-aspect-modality marking and negation are part of the verbal complex described above. Both play a central role in the structural and semantic characterization of PVCs in Akatek in chapter 5.

1.3. Tense, aspect, aktionsart, modality and negation. The notions of tense, aspect, aktionsart, modality and negation are used in chapter 5 as characteristics for the structural and semantic description of PVCs in Akatek. I do not want to take a stance regarding the problems that have been discussed regarding the concepts of tense, aspect, aktionsart and modality.⁴ In Akatek, there is a future tense (FUT) that can also express irrealis mode (IRR). The notion of aspect is restricted to morphologically marked perfective (PERF) and

⁴For more recent contributions to the topic refer to VETTERS & VANDEWEGHE (1990).

imperfective (IMPF). Lexically or derivationally expressed manners of actions are referred to as aktionsart. In Akatek, these are - among others - a progressive auxiliary (PROG), a durative particle (DUR), an iterative clitic (ITE) and two particles indicating anticipation of change and completion, respectively. Finally, I consider the behaviour of one modal clitic.

There are three morphological tense-aspect markers: one for perfective aspect, one for imperfective aspect, and a third one for either future tense or irrealis mode. Perfective aspect is realized in form of the prefixes *max-* or *x-* as illustrated in example (25-a). In the presence of temporal adverbials like *ewi* 'yesterday' the prefix is optional (25-b). Generally, absence of an explicit tense or aspect marker is interpreted as perfective. In the following, this zero perfective aspect is not explicitly indicated in the glosses by a \emptyset - prefix as is done in (25-b) for illustration.

- (25) a. **x- \emptyset -b'ey** naj Xhunik
PERF-B3-walk NCL John
 'John walked.' ZAVALA (1992b)
- b. **\emptyset - \emptyset -b'ey** naj Xhunik y-et ewi
PERF-B3-walk NCL John A3-when yesterday
 'John walked yesterday.' ZAVALA (1992b)

The prefix that indicates imperfectiveness is *chi-*. The imperfective aspect marks intransitive (26-a) and transitive verbs (26-b) and, unlike the perfective aspect, is never optional.

- (26) a. **chi- \emptyset -wey** ix Malin
IMPF-B3-sleep NCL Mary
 'Mary is sleeping.' ZAVALA (1992b)
- b. **chi-in-a-ma'** an
IMPF-B1-A2-hit CL1s
 'You are hitting me.' ZAVALA (1992b)

The future/irrealis marker *oj-* occurs on transitive (27-a) and intransitive (27-b) verbs either preverbally or pre- and postverbally at the same time, see example (27-c). Future aspect can also be indicated by temporal adverbials like *yekal* 'tomorrow', in which case either *oj-* or the imperfective aspect marker *chi-* can be prefixed to the verb (27-d).

- (27) a. **oj- \emptyset -w-al** an
FUT-B3-A1-say CL1s
 'I will say it.'

- b. **oj**-in-wey an
FUT-B1-sleep CL1s
 ‘I will sleep.’ ZAVALA (1992b)
- c. tejan **oj** ach-kam-**oj**
 perhaps **FUT** B2-die-**IRR**
 ‘Maybe you will die.’ PENALOSA & SAY (1992)
- d. **chi**-/ **oj**-in-wey yekal an
IMPF-/ **FUT**-B1-sleep tomorrow CL1s
 ‘I will sleep tomorrow.’ ZAVALA (1992b)

There are a number of particles expressing aktionsart and modality in Akatek. Only the ones relevant for the analysis of PVCs in Akatek in chapter 5 are presented in the following.⁵ The progressive auxiliary *lalan* acts like a non-verbal predicate. *Lalan* embeds the clause that follows it, as exemplified in (28).

- (28) **lalan**-∅ [∅-a-tzok'-on si']
PROG-B3 B3-A2-cut-SUF firewood
 ‘You’re cutting firewood.’

The particle *to* ‘still’ marks actions that are supposed to happen but haven’t happened yet (29), and can also modify adjectives functioning as non-verbal predicates (30).

- (29) ∅-w-eche **to** ok an y-iin hin-holom an
 B3-A1s-try **still** DIR CL1s A3-in A1-head CL1s
 ‘I am going to try it on my head.’
 PENALOSA & SAY (1992)
- (30) yalixh-**to**-ach
 little-**still**-B2
 ‘You are still little.’ PENALOSA & SAY (1992)

The particle *xa* ‘already’ indicates that the action is completed or on its way to completion (31). Like *to* ‘still’ it can also modify non-verbal predicates, e.g. *miman* ‘big’ in (32).

- (31) k'oj ∅-w-il-**xa** xin
 enough B3-A1-see-**already** then
 ‘That’s enough for now.’ PENALOSA & SAY (1992)

⁵For a more comprehensive description of these particles in Akatek refer to ZAVALA (1992b).

- (32) miman- \emptyset -**xa** ko-hek tu'
big-B3-**already** A1p-debt DEM
'Our debt is already great.' PENALOSA & SAY (1992)

There is a marker for durative, continuative or non-punctual aktionsart *k'al* (DUR) (33), which often combines with the imperfective past particle *ta'* (IMPFP) (34).

- (33) y-aa **k'al** toj naj satkan tu' xin
A3-ascend **DUR** DIR he sky DEM then
'He kept going into the sky.' FRANCO (1993)
- (34) chi-a-ma'-in **k'al-ta'** an
IMPF-A2-hit-B1 **always-IMPFP** CL1s
'You always hit me.'

Example (35) illustrates that the aktionsart marker *k'al* cooccurs with aspect markers: in (35-a) *k'alta'* combines with the future aspect *oj-* and in (35-b) *k'al* cooccurs with the imperfective *chi-*. The durative *k'al* also cooccurs with non-verbal predicates as illustrated in example (36).

- (35) a. palta man-**k'al-ta'** **oj-** \emptyset -meltzo naj
but NEG-**DUR-IMPFP** **FUT-B3**-return.here he
'But he will never come back.' FRANCO (1993)
- b. **chi-k'al-** \emptyset -a'-le wan-**oj-xa** e-ach
IMPF-DUR-B3-put-PASS DEFPL-IRR-already to-B2
'More of the same will always be given to you.'
PENALOSA & SAY (1992)
- (36) naj kewa ooj tzajan- \emptyset -**k'al** pax naj
NCL dumb coyote following-B3-**DUR** always he
'The dumb coyote always followed him.'
PENALOSA & SAY (1992)

The iterative or repetitive aktionsart clitic *-le* (ITE) is a verbal suffix indicating repeated actions:

- (37) x- \emptyset -y-ab' ix Mikin tol
PERF-B3-A3-hear NCL Micaela COMP
chi- \emptyset -s-q'an-**le** s-mulnail naj unin
IMPF-B3-A3-ask-**ITE** A3-work NCL boy
'Micaela heard that the boy (repeatedly) asks/looks for work.'

The modality clitic *la* is termed admirative (ADM) by ZAVALA (1992b). He describes the meaning of *la* as ranging from amazement to complaint or presumption:

- (38) kaw chi- \emptyset -aw-il-**la** ko-tz'ikin
 very IMPF-B3-A2-see-ADM A1p-bird
 'Really, you take care of our bird.'
 PENALOSA & SAY (1992)

Negation and morphological marking of tense and aspect are intertwined in Akatek. This means that each kind of aspect, perfective and imperfective, as well as tense are negated with a different morpheme. For the perfective, the aspect marker cannot cooccur with the marker for negation. Furthermore, the progressive auxiliary *lalan* is negated with the same discontinuous morpheme as future/irrealis, which is also the negation strategy for non-verbal predicates (ZAVALA, 1992b).

The basic features of verbal negation in Akatek are the following. Each of the three morphological aspects described above has a distinct morphological negative. The verb in the perfective is negated by the prefix *maa* while the otherwise optional aspect marker has to be absent (39-a). Imperfectively marked verbs are negated with *k'am* before the aspect marker (39-b).⁶ Future or irrealis is negated with *man* preposed to the aspect marker (39-c). The progressive auxiliary is also negated with *man* before the auxiliary and the irrealis marker *oj* is suffixed (39-d). However, the verb that is embedded by *lalan* in example (39-d), i.e. *mulna* 'work', takes the set A pronominal prefix *a-* (A2) instead of the set B prefix *ach-* (B2) that occurs with the same verb in examples (39-a) to (39-c).

- (39) a. watx'- \emptyset ta **ma** ach-mulna-oj
 good-B3 if **NEG** B2-work-IRR
 'It's good that you didn't work.'
 b. watx'- \emptyset ta **k'am** chi-ach-mulna-i
 good-B3 if **NEG IMPF**-B2-work-ITV
 'It's good that you don't work.'
 c. watx'- \emptyset ta **man** oj-ach-mulna-i
 good-B3 if **NEG FUT**-B2-work-ITV
 'It's good that you are not going to work.'

⁶I follow Zavala's analysis here, namely that perfective aspect is the default aspect if not indicated otherwise (ZAVALA, 1992b).

- d. $watx'\text{-}\emptyset$ ta **man** lalan-**oj**- \emptyset a-mulna-i
 good-B3 if **NEG** PROG-**IRR**-B3 A2-work-ITV
 'It's good if you're not working.'

Non-verbal predicates (NVPs) are negated the same way than the progressive marker *lalan*, namely by *man ... oj*. An example with a numeral functioning as NVP is presented in (40).

- (40) a. b'aab'el-in an
 first-B1 CL1s
 'I'm the first.'
 b. **man** b'aab'el-**oj**-in an
NEG first-**IRR**-B1 CL1s
 'I'm not the first.' WATATANI (1994)

The transitive verb *ootaj* 'know' is used in the next chapter as a verb of cognition that enforces a propositional interpretation of its complement clause. In Akatek, this verb differs from other transitive verbs regarding aspect and negation marking. Even though *ootaj* behaves like a transitive verb taking both set A and set B pronominal affixes and occurring in the initial position in the sentence as in (41), *ootaj* cannot take any of the aspect markers described above and it is negated like *lalan* and like non-verbal predicates with *man ... oj* as is shown in (42), or only with *man*. The reason is that the concept of knowledge is not open to aspectual modification. *Ootaj* 'know' is a stative verb. Stative verbs like *know* do not allow the progressive or the imperative mood as shown in (43) for English (VENDLER, 1967).

- (41) \emptyset -w-ootaj hun winaj tu' an
 B3-A1-know one man DEM CL1s
 'I know that man.' PENALOSA & SAY (1992)
- (42) **man** \emptyset -w-ootaj-**oj** ta eyman chi-ach-mulna-i
NEG B3-A1-know-**IRR** COND quickly IMPF-B2-work-ITV
 'I didn't know you would work so fast.'
 PENALOSA & SAY (1992)
- (43) a. *I am knowing (or loving, recognizing, and so on).
 VENDLER (1967), 99
 b. *Know!

An overview of tense, aspect, progressive aktionsart and negation marking in Akatek is provided in Table 4. Bracketed A or B indicates which person marker is absent in intransitive constructions. For perfective,

imperfective, and future, this is the set A pronominal affix. The reverse holds for constructions embedded by the auxiliary *lalan*, where the set B markers are absent in intransitive constructions, which are additionally marked by the suffix *-on*. *Lalan* itself is - like all nonverbal predicates - marked by a set B person marker, in the case of *lalan* this is always B3, i.e. zero, because *lalan* embeds the following clause.⁷ The last row in Table 4 shows the negation of nonverbal predicates (NVP). NVPs are negated with the same morphemes, *man* and the irrealis suffix *-oj*, as the progressive *lalan* and future/irrealis.

TABLE 4. Tense/aspect/aktionsart (TAA) and negation in Akatek (adopted from WATATANI (1994))

TAA	Affirmative	Negative
PERF	(<i>ma</i>) <i>x</i> -B-(A)-V	<i>maa</i> -B-(A)-V
PERF	B-(A)-V	<i>maa</i> -B-(A)-V
IMPF	<i>chi</i> -B-(A)-V	<i>k'am chi</i> -B-(A)-V
FUT	<i>oj</i> -B-(A)-V	<i>man oj</i> -B-(A)-V
PROG	<i>lalan</i> -B3 (B)-A-V(- <i>on</i>)	<i>man lalan-<i>oj</i></i> -B3 (B)-A-V(- <i>on</i>)
-	NVP-B	<i>man</i> NVP- <i>oj</i> -B

(- = no aspect)

In the next section different options to express grammatical relations in Akatek are presented. Based on the way grammatical relations are encoded, the non-configurational character of the language is argued for.

1.4. Non-configurationality. In this section, I present evidence that Mayan languages belong to a type of languages called non-configurational due to the special status of verb phrases and of lexical noun phrases.

In Mayan languages there is no case marking on noun phrases. The grammatical relations of subject and direct object are indicated by three strategies: First of all, the pronominal affixes on the verb may occur alone:

- (44) ta chi- \emptyset -**aw**-oche
COND IMPF-**B3-A2**-want
‘If you want (it).’ PENALOSA & SAY (1992)

Second, full NPs with lexical nouns like *wakax kaw tz'ontaj* ‘very skinny cows’ may occur in addition to the pronominal affixes of set A and/or set B on the verb:

⁷For the historical development of *lalan* refer to ZAVALA (1993).

- (45) chi- \emptyset -s-tej kam naj [wakax kaw tz'ontaj]
 IMPF-**B3**-A3-gore die he [cow very skinny]
 'He kills the malnourished cows.' PENALOSA & SAY (1992)

The above example shows a VSO order of lexical arguments. However, in Akatek the reverse order of lexical NPs, VOS, is also grammatical. As a result, structural ambiguity arises, i.e. it is also possible to interpret (45) as 'The malnourished cows kill him'. Ambiguity is generally avoided via adequate context or dealt with according to an agency hierarchy, as shown in ZAVALA (1992b) and SCHÜLE (1993).

Finally, while independent pronouns do not exist for first and second person, Akatek has independent pronouns for third person referents. For example, the pronoun *naj* 'he' can occur in addition to the pronominal prefix *y-* on the verb as shown in (46).

- (46) in-*y*-ootaj **naj** an
 B1-**A3**-know **he** CL1s
 'He knows me.'

Based on the above observations, the structures of basic intransitive and transitive sentences in Akatek can be summarized as follows: In intransitive sentences, tense, aspect or negation prefixes (TENSE/ ASP/ NEG) precede a pronominal prefix (B) and the verb stem, which - in case no other constituent, e.g. an NP or a CL, follows - obtains an intransitive thematic vowel (ITV). Besides being unmarked for case, the lexical argument is optional and follows the verbal complex. If there is indication for a clitic, it will occur sentence finally. The structure of intransitive constructions is presented in (47).

- (47) TENSE/ASP/NEG- B- V_{intr} (-ITV) (NP) (CL)

Transitive constructions follow the same pattern as intransitive constructions. The main difference is that in transitive constructions, both core arguments are affixed to the verb. The direct object is a set B pre- or suffix as illustrated in (48-a) and (48-b), respectively. The subject is a set A prefix. Instead of an intransitive, a transitive thematic vowel (TTV) occurs in final position if set B is not suffixed. Lexical NPs expressing subject and direct object are unmarked for case and in Akatek, as has been mentioned before, these NPs are flexible in their postverbal order and optional. The transitive structures are represented in (48).

- (48) a. TENSE/ASP/NEG- B- A- V_{tr} (-TTV) (NP, NP) (CL)
 b. TENSE/ASP/NEG- A- V_{tr} -B (NP, NP) (CL)

Pronominal affixes in Mayan languages are marked for case, person and number, but not for gender or noun class. The adjunct NPs agree with the pronominal affixes in person and number, but not in case or regarding noun classification. However, lexical NPs are often not present. The reference for third person pronominal affixes is retrieved from the preceding discourse. Without an NP to agree with, it seems difficult to argue for agreement at all. According to MITHUN (1986b), the pronominal affixes in languages like the Mayan languages are not agreement markers but must be identified as subject and object while lexical NPs representing subject and object function as appositive adjuncts. Mithun's hypothesis goes back at least to Humboldt's analysis of Nahuatl illustrated in example (49).

Der Satz soll, seiner Form nach, schon im Verbum abgeschlossen erscheinen und wird nur nachher, gleichsam durch Apposition, näher bestimmt.⁸ VON HUMBOLDT (1836/1963), 531

- (49) ni-c-qua in nacatl
 1sSBJ-3sDO-eat the meat
 'I eat (it) the meat.' VON HUMBOLDT (1836/1963), 531

In more recent literature, a similar analysis has been proposed by JELINEK (1984) for Warlpiri. Following von Humboldt (even though her work contains no reference to his work), Jelinek proposes the following definition of non-configurational languages:

- (50) The verbal complex constitutes a complete finite sentence by itself, consisting of a verb and its arguments, while optionally occurring nominals are analysed as non-argumental.

The presence of cooccurring sets of referential elements with distinct syntactic functions, i.e. pronominal affixes⁹ and nominals, is a defining feature of non-configurational languages. I contend that Mayan languages can be subsumed under this language type since they have referential pronominal affixes on the verb as well as nominals. Akatek additionally conforms to two of the associated optional features Jelinek lists for this languages type:

1. Independent pronouns are used primarily for emphatic contrastive reference.

⁸The sentence form is meant to appear self-contained already in the verb form and is only then, via apposition, specified in more detail.

⁹Jelinek calls them clitic pronouns.

2. Zero third person marking can occur together with a consequent lack of pleonastic subjects.

AISSSEN (1992), on the other hand, analyses the person/number affixes on the verb in Mayan languages not as arguments, but simply as agreement markers. The reason for this decision is that the agreement markers in Mayan cooccur with overt nominal arguments.¹⁰ She assumes that the noun or pronoun - even if it is covert - functions as the argument and not the pronominal affixes. However, this cooccurrence is part of Jelinek's definition of non-configurationality, so that at this point I see no reason to analyse the pronominal affixes in Mayan languages as agreement markers instead of as arguments.

A final issue that I want to draw attention to in this section is the problematic notion of subject in ergative languages. Since one structural property of PVCs identified in chapter 3 is the case marking of the PVC subject, the notion of subject is a central notion to be clarified beforehand. There are two related problems. First, how can we identify the subject in an ergative language? Second, is there only one type of subject in an independent structure, or do we have to distinguish between the subject of a transitive verb and the subject of an intransitive verb?

1.5. The subject in ergative languages. Due to the fact that in ergative languages, transitive subjects are marked differently than intransitive subjects there has been much discussion regarding the notion of subject in these languages. Readers unfamiliar with the notion of ergativity are referred to section 2.5, where a more comprehensive view of morphological marking patterns, especially of ergative patterns, is provided. In accusative languages like English, both transitive and intransitive subjects are marked with the nominative while the object is marked with the accusative:

- (51) a. She(NOM) hit him(ACC).
 b. He/she(NOM) walked.

In ergative languages, the intransitive subject and the transitive object are marked with absolutive case and the transitive subject is marked differently, i.e. with an ergative case marker. If the pronouns in English followed an ergative marking pattern, the following sentences would result:¹¹

¹⁰Except for third person absolutive agreement, which is not realized, and the absence of nonemphatic pronouns for first and second person.

¹¹Of course, the decision to represent the ergative case in this example with the English accusative pronoun is arbitrary.

- (52) a. Him(ERG) hit she(ABS).
 b. She/he(ABS) walked.

Provided that the only argument of an intransitive verb, in (52-b) *she/he*(ABS), is defined as the subject, the issue is whether in transitive constructions the subject is the argument marked alike, in (52-a) *she*(ABS), or different, in (52-a) *him*(ERG), than the subject of an intransitive verb. If there is evidence that the argument that is marked differently, i.e. with the ergative, is the grammatical subject, then the language is only morphologically ergative, but syntactically like an accusative language. If the argument that is marked alike, i.e. with the absolutive, turns out to be the grammatical subject, the language is syntactically ergative.

Mayan languages in general and Akatek in specific are morphologically ergative. In addition, NPs encoding core arguments of the verb are optional adjuncts, while the pronominal affixes on the verb are the arguments. As a result, the question which NP is the notional subject becomes obsolete, since NPs are adjuncts and their grammatical status must be retrieved from the pronominal arguments suffixed to the verb. Therefore, the question which has to be raised for Mayan languages is whether the ergative (set A) or the absolutive (set B) pronominal argument on the verb represents the grammatical subject. Of course, this question only applies to transitive constructions, unless one proposes an analysis in which absolutive arguments are direct objects in both transitive and intransitive constructions as LARSEN (1987) has suggested.

The discussion in the past has focused on NPs and not on the pronominal arguments. A variety of approaches to the analysis of the subject in ergative languages has been suggested.

ANDERSON (1976) claims that syntactically ergative languages are like accusative languages and that therefore the basically syntactic notion of 'subject' has the same reference in either language type. The difference between the subject in ergative languages and the subject in accusative languages comes down to the fact that in accusative languages, syntactic and morphological categories correspond to each other more straightforwardly than in ergative languages. In ergative languages the grammatical relations of the NPs to the verb as well as the verb's transitivity play a role in determining case marking and agreement patterns. Anderson discusses two exceptions: Dyirbal and Hurrian. In both languages, absolutive NPs, i.e. intransitive subject NPs and transitive object NPs, are treated alike in syntactic processes like Equi-NP deletion, conjunction formation or relativization (for details see ANDERSON

(1976)). In Dyirbal, even the nominative-accusatively aligned pronominals follow this split of intransitive subject and transitive object vs. transitive subject. Thus, Dyirbal is a language with a syntactically ergative notion of 'subject'. In line with Anderson's observation, findings by CRAIG (1976b) indicate that the Mayan language Jakaltek is only superficially ergative due to the fact that no syntactic rule needs to refer to a specific case.

Based on the assumption that ergative NPs in transitive constructions are subjects, LARSEN & NORMAN (1979) identify split case-marking, prohibitions against the extraction of transitive subjects,¹² and the fact that Mayan languages have antipassive constructions¹³ as correlates of ergativity in Mayan grammar. As opposed to many ergative languages, however, Mayan languages also have passives.¹⁴ Evidence from extraction processes indicates that Mayan languages are at least partially syntactically ergative (LARSEN, 1990; VAN VALIN, 1981). VAN VALIN (1981) claims that Jakaltek has no unified notion of subject while the syntactic organization of the language cannot be unequivocally identified as ergative or as accusative. However, as LARSEN (1990) shows, these observations do not hold for all languages in the family, e.g. in languages like Quiché and Jakaltek a process like clefting is only syntactically ergative for third person arguments while clauses with first and second person arguments exhibit syntactic nominativity.

In sum, there is no agreement as to the status of subjects or objects in Mayan languages. A systematic approach toward a universal definition of subjects has been suggested in KEENAN (1975). He establishes a Subject Properties List (SPL) for identifying basic subjects in languages evolving around the central notions of autonomy, case marking and semantic roles of subjects. However, it turns out that cross-linguistically, there is no minimally defining list of properties an NP needs to exhibit in a given language in order to be identifiable as subject. As a result, an NP in a language has subject status to the extent its properties conform to the SPL. The problem with Keenan's approach for the present purpose is that, again, it focuses on identifying a subject NP. If the nominal representing the subject in Akatek is analyzed as an appositional adjunct, then most of the established

¹²As opposed to absolutive nominals, at least in the Kanjobalan, Quichean, and Mamean languages, the ergative nominal cannot be questioned, relativized or clefted.

¹³For an account of antipassive voices in Akatek refer to chapter 5, section 3.1.6.

¹⁴Details regarding passive constructions in Akatek are presented in chapter 5, section 3.1.5.

criteria do not apply. If applied, they divide between the absolutive of intransitives and the ergative of transitives.

A formal definition of semantic cases that are necessary for the interpretation of transitive sentences, which is referred to as Semantic Case Theory, has been proposed by KEENAN (1988). Given the denotations of a transitive verb and its two NPs, there are two theoretical ways of interpreting the sentence.¹⁵ However, basic transitive sentences in English are not ambiguous regarding the interpretation of the NPs as subject and direct object. For English, Keenan formulates the following case constraint:

- (53) In basic transitive sentences of the form [NP[V NP]] the VP-internal NP is always interpreted as accusative.

As axioms of Semantic Case Theory Keenan presents three constraints that are satisfied by speakers of all languages when interpreting basic transitive sentences: Case Existence, Case Distinctness and Case Structure (KEENAN, 1988).

- (54) Case Existence:
In basic transitive sentences the independent NPs are interpreted as case extension of the basic functions they denote.¹⁶
- (55) Case Distinctness:
Any interpretation of the independent NPs in a basic transitive sentence interprets them in distinct cases.
- (56) Case Structure:
Semantic case interpretation is preserved under grammatical substitutions of the transitive predicate and independent NPs.

In Akatek, morphological marking on the verb is criterial in stating case constraints, VP constituency is not:

- (57) Akatek Case Constraint:
In basic transitive sentences interpret the set A argument as nominative.

Due to the absence of case marking on independent NPs in Akatek and the flexible word order, speakers of Akatek are faced with potential ambiguity in basic transitive sentences unless first or second person

¹⁵I excluded the two additional readings resulting from scope ambiguities, see KEENAN (1988).

¹⁶Case existence claims that the interpretations of basic NPs in transitive constructions cannot vary from their interpretations in intransitive constructions.

arguments are involved.¹⁷ The axioms of Semantic Case Theory stated above should be modified in terms of verbal pronominal affixes as an alternative to independent NPs. How the pronominal affixes are linked to the caseless adjunct NPs in a (postverbally) flexible word order language like Akatek is a separate problem. From the Akatek case constraint in (57) it follows that:

1. The subject of a transitive construction is the ergative pronominal affix (set A).
2. The subject of an intransitive construction is the only pronominal affix.

1.6. Summary. In this section, I have presented the following basic grammatical features of Akatek: person marking and ergativity, structural properties of pronouns, nouns and verbs, aspect marking and negation. The values of these features in Akatek can be taken to be representative of Mayan languages. Following VON HUMBOLDT (1836/1963), JELINEK (1984) and MITHUN (1986b), I have argued for the non-configurational character of Mayan languages. Finally, the problems the notion of subject poses for the analysis of an ergative language have been discussed and subjects in Akatek have been defined based on Semantic Case Theory (KEENAN, 1988).

In the next section, typological characteristics of Mayan languages are discussed. For reasons of continuity, I use Akatek as the main example language, interspersing examples from other languages of the family only at times.

2. Typological characteristics

In this section I present basic typological characteristics of Mayan languages, mostly as instantiated in Akatek. First, in section 2.1, basic word order in Mayan languages is discussed. In section 2.2 generalizations made by KEENAN (1978) about the syntax of VOS languages are applied to Akatek. In sections 2.3 and 2.4, I elaborate two of these generalizations, namely the realization of case and agreement marking and possessive marking. Finally, in section 2.5 the position of Mayan languages in grammatical relations typology is shown and the phenomenon of split ergativity is discussed. For ease of reference I maintain the traditional terms subject (S) and object (O) to refer to the two core arguments of a basic transitive verb (V). The question of whether

¹⁷Ambiguity is mostly avoided by reverting to intransitive constructions.

a connection can be established between the traditional typological description of Akatek provided in section 2 and the description of PVCs in Akatek and its typological significance is pursued in chapter 5.

2.1. Basic word order. The great majority of Mayan languages have a verb-initial basic word order. This means that the NPs referring to the subject and to the object are juxtaposed. In light of the fact that there is no case marking, the question arises how the subject NP is distinguished from the object NP. Mayan languages employ two different strategies to compensate for the lack of case marking of subject and direct object NPs. The more obvious strategy is to rely on a fixed word order pattern. The less obvious one is to allow flexibility of postverbal lexical arguments. The latter strategy results in structural ambiguity. In order to resolve the ambiguity, Mayan languages avoid the cooccurrence of two lexical NPs and the number of non-active, i.e. intransitive constructions is considerably high. For example in Akatek, there are three different passives, three different antipassives, and an inverse voice,¹⁸ as well as a general preference for verbal and nonverbal intransitive constructions.¹⁹ In the few cases where two lexical NPs are used, speakers recur to an animacy hierarchy to decide which argument is subject and which one is object (ZAVALA, 1992b; SCHÜLE, 1993).

Mayan languages are generally characterized by basic verb-initial word order with variation in the order of postverbal constituents, the only exception being Chortí, which undisputedly has a basic SVO order (QUIZAR, 1979). A rough third of the Mayan languages follow a basic VSO word order pattern. The other members of the family almost equally divide into basic VOS and flexible word order, i.e. VSO or VOS, here represented as VXY.

Among the languages of the world, verb-initial languages are considerably rare, figures ranging from 12.2% (TOMLIN, 1986) to 15.8% (HAWKINS, 1983). In the latter study, 12.2% of the languages of the world are VSO languages, 2.4% are VOS languages and merely 1.2%

¹⁸For details regarding inverse voice in Akatek refer to ZAVALA (1997).

¹⁹The diversity of non-active voices in Mayan languages might be a characteristic of verb-initial languages. Austronesian languages constitute the statistically largest group of verb-initial languages (34 % of the verb-initial languages in HAWKINS (1983)), and Austronesian languages have a rich system of non-active voices like Mayan languages. Besides Austronesian and Mayan languages, Tomlin's sample of 1063 languages shows that verb-initial languages are mostly spoken in the Americas, but there are also a number of Nilo-Saharan (mostly Berber and Sudanic) and Afroasiatic languages, Indo-European languages like Breton, Gaelic, and Irish, and even an Australian and a Khoisan language (TOMLIN, 1986).

are flexible VXY languages. Thus, VSO languages present the majority of verb-initial languages with 77.4%. Only 15.1% of the verb-initial languages are VOS, and the remaining 7.5% are VXY as illustrated in Table 5.

TABLE 5. Frequency of V-initial languages in HAWKINS (1983)

Word order	No. of languages	% of total	% of V-initial
VSO	41	12.2	77.4
VOS	8	2.4	15.1
VXY	4	1.2	7.5
Total V-initial	53	15.8	100
Total sample	336	100	

Historically, Proto-Mayan word order (NORMAN & CAMPBELL, 1978; ENGLAND, 1991) was VOS with preverbal positions for topic and cleft and a postverbal position for reordered objects, which had to be marked (i.e. complex, animate or definite):

- (58) a. TOPIC CLEFT [VOS]
 b. TOPIC CLEFT [VS] reordered-O

The historical reconstruction above allows to derive all non-basic argument orders that occur in Mayan languages: Topicalization and clefting processes render OSV, SOV, SVO, and OVS, while reordering of the O generates VSO.

In the following I present evidence in favor of the claim that lexical arguments are avoided. First of all, besides the generally low number of transitives with two lexical NPs in all Mayan languages, languages with a flexible word order restrict the co-occurrence of two lexical NPs even more. Second, if one NP is lexically instantiated, fixed word order languages prefer the argument which is next to the verb within the word order pattern over the final argument in the order pattern. The results of SCHÜLE (1996) as presented in Table 6 indicate that in a fixed VSO language VS constructions are preferred over VO constructions.

Table 6 shows that in narrative texts of the fixed word order languages Jakaltek and San Mateo Chuj, the frequency of transitive clauses with third person subject and object NPs is a mere 18.1% for Jakaltek and 18.6% for San Mateo Chuj while in the flexible word order language Akatek this number dwindles down to 4.2 %. Looking at the internal distribution of cases where in transitive constructions with third person subject and object only one argument is lexically expressed, in the VSO language Jakaltek a tendency for subject NP encoding was

TABLE 6. Correlation of different basic word order types in Mayan languages and frequency of lexical NPs in narrative text (adopted from SCHÜLE (1996))

	Jakaltek VSO		Akatek VSO/VOS		SM Chuj VOS	
	no. of clauses	%	no. of clauses	%	no. of clauses	%
$V_{tr}XY$:	39	18.1	16	4.2	38	18.6
total	189	100.0	215	100.0	161	100.0
$V_{tr}S$	13	76		speaker	10	37
$V_{tr}O$	4	24		variation	17	63
total	17	100			27	100

observed (76% VS constructions), whereas the speakers of the VOS language San Mateo Chuj preferred the object NP encoding (63% VO constructions). The data of the flexible order language Akatek showed speaker variation and were excluded from Table 6 for reasons of perspicuity.

Example (59) illustrates the flexibility of the postverbal argument order in Akatek. The interpretation of the NPs is governed by semantic criteria, i.e. a hierarchy of animacy and person governs the choice of the agent denoting subject of a transitive construction. As a result, the two variations shown in (59) express the same meaning ‘John hit the horse’. It is not possible to express ‘the horse hit John’ in the form of an active transitive sentence. This can only be expressed by one of the passive constructions (ZAVALA, 1992b; SCHÜLE, 1993).

- (59) x- \emptyset -s-ma' [no' chee] [naj Xhunik]
 PERF-B3-A3-hit [NCL horse] [NCL John]
- x- \emptyset -s-ma' [naj Xhunik] [no' chee]
 PERF-B3-A3-hit [NCL John] [NCL horse]

‘John hit the horse.’ ZAVALA (1992b), 45b

The results depicted in Table 6 indicate that the unmarked status of the lexical arguments in Akatek in combination with the flexible word order results in very few occurrences of VXY. In addition, when only one of two arguments is lexically realized the distribution of VO and VS construction suggests that speakers of VSO languages prefer VS over VO while speakers of VOS languages prefer VO over VS. Speakers of

Akatek, a flexible order language, show no uniform preference. Instead, they rely on a semantic hierarchy to interpret a sentence like (59).

Above, I have analyzed Mayan language as non-configurational. The verbal stem contains the minimal information necessary for the sentence, so that lexically realized arguments are appositive adjuncts. For this reason, the order of the pronominal arguments on the verb has to be scrutinized. Due to the fact that set B arguments can occur as prefixes or as suffixes, while set A affixes are always prefixed to the verb, the result are two orders of arguments within the verbal complex of Akatek: O-S-V and S-V-O. However, there is no additional evidence that would support an analysis of Akatek either as an OSV or as an SVO language. Instead, in the next section I show that Akatek complies with the properties of subject final languages established by KEENAN (1978). This of course supports the analysis of Mayan languages as verb-initial languages.

In sum, Mayan languages are verb-initial. Regarding the order of postverbal arguments, either fixed VSO or VOS orders occur or the argument order is flexible represented as VXY. Drawing on typological studies, I have shown that regarding word order Mayan languages belong to a minority among the languages of the world.

Word order is only one means a language can employ to identify core grammatical relations in a clause. Besides this syntactic strategy, the morphological strategies of case and agreement marking are used. The realization of case and agreement marking is the topic of section 2.3. In the next section, I take a look at how closely Akatek, as a VXY language, conforms to the syntactic characteristics of VOS languages proposed by KEENAN (1978).

2.2. The syntax of VOS languages. Even though Keenan's article is titled *The Syntax of Subject-Final Languages* (KEENAN, 1978), all languages investigated are verb-initial *and* subject-final, i.e. VOS, and Keenan adds in a postscript that one of the very few OVS languages, Hixkaryana (DERBYSHIRE, 1977), follows a verb-final typology, and restricts his claim regarding subject-final languages to VOS languages. Keenan's first two observations substantiate this claim. Subject-final languages are (almost) always verb-initial, and they normally occur in linguistic phyla in which verb-initial languages are common. KEENAN (1978) establishes a set of syntactic characteristics for verb-initial, subject-final languages (VOS-languages). Besides Malagasy, Batak, Fijian, Gilbertese (all Malayo-Polynesian), Otomi (Otomanguean), Chumash (Hokan), and Baure (Arawakan), he includes a Mayan language, Tzeltal, in his investigation.

Keenan does not investigate the question whether the more frequently occurring VSO and the less frequently occurring VXY languages (see Table 5) also conform to his observations on VOS languages. This is investigated in the following section for a VXY language, Akatek. Akatek differs from Tzeltal in that it is not a VOS language, but postverbally flexible (VXY) as has been shown in section 2.1.

1. *SVO is a grammatical (although marked) word order.*

SVO word order results when the subject is topicalized or clefted. In distinction to the topicalization of objects, Akatek requires a resumptive pronoun for topicalization of the subject. Since the order of postverbal arguments is flexible, the resumptive pronoun can occur either before or after the object NP.

- (60) [ix Malin_i] x-∅-s-ma' [naj Xhunik] [ix_i]
 [NCL Mary] PERF-B3-A3-hit [NCL John] [she]
- [ix Malin_i] x-∅-s-ma' [ix_i] [naj Xhunik]
 [NCL Mary] PERF-B3-A3-hit [she] [NCL John]

‘Mary, she hit John.’ ZAVALA (1992b), 257

2. *Either transitive verbs of unmarked sentences agree with no full noun phrase in the sentence or they agree with two noun phrases.*

As has been shown in section 1.4, grammatical core arguments in Akatek are instantiated as pronominal affixes on the verb while their optional nominal adjuncts serve to convey additional lexical information. In other words, transitive verbs of unmarked sentences can occur either with no full NP, or with one or with two NPs as demonstrated in example (61). The NP *naj winaj* ‘the man’ can be matched with the set A prefix *s-*, and the NP *te' te'* ‘the tree’ with the set B zero prefix.

- (61) x-∅-s-tzok' naj winaj te' te'
 PERF-B3-A3-cut NCL man NCL tree
 ‘The man cut the tree.’

3. *If transitive verbs present agreement at all, then they have a prefixal (pre - verb stem) agreement with the subject noun phrase and a suffixal agreement with a non-subject.*

In Akatek transitive verbs have subject prefixes (set A), but the pronominal affixes of set B representing the object can be prefixes or suffixes. Examples (1) and (4) are repeated here for convenience as (62-a) and (62-b). In example (62-a) the set B

marker for first person singular, *in*, is suffixed, whereas in example (62-b) it is prefixed.

- (62) a. *hoj a-ten-in-toj an*
 FUT A2-push-**B1**-DIR CL1s
 ‘You push me there.’ PENALOSA & SAY (1992)
- b. *x-in-a-ten tej*
 PERF-**B1**-A2-push DIR
 ‘You pushed me here.’ PENALOSA & SAY (1992)

4. *VOS languages have relatively little nominal case marking.*

There is no nominal case marking except for a dative case marker *e* that is suffixed with set B, see example (63).

- (63) *chi-∅-w-a’ kan-toj e-ach hun chee ti’*
 IMPF-B3-A1-give DIR-DIR **DAT**-B2 one horse DEM
 ‘I’ll give you the horse.’ PENALOSA & SAY (1992)

5. *VOS languages are generally prepositional rather than postpositional.*

In Akatek, there are only a few preposition like e.g. the locative *b’ey* in (64).

- (64) *x-y-il naj w-apni b’ey na an*
 PERF-A3-saw he A1-arrive **PREP** house CL1s
 ‘He saw me arrive at the house.’

More frequent and productive are relational nouns, which are postpositional in that the set A pronominal affix is followed by the relational noun, e.g. *uu* ‘by’ as illustrated in (64).

- (65) *aw-uu*
 A2-**by**
 ‘by you’

In case of third person participants, the adjunct NP follows the relational noun as shown in (66). More literally, the construction could be rephrased as ‘on top of it, the horse of my grandfather’.

- (66) *y-ib’an hun no’ s-chee naj in-mam*
 A3-**on.top** one NCL A3-horse NCL A1-father
 icham an
 old.man CL1s
 ‘on the horse of my grandfather’ FRANCO (1993)

6. *Noun phrase questions can always be formed by putting the question word, e.g., Who? What? etc., in a preverbal position, provided the question word is not a bound morpheme.*

This property also applies to Akatek. An example of a question with a preposed question word *tzetal* ‘what’ is given in (67).

- (67) **tzetal** \emptyset -aw-il tzomb'al yet ewi
what B3-A2-see market when yesterday
 ‘What did you see in the market yesterday?’
 ZAVALA (1992a), 208

7. *All VOS languages present morphemically independent subordinate conjunctions which precede a finite subordinate clause.*

There are a number of subordinating conjunctions preceding finite subordinate clauses. An example with the conditional complementizer *ta* is given below:

- (68) jein-ti' an chi- \emptyset -w-a' an **ta**
 PRO1s-DEM CL1s IMPF-B3-A1-give CL1s **COND**
 chi- \emptyset -s-k'an eb' naj
 IMPF-B3-A3-ask PL he
 ‘Me, I give them if they ask.’ ZAVALA (1992b), 191

8. *In possessive constructions VOS languages always present full noun phrase possessors after the head (the possessed) noun phrase.*

In Akatek possessive constructions, a possessor NP like *ix Mikin* ‘Micaela’ follows the head *smam* ‘her/his/its father’. There are two less explicit forms of possessive constructions. As can be seen in (69-b), the possessor NP can also be a pronoun or it can be left out as in (69-c).

- (69) a. s-mam **ix Mikin**
 A3-father **NCL Micaela**
 ‘Micaela’s father’
 b. s-mam **ix**
 A3-father **she**
 ‘her father’
 c. s-mam
 A3-father
 ‘an unspecified third person’s father’

Possessive marking is identical to the marking of transitive subjects. Both types of marking are referred to as set A. Section 2.4 elaborates on the connection between possessive and ergative marking in Mayan languages.

9. *Relative clauses always present the head noun to the left of the restricting clause.*

This characteristicum also holds for Akatek. The head noun *jun winaj* 'a man' appears in front of the relative clause:

- (70) x-∅-w-il jun winaj x-∅-kam el an
 PERF-B3-A1-see a man PERF-B3-die DIR CL1s
 'I saw a man who died.' ZAVALA (1992b), 109

10. *VOS languages do not have relative pronouns.*

As illustrated in example (70), Akatek does not use relative pronouns.

11. *All VOS languages possess articles, with more than chance frequency definite articles.*

In Akatek, noun classifiers (NCL) function as definite articles and the numeral *jun* 'one' as indefinite article:

- (71) a. **te'** kaxha ti'
 NCL box DEM
 'the box'
 b. **hun** sab'eal
 one gift
 'a gift'

12. *With much greater than chance frequency numerical expressions precede the nouns they modify.*

In Akatek, this property also applies. For example, the numerical expressions *kaawan* 'two' and *oxwan* 'three' precede the noun they modify, i.e. *wuxhtaj* 'my cousin':

- (72) y-etoj eb' naj kaa-wan ox-wan
 A3-with PL NCL two-NUMCL three-NUMCL
 w-uxhtaj an
 A1-cousin CL1s
 'with my two or three cousins' FRANCO (1993)

13. *With much greater than chance frequency articles precede nouns.*

Indefinite as well as definite articles in Akatek precede nouns as can be seen in examples (71-a) and (71-b) above.

14. *Negative elements precede the verb.*

In Akatek, the negative morphemes precede the aspect morphemes, which in turn precede the verb:

- (73) **k'am** chi- \emptyset -y-ab' naj patron
NEG IMPF-B3-A3-hear NCL Sp:boss
 'The boss didn't hear him.' PENALOSA & SAY (1992)

15. *A causative element precedes the root of the causativized verb in VOS languages.*

This is the only problematic criterion. Morphological causatives like *-tse* are suffixed and not prefixed to the verb root as seen in (74). However, similar to what Keenan notices for Tzeltal, there is an alternative construction, in which a causative verb, in Akatek *a* 'put' precedes an infinitive as in (75):

- (74) x- \emptyset -in-vey-**tse**-a(a)-oj naj an
 PERF-B3-A1-sleep-**CAUS**-DIR-DIR he CL1s
 'I made him sleep.' ZAVALA (1992b), 89

- (75) x-ach-w-**a**' xew an
 PERF-B2-A1-**put** rest CL1s
 'I made you rest.' ZAVALA (1992b), 320

16. *All VOS languages have passive forms of verbs.*

Akatek has three passives, an impersonal, an adversative, and a perfective one, all of which are marked by passive morphology on the verb in the form of different suffixes. The impersonal passive is marked by *-le* as shown in example (76), the adversative by *-cha* which can be seen in example (77) and the perfective by *-b'il* as in example (78).

- (76) max \emptyset -tx'otx'-**le** s-mulna-il naj unin
 PERF B3-show-**PASS** A3-work-NMZR NCL boy
 'The job was shown to the boy.' (lit. The boy's job was shown.)

- (77) ach-ij-**cha** w-uu an
 B2-back.carry-**PASS** A1-by CL1s
 'I was able to carry you (to your detriment).'
 ZAVALA (1997), 453

- (78) tol i'-b'il-∅ s-paj jun juun
 because carry-PASS/PF-B3 A3-reply one paper
 tu' w-uu
 DEM A1-by
 'Because the reply to the letter has been brought by me.'
 PENALOSA & SAY (1992)

17. *'Passive' is generally marked in the verbal morphology.*
 This has already been illustrated in examples (76), (77), and (78).
18. *VOS languages generally do not have overt copulas.*
 There are no copulas in Akatek. To indicate person and number, set B affixes are simply suffixed to nouns and adjectives as illustrated with the adjective *ikis* 'alive' in example (78).

- (79) aw-uu xan ikis-on on
 A2-by thus alive-B1p CL1p
 'Because of you, we are alive.' PENALOSA & SAY (1992)

Similar to the VOS language Tzeltal, the VXY language Akatek conforms to almost all of the syntactic properties of VOS languages established in KEENAN (1978). The only two exceptions are causatives and postpositions. It appears that Keenan's generalizations can be extended to VXY and VSO languages, even though I have not shown this for a VSO language. The fact that Akatek conforms to the syntactic characteristics of VOS languages supports the reconstruction of proto Mayan word order as VOS where marked Os are reordered to VSO.

The cross-linguistic realization of case and agreement marking and its instantiation in Mayan languages is the topic of the following section. The investigation of case and agreement marking is a prerequisite to the analysis of Mayan languages within grammatical relations typology which follows in section 2.5.

2.3. Case and agreement marking. Based on CROFT (1990), I define case and agreement marking in the following way:

1. A case marker is a morpheme that refers to the grammatical relation that holds between the noun phrase and the verb.
2. Agreement is a morpheme that refers to the subject (DO, IO, Oblique) itself.

Both case and agreement marking express a relation between two entities (CROFT, 1988). Case marking is a *relational* strategy, it establishes the link between noun phrase and verb. Agreement marking, on

the other hand, is a *deictic* strategy, it provides reference as to which noun phrase obtains which grammatical role. Cross-linguistically, it turns out that agreement indexes the important or salient arguments, i.e. subject and objects, whereas case marking indicates non-obvious grammatical relationships. The cross-linguistic distribution of agreement and case marking is distributed along the upper part of the accessibility hierarchy established by KEENAN & COMRIE (1977) for the relative accessibility of NPs to relativization:

- (80) Accessibility Hierarchy (AH) (KEENAN & COMRIE, 1977)
 S > DO > IO > OBL > GEN > O of Comparison

The AH expresses the observation that subjects (S) are more accessible to relativization than (>) direct objects (DO), which in turn are more accessible than indirect objects (IO) and so on. The AH is specified by the following constraints (KEENAN & COMRIE, 1977):

1. A language must be able to relativize subjects.
2. Any relative clause-forming strategy must apply to a continuous segment of the AH.
3. Strategies that apply at one point of the AH may in principle cease to apply at any lower point.

Regarding the distribution of agreement marking, Table 7 illustrates that agreement marking is realized across languages from subject via direct object and indirect object/oblique to benefactive. A language

TABLE 7. Presence of agreement marking (after CROFT (1988))

S	DO	IO/ OBL	BEN	Languages
-	-	-	-	Chrau, Chinese
+	-	-	-	English, Turkish
+	+	-	-	Quiché
+	+	+	-	Abkhaz, Manam
+	+	+	+	Kinyarwanda

(+ = agreement, - = no agreement)

that shows agreement for all these categories is Kinyarwanda. At the other end of the scale there are languages like Chinese, where none of the categories is referred to by agreement marking. The Mayan language Quiché takes a middle position in that subject and object have agreement markers while indirect object/oblique and benefactive do not. In other words, if a language has agreement marking at all, it has at least agreement marking for the subject.

- (81) Agreement marking AH
S > DO > IO/ OBL > BEN

Table 8 reflects the distribution of case marking across languages.²⁰ In languages like English or Manam, there is no case marking on noun

TABLE 8. Presence of case marking (after CROFT (1988))

S	DO	IO	Languages
+	+	+	German, Japanese
-	+	+	Turkish
-	-	+	Quiché, Chrau
-	-	-	English, Manam

(note: + = case marking, - = zero case marking)

phrases. The opposite situation can be found in Japanese where subject NPs, as well as direct object and indirect object NPs are marked for case. Quiché ranks at the lower end because only indirect object NPs receive case marking. As opposed to the realization of agreement marking along the hierarchy, case marking occurs minimally on indirect objects:

- (82) Case marking AH
IO > DO > S

Taking Croft's functional definition of agreement markers, namely that agreement markers actually denote the entity that is represented by a subject or object NP, I think it legitimate for the present purpose to analyze the pronominal arguments on the verbal complex in Mayan languages as agreement markers in the sense of the above definition. Therefore, I contend that Mayan languages show a complementary distribution for case and agreement. Agreement ranges from subject to direct object, while case is instantiated for indirect objects only.

As can be seen in the Akatek example in (83), there is no case marking on either the subject NP *naj Xhunik* 'John' or on the direct object NP *jun te' serwesa* 'a beer'. Only the indirect object '*e-in an* 'for me' is marked with the dative (DAT) case marker '*e*', while the indirect object itself is the set B affix *-in*. Due to the lack of first or second person pronouns in Akatek, in example (83) the indirect object cannot be lexically instantiated.

²⁰Absolute case is the unmarked case and therefore counted as subject case by Croft. Since this is not a problem regarding case marking in Mayan languages, I do not discuss this issue here.

- (83) x-∅-y-ii-tej naj Xhunik jun te' serwesa
 PERF-B3-A3-carry-DIR NCL John one NCL beer
 'e-in an
 DAT-B1 CL1s

'John brought me a beer' ZAVALA (1992b), 232

The subject of a transitive verb is a set A (ergative) prefix on the verb and the direct object of a transitive verb as well as the subject of an intransitive verb are set B (absolute) pre- or suffixes on the verb. As has been emphasized before, lexical NPs or independent pronouns in Mayan languages are optional in unmarked sentences, so that in example (84) from Kekchi, which expresses neither contrast nor emphasis, the verbal complex suffices as the only constituent of the sentence.

- (84) x-at-x-b'oq
 PERF-B2-A3-call

'He called you.' DAYLEY (1981), 15

In this section I noted that Mayan languages employ a complementary distribution of case and agreement marking, i.e. there is case marking for indirect objects only and agreement marking refers only to subjects and direct objects. The subsequent section contains information regarding possessive marking.

2.4. Possessive marking. In addition to the marking of the grammatical relations of subject, object, indirect object and oblique, there is one more grammatical domain in which the two relation-indicating strategies of case and agreement marking are used, namely possession (CROFT, 1988). In Mayan languages, case marking plays no role in possessive constructions. Instead, possession is marked via the same set A of pronominal affixes that is used for the transitive subject on the verb, only that here set A is prefixed to the possessed NP. The set A prefixes indicate person and number of the possessor. The postposed possessor NP is unmarked for case and - similar to the optional NP arguments in a sentence - only added for clarification as in the Tzutujil example in (85).

- (85) ruu-tzii' jar aachi
 A3-dog the man

'the man's dog' DAYLEY (1981), 16

Cross-linguistically, there is a connection between grammatical relations typology, which is described in section 2.5, and morphological

possessive marking (MILEWSKI, 1967). Each grammatical relations or case marking pattern can manifest morphological possessive marking in three different ways. Either identical to the transitive subject marking, or identical to the transitive object marking or unique. Typological findings confirm Milewski's observation. Only 17% of the 157 languages in Siewierska's sample had a unique set of possessive markers (SIEWIERSKA, 1998). Total or at least partial identity of the possessor affixes with either transitive subject or object marking is a common phenomenon. Among the languages following the ergative system, a clear preference (55%) for possessor affixes to be at least similar if not identical to ergative markers was observed. Thus, there seems to be a clear tendency in ergative languages to have at least some degree of identity between possessive and ergative affixes.

Having investigated case and agreement, and possessive marking in Mayan languages enables me to look at the typological patterns of these marking systems. In the next section, grammatical relations typology is presented and Mayan languages are characterized according to this criterion.

2.5. Grammatical relations typology. The goal of the present section is to present a grammatical relations typology, i.e. patterns or systems of case and agreement marking that have been identified for the languages of the world, and to position Mayan languages within such a typology. For ease of presentation I refer to subjects of transitive verbs typically encoding agents with TRANS A, objects of transitive verbs typically encoding patients with TRANS P, subjects of intransitive verbs typically encoding agents with INTR A, and those typically encoding patients with INTR P.

In the following, I do not differentiate between marking patterns based on case and those based on agreement marking or on a combination of both. Hence, I assume that whether case or agreement marking is employed by a language has no influence on the resulting marking pattern. In other words, the marking pattern can be a result of either agreement or case marking, but to what degree case and to what degree agreement marking are instantiated in a given language is a different question. Furthermore, a language can make use of more than one marking pattern. Dyirbal, for example, follows an ergative marking pattern for nominals but an accusative one for pronouns (DIXON, 1972). Since marking of indirect objects does not play a role in the analysis of PVCs in Akatek, indirect objects are not taken into consideration here. What remains to be classified regarding Mayan languages are agreement marking systems as far as subjects and direct objects

are concerned as well as agreement between possessed and possessor, which was dealt with in section 2.4.

In grammatical relations typology, seven marking patterns have been attested (SAPIR, 1917; BITTNER & HALE, 1996; DIXON, 1994): NEUTRAL, ACCUSATIVE, ACCUSATIVE ACTIVE, ERGATIVE, ERGATIVE ACTIVE, EXTENDED ERGATIVE, and THREE-WAY. Table 9 provides an overview of the marking patterns and indicates how each pattern is distributed over TRANS A, TRANS P, INTR A and INTR P. Following BITTNER & HALE (1996), M represents marked case, i.e. ergative and accusative, and U indicates unmarked case, i.e. nominative and absolutive.²¹ The accusative type is often referred to as nominative-accusative. The marked relation in the ACCUSATIVE type is TRANS P while all subjects, i.e. TRANS A, INTR A and INTR P, are unmarked. The EXTENDED ERGATIVE represents a mirror image of the accusative pattern in that all relations except the TRANS P are marked. In the ERGATIVE type, TRANS P and both INTR A and INTR P are unmarked while TRANS A is the marked case or agreement.

TABLE 9. Grammatical relations typology (after SAPIR (1917); DIXON (1994); BITTNER & HALE (1996))

Type	TRANS A	TRANS P	INTR A	INTR P	Language
Neutral	U	U	U	U	Yana
Accusative	U	M ₁	U	U	English
Accusative active	U	M ₁	U	M ₁	Acehnese
Ergative	M ₁	U	U	U	Samoan
Ergative active	M ₁	U	M ₁	U	Basque
Extended ergative	M ₁	U	M ₁	M ₁	Mojave
Three-way	M ₁	M ₂	U	U	Nez Perce

Regarding grammatical relations typology, Mayan languages are classified as ERGATIVE for basic sentences and as EXTENDED ERGATIVE in split environments, which will be explained shortly. In Mayan languages, independent pronouns and nouns are unmarked for case,²² so that the grammatical relations typology is based on the pattern of the pronominal affixes, i.e. of the agreement markers. The absolutive set B affixes constitute the unmarked (U) set of affixes because

²¹The neutral type could in theory also be instantiated by the same marker for all four relations, while the three-way pattern could also show a different distribution of unmarked and marked. I leave the investigation of these two patterns regarding markedness up to future research.

²²Recall that indirect objects, which are marked for case, have been excluded from the analysis in this section.

the third person is not realized. The ergative set A affixes represent the marked agreement (M_1). The pronominal affixes on the verbal complex, which have been analysed as arguments, follow an ERGATIVE pattern. The subjects of transitive verbs (TRANS A) are realized as ergative set A pronominal arguments (M_1 in Table 9), while subjects of intransitive verbs (INTR A/P) and direct objects of transitive verbs (trans P) are referred to via absolutive set B pronominal arguments (U in Table 9). This is illustrated for TRANS A and TRANS P, and INTR A, respectively, in the Akatek examples (4) and (5), repeated here for convenience as (86) and (87), and in example (88) for INTR P.

- (86) x-in-a-ten tej
 PERF-B1-A2-push DIR
 'You pushed me here.' PENALOSA & SAY (1992)
- (87) x-∅-b'ey naj Xhunik
 PERF-B3-walk NCL John
 'John walked.' ZAVALA (1992b), 43a
- (88) x-∅-kam naj Xhunik
 PERF-B3-die NCL John
 'John died.' ZAVALA (1992b), 43b

One grammatical phenomenon that typologically can be correlated with an ergative marking pattern is split ergativity. Split ergativity stands for the phenomenon that the prevalent ergative marking pattern changes to a different marking pattern, usually an accusative one, conditioned by special environments such as a specific aspect or person (DIXON, 1994). However, in Mayan languages the split ergative marking is not an accusative marking (DAYLEY, 1981; LARSEN, 1990). In almost all Mayan languages in which it occurs, split ergative marking is realized as a shift from absolutive to ergative agreement marking for intransitive subjects. Put differently, the (marked) ergative extends to the intransitive subject instead of the (unmarked) absolutive extending to the transitive subject, which is the case in most split constructions cross-linguistically. As a result, in Mayan split constructions both subjects are cross-referenced by the (marked) ergative prefix, which is unusual for split systems (DIXON, 1994).

Chortí and Mam are exceptions from the split pattern described above. Chortí splits into a THREE-WAY system in the imperfective aspect, the intransitive subject obtains a yet different set of pronominal markers (QUIZAR & KNOWLES-BERRY, 1988). Mam follows a NEUTRAL system in that the ergative set of pronominal affixes extends to

the intransitive subject as well as to the transitive object in what England calls temporal dependent clauses (ENGLAND, 1983). Furthermore, modern Yukatek Maya has been claimed to be basically ACCUSATIVE rather than ERGATIVE, which as we have just seen is in the case of Mayan languages more precisely called EXTENDED ERGATIVE, since the ergative marking is restricted to past tense environments (BRICKER, 1981; LEHMANN, 1990).

There are a variety of environments that cause the EXTENDED ERGATIVE marking pattern in Mayan languages. According to DAYLEY (1981) and LARSEN & NORMAN (1979), only one language of the family, Motozintlec (also called Mochó), has a split system induced by person marking. Non-third person subjects follow an EXTENDED ERGATIVE pattern and third person subjects an ERGATIVE pattern while third person objects are always marked with the absolutive. In the remaining split ergative languages in the family the split is attributable to three different factors. First, non-perfective aspect or aktionsart marking triggers EXTENDED ERGATIVE marking as illustrated in the Ixil examples in (89). Second, there are certain matrix predicates, i.e. verbs of perception like 'see' or aspectual verbs like 'begin' or 'end'. These matrix predicates take aspectless subordinate clauses marked by the EXTENDED ERGATIVE pattern as shown for Jakalteq in example (90). The third environment for EXTENDED ERGATIVE marking is the preposing of core constituents into the sentence initial cleft or topic position as exemplified for Ixil in (91). In all three examples below, the a examples show the default ERGATIVE marking, i.e. the INTR A/P is a set B affix. The b examples illustrate the EXTENDED ERGATIVE pattern, where the INTR A/P, instead of being realized as a set B marker, is a set A pronominal argument.

- (89) a. Ok **in**
 enter **B1s**
 'I entered.' AYRES (1983), 129
 b. In **w-ok-e'**
 DUR **A1s-enter-SUF**
 'I am entering.' AYRES (1983), 128
- (90) a. x- \emptyset -apni naj
 ASP-**B3**-arrive he
 'He arrived.'
 b. xwil **y**-apni naj an
 I.saw **A3**-arrive he CL1s
 'I saw him arrive.' CRAIG (1977), 244

- (91) a. wat'-o' jojli
 sleep-**B1p** face.down
 'We slept face down.' AYRES (1983), 39
- b. jojli ku-wat-e'
 face.down **A1p**-sleep-SUF
 'We sleep/slept face down.' AYRES (1983), 39

All three instances of the EXTENDED ERGATIVE marking pattern can historically be analyzed as nominalized forms marked with set A possessor prefixes (LARSEN & NORMAN, 1979; ZAVALA, 1997).²³ In other words, examples (89-b), (90-b) and (91-b) could also be translated as 'My entering happens', 'I saw his arriving' or 'Our sleeping is face down.' Regarding grammatical relations typology I conclude the following for Mayan languages. First, case marking is only instantiated for indirect objects, which leaves the marking pattern up to the agreement marking system. Second, the agreement, which exists for both subject and direct object, follows an ERGATIVE marking pattern. Third, in certain environments there is a diverging marking pattern, which is classified as EXTENDED ERGATIVE. The main feature of extended ergative marking is that the ergative marking spreads to intransitive subjects. Finally, the possessive prefixes on nouns are identical to the ergative prefixes on verbs, which allows to analyze the extended ergative as a nominalization.

2.6. Summary. In this section, I have considered basic characteristics for a typological classification of Mayan languages, such as basic word order, the realization of case and agreement marking, possessor marking, and marking patterns for grammatical relations. These characteristics are summarized in Table 10.

TABLE 10. Typological characteristics of Mayan languages

Criteria	Type
Word order	VXY
Gramm. rel. hierarchy - Case marking	IO
- Agreement marking	S, DO
- Possessor marking	POSS = TRANS A
Gramm. rel. typology - Basic marking	ERGATIVE
- Split marking	EXTENDED ERGATIVE

²³The ergative marking on the intransitive constructions in (89-b), (90-b), and (91-b) is identical to the possessive marker as has been shown in the previous section.

Regarding the parameter of word order, Mayan languages are verb-first (VXY). I have demonstrated that at least the fixed VOS and the flexible VOS/VSO languages of the Mayan family conform to the generalizations established by KEENAN (1978) for VOS languages. With respect to case and agreement marking the former occurs only on indirect objects (IO) while the latter is instantiated by pronominal affixes on the verbal complex indicating subject (S) and object (DO). There is complete identity between ergative marking and possessive marking, i.e. TRANS A is marked on the verb via the same set of pronominal affixes (set A) as the possessor (POSS) on the possessed noun. The agreement marking basically follows an ERGATIVE pattern and in part of the family splits to an EXTENDED ERGATIVE pattern under certain conditions.

3. Conclusion

In this chapter I acquainted the reader with the most salient grammatical and typological features of Mayan languages. I aimed at presenting general characteristics of the Mayan language family as well as specific features of Akatek Maya. Considering the usual diversities that exist even within such a homogeneous language family, e.g. the exceptional SVO word order of Chortí, Akatek can be considered a representative member of the family. In the case of extended ergativity, however, it only represents a subgroup of the family, since at least a third of the family members do not exhibit this second marking pattern.

The first section served as an introduction to basic grammatical features of Mayan languages. In section 1.1, I illustrated the uniqueness of Mayan languages regarding their person marking system in verbal as well as in non-verbal predication, in possessive and in prepositional constructions. In section 1.2, I pointed out that independent pronouns in Akatek have developed from noun classifiers, which is an innovation that only took place in a subbranch of the family. Also, I distinguished nouns from verbs by describing the different structures of noun phrases and of the verbal complex. Section 1.3 served to illustrate the basic characteristics tense, aspect, aktionsart, modality and negation in Akatek. It was shown that negation interacts with aspect and that there is a variety of verbal aktionsart and modality markers. In section 1.4 strategies for the marking of grammatical relations were discussed. Nouns as well as pronouns are optional and lack case marking while the verbal complex by itself constitutes a complete sentence. In addition, lexical arguments are optional and unmarked for case. I followed MITHUN (1986b) in classifying Mayan languages as

non-configurational, i.e. the verbal complex constitutes a complete utterance while lexical arguments are analysed as appositional adjuncts (VON HUMBOLDT, 1836/1963; JELINEK, 1984). Finally, in section 1.5 I drew attention to problems with the existing analyses of the subject in ergative languages and proposed a definition of the subject in Akatek based on Semantic Case Theory (KEENAN, 1988).

The second section was typologically oriented. The purpose was to provide the traditional typological classification of Mayan languages regarding word order typology (section 2.1), case, agreement and possessive marking (sections 2.3 and 2.4) and grammatical relations typology (section 2.5). Moreover, in section 2.2, I showed that the VXY language Akatek conforms to almost all of Keenan's characteristics of VOS languages (KEENAN, 1978). I proposed that Keenan's characteristics apply to verb-initial languages in general rather than to VOS languages only.

Comparing the typological characterization of Akatek as summarized in Table 10 with English in Table 11, it turns out that English differs with regard to each characteristic from Akatek. The basic word order in English is SVO, there is no case marking on NPs, and the verb agrees only with the subject. As a result of the lack of NP case marking and the limited subject agreement possessive marking in English is unique, i.e. it is not similar to trans A or trans P marking. Basic grammatical relations in English are expressed via an accusative pattern and there is no split case marking. Regarding the criteria for verb-

TABLE 11. Typological characteristics of Akatek and English

Criteria	Akatek	English
Word order	VXY	SVO
Case marking	IO	–
Agreement marking	S, DO	S
Possessor marking	POSS = TRANS A	POSS = unique
Basic marking	ERGATIVE	ACCUSATIVE
Split marking	EXTENDED ERGATIVE	–

(– = none)

initial languages presented in section 2.2, the main difference between Akatek and English is that English has a copula as well as relative pronouns. Furthermore, English lacks passive and causative morphology, the possessor can either precede or follow the possessed NP, agreement exists only with one NP, namely the subject, and subject agreement is suffixal instead of prefixal.

The investigation of PVCs in Akatek is presented in chapter 5. A typology of PVCs is further developed in chapter 6. The typological

description of Akatek in the present chapter opens up the possibility to integrate the results into a more holistic framework, which is aimed at developing patterns of connected properties. The possibility of a relationship between the traditional typological characteristics of Akatek and the PVC system is discussed in chapter 5.

Perception verb complements in Akatek

1. Introduction

This chapter provides a description of perception verb complements (PVCs) in Akatek. The goal is a structural and semantic characterization of Akatek PVCs parallel to the characterization of English PVCs in chapter 3. As a prerequisite to the investigation of PVCs, the lexicalization pattern of perception verbs (PVs) in Akatek is presented. The characterization of the PVC types in Akatek allows to correlate the PVC types with the two semantic types introduced in chapter 1: EVENTS and PROPOSITIONS. In addition, non-PV matrix predicates for the PVC types are investigated. I follow the hypotheses put forth in chapter 1, repeated here for convenience.

1. Hypothesis I

Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS.

2. Hypothesis II

At least one PVC type is exclusively EVENT denoting.

3. Hypothesis III

PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting.

4. Hypothesis IV

The ability to be embedded by the matrix predicate *'know'* distinguishes the exclusively EVENT denoting PVCs from the primarily PROPOSITION denoting ones.

The results of the detailed description of PVCs in Akatek are compared with the analysis of English PVCs. As was done regarding the PVC types in English, the Akatek PVC types are also positioned within the typology of complementation suggested by NOONAN (1985). The results of the two detailed descriptions of the PVC systems in English and Akatek and the semantic types connected with each PVC type, i.e. PROPOSITIONS and/or EVENTS, are the basis for the typology of PVCs, which is the topic of chapter 6.

The structure of this chapter is the following. Section 2 shows how PVs are lexicalized in Akatek and provides an answer to the question of whether the basic PVs in Akatek also extend their meaning into the domain of cognition. The main part of the chapter, section 3, consists of a description of type2 PVCs in Akatek based on the structural and semantic criteria presented in chapter 3. I demonstrate that type2 PVCs are exclusively EVENT denoting. In section 4, type1 PVCs, which are able to convey PROPOSITIONS, are analyzed. Type1 PVCs are described in less detail than type2 PVCs because they share all the characteristics of independent sentences.

There are three main complement types in Akatek (ZAVALA, 1992b). For ease of reference I call them type1, type2, and type3. In the following, I briefly describe the structures of the three complement types and provide some examples.

Type1 complements consist of one or two optional complementizers (COMP), followed by an independent sentence structure. An illustrative example is provided in (1). The complement is indicated by square brackets, the word order of the complex construction is V S Complement.

- (1) \emptyset -y-ootaj-xa ix [tol oj- \emptyset -kam ix]
 B3-A3-know-already she [COMP FUT-B3-die she]
 ‘She already knows that she will die.’
 PENALOSA & SAY (1992)

Type2 diverges from the normal sentence pattern of Akatek, which has been described in chapter 4. Both transitive and intransitive type2 complements lack aspect morphology, as shown in (2-a) and (2-b), respectively. Furthermore, the transitive complement verb differs from the structure of independent sentences in two respects. First, the complement verb takes the suffix *-on*¹ and second, instead of a transitive thematic vowel suffix (TTV), it takes an intransitive one (ITV). In addition, the intransitive construction is marked by a set A pronominal prefix instead of by the set B prefix of the independent sentence.

- (2) a. \emptyset -y-il ix Mikin [ach-s-ma'-on-i]
 B3-A3-see NCL Micaela [B2-A3-hit-SUF-ITV]
 ‘Micaela saw an unspecified 3rd person hit you.’
 b. x- \emptyset -y-il ix Mikin [a-wey-i]
 PERF-B3-A3-see NCL Micaela [A2-sleep-ITV]
 ‘Micaela saw you sleeping.’

¹The role this suffix plays in Mayan languages is explored in section 3.2.

Type3 complements lack aspect as well as person morphology. While subject NPs cannot occur at all, the object NP of the transitive verb has been analyzed as semi-incorporated in that it cannot take the usual determiners like e.g. noun classifiers or demonstratives. In addition, a transitive type3 verb as in (3-a) suffixes the non-finite suffix *-o* (TNF) and an intransitive type3 verb as in (3-b) suffixes the irrealis marker *-oj* (IRR).

- (3) a. max- \emptyset -ok naj [il-o me'] xin
 PERF-B3-enter he [see-TNF sheep] then
 ‘The boy began to watch sheep.’ PENALOSA & SAY (1992)
- b. x-ach-jul [wey-*oj*]
 PERF-B2-arrive.here [sleep-IRR]
 ‘You came here to sleep.’ ZAVALA (1992b), 314

Table 1 shows the structures of independent sentences and of the three complement types. Each construction type has a transitive and an intransitive variant. Round brackets indicate that the presence of the bracketed items is either optional or depends on cooccurrence restrictions. For example, sentence final clitics (CL) only cooccur with first person or with second person plural markers in the sentence.

TABLE 1. Structures of transitive and intransitive independent sentences compared to different complement types in Akatek

Indep.	ASP-	B-	A-	V_{tr}	(-TTV)	(NP, NP)	(CL)
Type1	(COMP)	ASP-	B-	A-	V_{tr}	(-TTV)	(NP, NP) (CL)
Type2			B-	A-	V_{tr-on}	(-ITV)	(NP, NP) (CL)
Type3					V_{tr-o}		Noun
Indep.	ASP-	B-		V_{intr}	(-ITV)	(NP)	(CL)
Type1	(COMP)	ASP-	B-		V_{intr}	(-ITV)	(NP) (CL)
Type2			A-	V_{intr}	(-ITV)	(NP)	(CL)
Type3					$V_{intr-oj}$		

This study is mainly concerned with the properties of type1 and type2, since type3 does not occur with PVs. Thus, there are two types of PVC, so that the requirement for Hypothesis I, namely that languages with a complementation system use at least two different types of PVC is met. Hypothesis I claims that there must be minimally two PVC types in a language, so that one of the two PVC types is available to denote EVENTS and the other can be used to express PROPOSITIONS. The latter is only then possible if passive PVs semantically extend into the cognitive domain. This issue is pursued in section 2.

The catalogue of structural and semantic criteria used in chapter 3 for the characterization of PVCs in English is modified in the following way. Since there is no case marking on NPs in Akatek, this criterion is irrelevant for a description of Akatek PVCs. Solely the agreement marking on the verb can be employed as a criterion. In addition to tense and aspect, morphological markers of aktionsart as described in chapter 4 are taken into consideration. The distinction between adverbials and adjectives is problematic. The results of cross-linguistic investigations on nominalizations indicate that many languages either completely lack a distinction between adjectives and adverbs or have only a minimal one. As a result, the distribution of adverbs and adjectives in terms of complement types is highly dependent on the specific syntactic structures of the language in question (KOPTJEVSKAJA-TAMM, 1993; HAMM, 1996). In Akatek, the distinction between adverbs and adjectives is difficult to draw in many cases. Due to the fact that this distinction is in general highly language specific, it is excluded from the catalogue of criteria. Since there is a rich system of non-active voices in Akatek, antipassive constructions are added. The above changes result in the revised list of criteria for the description of Akatek PVCs shown in Table 2.

TABLE 2. Criteria for the structural and semantic characterization of Akatek PVCs

Criteria for a structural characterization	Criteria for a semantic characterization
Constituency	Temporal simultaneity
Complementizer	Perceptibility
Agreement marking	Process vs. state predicates
Tense/Aspect/Aktionsart	Sentential negation
Determiners/Pluralization	Sentential adverbs
Anti-/ Passivization	Modal auxiliaries
Cleft	Semantic value of COMP
Variety of Matrix predicates	

The topic of the following section is the lexicalization of PVs in Akatek. The purpose of this section is to familiarize the reader with the PVs that serve as matrix predicates for the two types of PVC, which are characterized in sections 3 and 4, respectively.

2. Lexicalization of perception verbs

In this section, I demonstrate how basic passive² PVs in Akatek are lexicalized along the sense modality hierarchy introduced in chapter 2, and how the meaning of Akatek PVs extends to the cognitive domain. Passive PVs are the matrix predicates of the PVCs described in sections 3 and 4. Since non-basic PVs as matrix predicates for PVCs are not investigated within the scope of this thesis, in the following, emphasis is given to the two most frequent and versatile verbs for basic sense perception in Akatek: *il* for visual perception and *ab'* for auditory and general sense perception.

2.1. Passive perception verbs. The lexicalization hierarchy for passive PVs, which was presented in chapter 2, is repeated here for convenience in Table 3. As was shown in chapter 2, there seem to be languages which have no basic passive PV lexicalized (\emptyset). Cross-linguistically, passive PVs are lexicalized from general sense perception or VISION over HEARING, to TOUCH, SMELL and TASTE.

TABLE 3. Lexicalization hierarchy for perception verbs
(after VIBERG (1983))

					TOUCH	
\emptyset	>	PERCEIVE/ VISION	>	HEARING	>	TASTE
					SMELL	

In Akatek, the passive PV for VISION is *il*, the one for HEARING is *ab'*. An example with *il* as a passive PV is provided in (5), one with *ab'* can be seen in (6).

(4) *il* > *ab'*

(5) x- \emptyset -y-il-on naj txonwom xin
 PERF-B3-A3-see-SUF NCL merchant then
 'The merchant saw them.' PENALOSA & SAY (1992)

(6) k'am chi- \emptyset -y-ab' naj patron
 NEG IMPF-B3-A3-hear NCL Sp:boss
 'The boss didn't hear him.' PENALOSA & SAY (1992)

The verb for HEARING also covers the meanings for TOUCH and SMELL, an observation which is in accordance with the predictions made by the sense modality hierarchy. The meanings of TOUCH and SMELL,

²Passive PVs are not passivized PVs. The term passive refers to non-active PVs like *see* and *hear* as opposed to the explicitly active PVs *look* and *listen*.

however, can be made explicit by adding the nominals *sab* ‘odour’ like in example (8) or *ya’il* ‘pain’ as shown in example (7).

- (7) tuk'al chi-∅-aw-ab' s-ya'-il
 just IMPF-B3-A2-feel A3-pain-VL
 ‘Now you just feel the pain.’ PENALOSA & SAY (1992)

- (8) tuk'al chi-∅-ey-ab' s-sab
 just IMPF-B3-A2p-feel A3-smell
 ‘You just smell the food.’ PENALOSA & SAY (1992)

Finally, the sense of TASTE is expressed with a derivative of *ab'*, namely *ab'le* as shown in (9).

- (9) tzub'il ∅-y-ab'le ku-lob'e
 how B3-A3-taste A1p-food
 ‘How does the food taste?’

I restricted the analysis of PVC types in Akatek to the two basic passive PVs *il* ‘see’ and *ab'* ‘hear’. In the next section, I consider active PVs in Akatek. As was shown in chapter 2, unlike passive PVs, active PVs do not extend their meaning into the cognitive domain. Therefore, they can only take EVENT denoting complements.

2.2. Active perception verbs. The verb for VISION, *il* ‘see’, is also used in an active sense, i.e. it can mean ‘watch’ or ‘look’. An example for ‘watch’ is provided in (10). Similarly, *ab'* ‘hear’ can also mean ‘listen’ as illustrated in example (11).

- (10) tuk'al chot-an-∅ ey-oj k'am-∅ tzet
 just sitting-POSIT-B3 DIR-IRR NEGEX-B3 thing
 chi-∅-y-u-ne ∅-y-il lalan-∅-xa s-kam
 IMPF-B3-A3-do-only B3-A3-see PROG-B3-already A3-die
 wan konob' tu' xin
 DEFPL village DEM then
 ‘(He) just sat with nothing else to do but watch the people of the town dying.’ PENALOSA & SAY (1992)

- (11) ab'-∅ xin
 hear-B3 then
 ‘Listen!’ PENALOSA & SAY (1992)

Thus, there are no basic active PVs that are distinct from basic passive PVs in Akatek. In other words, active PVs cannot be used to identify EVENT denoting complements. There is one exception, however.

In Akatek, there is a class of lexical roots that has traditionally been termed positionals.³ Positionals express the position, condition, state or form of the noun they occur with. A subgroup of the positional roots can take the suffix *-an*. Suffixed with *-an*, these positional roots can function as non-verbal predicates, nominals, adjectives, or independent numeral classifiers. Typical examples are *k'it-an* ‘separate, isolated’, *k'ol-an* ‘round in three dimensions’, *b'il-an* ‘round in three dimensions, but small’.⁴ One positional root, *t'an*, expresses the condition of looking or staring, i.e. active perception. With the *-an* suffix, *t'anan* occurs either as a non-verbal predicate like in example (12) or in combination with the motion verb *ok* ‘enter, begin’ as illustrated in example (13).

- (12) t'an-an-k'al-∅ ok-toj jun mij tu'
 looking-POSIT-DUR-B3 DIR-DIR one buzzard DEM
 y-uul naa tu'
 A3-inside house DEM
 ‘... the buzzard continued looking in that house’
 PENALOSA & SAY (1992)

- (13) max ∅-ok t'an-an eb' y-iin s-ti' naj
 PERF B3-begin look-POSIT they A3-in A3-mouth he
 ‘They began staring at his mouth.’
 PENALOSA & SAY (1992)

I have shown that even though basic PVs in Akatek do not have separate lexicalizations for active PVs and passive PVs, there are distinct active perception predicates like *t'anan*. However, *t'anan* either functions as a non-verbal predicate or it needs a matrix verb. Therefore, it was excluded from the investigation of PVCs in sections 3 and 4 of this chapter.

2.3. Meaning extension. Like *see* in English, *il* in Akatek extends its meaning into the cognitive domain. For example, *il* can be used in the sense of ‘recognize’ or ‘realize’ like in example (14), or it can mean ‘think, consider’ as illustrated by the imperative in example (15).

³According to ZAVALA (1992b), the class consists of approximately 270 roots.

⁴An example for the use of *k'itan* as an independent numeral classifier is provided below:

- (i) ox-eb' k'it-an ixim paat
 three-PL separate-POSIT NCL tortilla
 ‘three tortillas (separate from each other)’ ZAVALA (1992b), 142

- (14) max \emptyset -y-il-on eb' xin yel- \emptyset chi- \emptyset -y-al
 PERF B3-A3-see-SUF they then true-B3 IMPF-B3-A3-say
 naj
 he

'They saw that he had spoken the truth.'

PENALOSA & SAY (1992)

- (15) il-a'- \emptyset chi- \emptyset -w-al an
 see-TTV-B3 IMPF-B3-A1-say CL1s

'Consider what I am telling you!' PENALOSA & SAY (1992)

In combination with the directional *kan* 'remain', *ab'* takes on a meaning of 'understand':

- (16) x- \emptyset -y-ab'-kan ix Mikin
 PERF-B3-A3-hear-DIR:remain NCL Micaela

'Micaela understood it.'

The meaning range of the verb *il* also extends into the 'social' domain, where it is used to express 'to care, look after':

- (17) chi- \emptyset -il-wi no' naj Xhunik
 IMPF-B3-see-AP PRO:animal NCL Juan

'John takes care of animals.' ZAVALA (1992b), 216

The verb *ab'le*, which has been shown to express TASTE above, can also be used to indicate 'ask' or 'inquire' as shown in the following example:

- (18) \emptyset -y-ab'le ix Mikin ta-tol ach-'el-toj
 B3-A3-ask NCL Micaela COMP-COMP B2-leave-DIR

'Micaela inquired if you left.'

The meaning extension of PVs into the cognitive domain, which has been shown to exist cross-linguistically in chapter 2, also occurs in Akatek. This meaning extension is a prerequisite for the ability of PVs to occur with proposition denoting complements.

2.4. Summary. I have shown some of the main features of the basic Akatek PVs *il* 'see' and *ab'* 'hear'. Both can be used for active as well as for passive perception. As a consequence, there is no distinct group of active PVs like in English that could be used to identify EVENT denoting complements. However, both *il* and *ab'* semantically extend into the cognitive domain. Therefore, I predict that both PVs can also take complements that are primarily PROPOSITION denoting. The

following two sections describe the two types of PVC that are used in Akatek.

3. PVCs of type2

In this section, one of the two complement types that occur with PVs in Akatek, the type2 PVC, is described. Type2 complements take the middle position between type1 and type3 complements. While type1 complements have a complementizer and are like independent sentences, type3 complements lack all the characteristics of independent sentences, i.e. they have no agreement, no tense, aspect, or modality marking, they cannot have their own subjects, and transitive objects are not independent arguments but dependent on the complement verb. Type2 PVCs lack characteristics of type1 complements, but not to the degree of type3 complements. For ease of reference, the structure of type2 PVCs is repeated here from Table 1 in comparison to the structure of independent transitive and intransitive sentences. Table

TABLE 4. Structure of independent transitive and intransitive sentences compared to type2 complements

Indep.	ASP-	B-	A-	V_{tr}	(-TTV)	(NP, NP)	(CL)
Type2		B-	A-	V_{tr-on}	(-ITV)	(NP, NP)	(CL)
Indep.	ASP-	B-		V_{intr}	(-ITV)	(NP)	(CL)
Type2			A-	V_{intr}	(-ITV)	(NP)	(CL)

4 illustrates that transitive type2 complements differ from intransitive ones. While the transitive construction obtains the suffix *-on* and is marked with an intransitive thematic vowel (ITV) like all intransitive verbs, the intransitive construction is marked with a set A pronominal affix instead of with the regular set B affix. Both transitive and intransitive type2 complements lack aspect marking and they do not take complementizers.⁵ They both use intransitive thematic vowels, which are suffixed to the verbal complex in case this verbal complex occurs in phrase final position, and sentence final clitics (CL), which cooccur mainly with first person arguments in the sentence. Like independent sentences, their postverbally occurring lexical arguments are optional appositional adjuncts and for the transitive constructions NPs are flexible in their postverbal order.

Example (19) illustrates a type2 PVC. (19-a) shows a normal intransitive sentence with the perfective aspect prefix *x-* and the set B

⁵For possible exceptions see section 3.1.2.

pronominal prefix *ach-*. This sentence cannot function as a type2 complement of a PV as shown in the ungrammaticality of (19-b). In order to do this, it must change to a type2 complement, i.e. use the set A pronominal affix *aw-*, as depicted in (19-c).

- (19) a. x-ach-'el-toj
 PERF-B2-leave-DIR
 'You left.'
- b. * x-∅-y-il ix Mikin [ach-'el-le-toj]
 PERF-B3-A3-see NCL Micaela [B2-leave-ITE-DIR]
 'Micaela saw you leave.'
- c. x-∅-y-il ix [aw-'el-toj]
 PERF-B3-A3-see she [A2-leave-DIR]
 'She saw you leaving.' ZAVALA (1997)

A parallel example is provided in (20) for transitive type2 complements. (20-a) shows an independent transitive sentence, which cannot be embedded under a PV as indicated by the ungrammaticality of (20-b). A transitive type2 complement is given in (20-c), where the type2 verb is suffixed by the morpheme *-on*, whose function is discussed in section 3.2.

- (20) a. x-∅-s-ma' no' tx'i naj Xhunik
 PERF-B3-A3-hit NCL dog NCL John
 'John hit the dog.'
- b. * x-∅-y-il ix Mikin [∅-s-ma' no' tx'i
 PERF-B3-A3-see NCL Micaela [B3-A3-hit NCL dog
 naj Xhunik]
 NCL John]
 'Micaela saw John hit the dog.'
- c. x-∅-y-il ix Mikin [∅-s-ma'-on no'
 PERF-B3-A3-see NCL Micaela [B3-A3-hit-SUF NCL
 tx'i naj Xhunik]
 dog NCL John]
 'Micaela saw John hit the dog.'

In chapter 4, I noted that in Akatek set A pronominal affixes mark transitive subjects on verbs as well as possessors on nouns. This makes intransitive type2 constructions like *yok' naj unin* in (21-a) and *skam ix* in (21-c) look very much like possessed prepositions or nouns as illustrated in (21-b) and (21-d), respectively.

- (21) a. x- \emptyset -y-ab' ix Mikin [y-ok' naj unin]
 PERF-B3-A3-hear NCL Micaela [A3-cry NCL child]
 'Micaela heard the child cry.'
- b. y-et naj unin
 A3-with NCL child
 'with the child'
- c. \emptyset -y-ab' naj [s-kam ix]
 B3-A3-hear he [A3-die she]
 'He heard her die.'
- d. s-mam ix
 A3-father she
 'her father'

Within Noonan's typology of complementation, type2 are NMLZ complements (NOONAN, 1985). Two arguments are affixed on the nominalized constructions of transitive verbs, one realized with a set A and one with a set B affix. Possessed NPs in Akatek do not have this ability.

The EVENT character of type2 complements can be observed in (22) and (23): *shul eb'* and *yel yaw xaam* express direct physical perception of the respective EVENTS, 'they arrive' and '(he) snores'. These nominal constructions could be more adequately translated with an *of-ing* NMLZ in English, e.g. for (22) 'their coming' and for (23) 'the exiting of the sound of (his) nose'.

- (22) hach oj \emptyset -haw-il [s-hul eb']
 PRO2s FUT B3-A2s-see [A3-arrive.here they]
 'You will watch them come.' PENALOSA & SAY (1992)
- (23) chi- \emptyset -y-ab'-on eb' [y-el y-aw s-xaam]
 IMPF-B3-A3-hear-SUF they [A3-exit A3-sound A3-nose]
 'They heard him snoring.' PENALOSA & SAY (1992)

The structure of this section is the following. Section 3.1 serves to present the structural properties of type2 PVCs. In section 3.2, the verbal suffix *-on*, which marks transitive type2 complements, is described from a historical perspective. This is followed by a description of their semantic properties in 3.3, and the different non-PV matrix predicates for type2 complements in section 3.4.

3.1. Structural characterization. The topic of this section is the structural characterization of type2 PVCs in Akatek. The morphology of the complement verb as well as its person marking have already been described above. Intransitive type2 PVCs can mainly be

identified by their diverging person marking, i.e. set A instead of set B, and transitive type2 PVC can be recognized by the verbal suffix *-on*. Based on the structural properties of English PVCs described in chapter 3, I investigate the following characteristics as listed in Table 2. The constituency of type2 PVCs (3.1.1), whether the complement has a complementizer (3.1.2), whether type2 PVCs can take tense or aspect marking (3.1.3), whether they can take determiners and whether pluralization is an option (3.1.4), passivization and antipassivization of the matrix PV of type2 PVCs or of type2 PVCs (3.1.5 and 3.1.6, respectively), and clefting either of the PVC subject or of the PVCs as a whole (3.1.7).

3.1.1. *Constituency*. Three phenomena have been investigated regarding the nominal constituency of type2 complements: clitic placement, argument order and connected with it anaphoric reference, and double object constructions.

The placement of sentence final clitics such as *an* (CL1s), which follows a first person singular referent as in example (24-a), allows to draw conclusions regarding the constituency of type2 PVCs. Type2 complements are part of the complex sentence in as far as clitic placement is concerned. A sentence final clitic like *an* must be placed at the end of the whole construction as in (24-b), but not between matrix predicate and complement, as evidenced by the ungrammaticality of (24-c).

- (24) a. x- \emptyset -w-ab' an
 PERF-B3-A1-hear CL1s
 'I heard something.'
- b. x- \emptyset -w-ab' [aw-ok-tej] an
 PERF-B3-A1-hear [A2-enter-DIR] CL1s
 'I heard you come in.'
- c. *x- \emptyset -w-ab' an [aw-ok-tej]
 PERF-B3-A1-hear CL1s [A2-enter-DIR]

In case both the matrix predicate and the type2 complement involve a first person as in example (25), theoretically two clitics are called for. However, the ungrammaticality of example (25-a) indicates that this is not the case. Instead, only the final clitic is grammatical within the complex construction as illustrated in (25-b). The evidence from clitic placement supports the analysis of type2 PVCs as nominal constituents.

- (25) a. * x- \emptyset -w-ab' an [a-mitx'-on-in an]
 PERF-B3-A1-hear CL1s [A2-grab-SUF-B1 CL1s]
 b. x- \emptyset -w-ab' a-mitx'-on-in an
 PERF-B3-A1-hear A2-grab-SUF-B1 CL1s
 'I felt you grab me.'

The second phenomenon under scrutiny is argument order and -connected to argument order - anaphoric reference. As a result of the flexible word order and the optionality of lexically instantiated arguments, be they subject, direct object, or possessor NP or PRO, sentences like the one in (26) have two potential interpretations:

- (26) x- \emptyset -y-ab' s-mam ix Mikin
 PERF-B3-A3-hear A3-father NCL Micaela
 'Micaela's father heard something.'
 or: 'Micaela heard her father.'

In one interpretation, the subject NP is identified as *smam ix Mikin* 'Micaela's father', while the object NP is assumed to be unrealized, which results in the first reading, 'Micaela's father heard something'. The second reading, 'Micaela heard her father', presupposes a VOS argument order, so that *smam* 'her father' is interpreted as the object NP and *ix Mikin* 'Micaela' as the subject NP. In the latter version, the possessor NP of *smam* '3rd person's father' is unrealized, and since not otherwise specified it is automatically retrieved from the subject NP *ix Mikin* 'Micaela'.

In complex sentences, the flexibility of argument order in combination with the optionality of NP-occurrence results in a number of possibilities to express 'Micaela saw/heard her father leave.' Example (27) shows the order that is the canonical structure of complex sentences with type2 complements in Akatek: VSO, where type2 PVCs fill the position of the object adjunct.

- (27) x- \emptyset -y-ab' [ix Mikin] [s-too s-mam (ix)]
 PERF-B3-A3-hear [NCL Micaela] [A3-go A3-father (she)]
 'Micaela heard her father leave.'

Type2 PVCs provide the reference for the B3 pronominal affix on the matrix PV. Since type2 PVCs are complex, i.e. marked, adjuncts, a VSO argument order is preferred.⁶ A repetition of the noun classifier *ix* as a possessor pronoun in *stoo smam ix* 'her father left' is grammatical,

⁶I noted in chapter 4 that complex NPs in Mayan languages are generally put in the final position.

but generally unnecessary, since the reference for the possessor argument is retrieved from the NP preceding the PVC, i.e. the subject NP of the PV, *ix Mikin*, is interpreted as possessor as long as not specified otherwise.

Example (28) shows a different organization of the complex construction:

- (28) x-∅-y-il [ix Mikin] [s-mam] [y-el-toj]
 PERF-B3-A3-hear [NCL Micaela] [A3-father] [A3-leave-DIR]
 ‘Micaela saw her father leave.’

Here, *sam* ‘her father’ (the reference for the possessor ‘her’ is retrieved from the preceding NP), appears as the direct object NP of the matrix PV, while the type2 PVC follows, resulting in the order VSO+Type2. The ability of matrix PVs in Akatek to take an object adjunct as well as the PVC is shown in more detail below. The subject NP of the complement predicate *yeltoj* in example (28) is retrieved from the preceding clause, i.e. as long as nothing else is specified, it is *sam* ‘her father’.

Example (29) illustrates the alternative VOS argument order with a type2 PVC, which is an option as long as the type2 complement is comparatively short.

- (29) x-∅-y-ab’ [s-too s-mam] [ix Mikin]
 PERF-B3-A3-hear [A3-go A3-father] [NCL Micaela]
 ‘Micaela heard her father leave.’

Finally, in (30), *sam ix Mikin* ‘Micaela’s father’ is interpreted as subject NP of the matrix predicate, while Micaela is the one leaving.

- (30) x-∅-y-ab’ [s-mam ix Mikin] [s-too ix]
 PERF-B3-A3-hear [A3-father NCL Micaela] [A3-go she]
 ‘Micaela’s father heard her leaving.’

If type2 complements are fronted, the result is an ungrammatical sentence as in (31). However, in section 3.1.7, I demonstrate that fronting by means of clefting of the whole PVC is grammatical.

- (31) *[a-ma’-on in-an] x-∅-y-il ix Mikin
 [A2-hit-SUF B1-CL1s] PERF-B3-A3-see NCL Micaela
 ‘You hit me and Micaela watched.’

The other option to maintain grammaticality when fronting a PVC is to use a type1 PVC as in (32):

- (32) [\emptyset -q'anab' naj y-etoj y-istil] chi- \emptyset -w-il an
 [B3-talk he A3-with A3-wife] IMPF-B3-A1-see CL1s
 'I remember him talking with his wife.'

The analysis of (32) as a type1 complement is based on the fact that the complement verb *q'anab'* is not marked with the third person set A pronominal affix *s-*, which is required for intransitive type2 PVCs (refer to (33)). Also, the translation indicates a cognitive usage of the PV *il* 'see', here meaning 'remember'.

- (33) chi- \emptyset -w-il [s-q'anab' naj y-etoj y-istil] an
 IMPF-B3-A1-see [A3-talk he A3-with A3-wife] CL1s
 'I saw him talking with his wife.' PENALOSA & SAY (1992)

The third phenomenon under investigation are double object constructions. The matrix PV takes the nominal PVC as a direct object adjunct, which is illustrated in example (34):

- (34) x- \emptyset -y-ab' ix Mikin [a-ma'-on in-an] /
 PERF-B3-A3-hear NCL Micaela [A2-hit-SUF B1-CL1s] /
 [in-a-ma'-on an]
 [B1-A2-hit-SUF CL1s]
 'Micaela heard you hit me.'

Another alternative is for the PV to take the PVC subject as object as in (35), here only instantiated as the pronominal set B affix *ach-* on the matrix predicate:

- (35) x-ach-y-ab' ix Mikin [a-ma'-on in-an] /
 PERF-B2-A3-hear NCL Micaela [A2-hit-SUF B1-CL1s] /
 [in-a-ma'-on an]
 [B1-A2-hit-SUF CL1s]
 'Micaela heard you hit me.'

The complement remains unchanged, i.e. it is still marked for its subject argument realized as the pronominal set A affix *a-* and carries no additional morphology. Examples (34) and (35) additionally illustrate that there are two different orders of the set B pronominal affixes on the complement. Either the set B affix prefixes to the set A prefix, or it prefixes to the sentence final clitic *an*. In any case, all four constructions, two in (34) and two in (35), convey the same meaning.

The double object construction described above for transitive type2 PVCs is also grammatical with intransitive type2 PVCs as illustrated in example (36).

- (36) a. x- \emptyset -y-ab' ix Mikin aw-ok'-i
 PERF-B3-A3-hear NCL Micaela A2-cry-ITV
 b. x-ach-y-ab' ix Mikin aw-ok'-i
 PERF-B2-A3-hear NCL Micaela A2-cry-ITV
 'Micaela heard you cry.'

In sum, I demonstrated the nominal constituency of type2 PVCs by advancing evidence from clitic placement, from argument order and anaphoric reference, and from double object constructions. The object denoting set B affix on the matrix PV can either express the PVC subject or the whole PVC. Type2 PVCs function as complex nominal adjuncts. Hence, the sentence final clitic cannot intervene between the PV and the type2 PVC. Possible orders are V-S-Type2 and V-Type2-S. Fronting of type2 PVCs is ungrammatical unless the PVC occurs in a cleft construction, which is shown in section 3.1.7. Finally, the PVC subject can be raised to the PV object position. The constituency of type2 PVCs is also supported by the analyses of passives and antipassives in sections 3.1.5 and 3.1.6, respectively.

3.1.2. *Complementizer*. Akatek has two complementizers paralleling the complementizer *that* in English: *tzub'il* and *tol*. None of them can occur with type2 PVCs as shown in the ungrammaticality of example (37-a). *Tzub'il* and *tol* can only be used with type1 complements as exemplified in (37-b).⁷

- (37) a. x- \emptyset -y-ab' ix Mikin *tol/ *tzub'il
 PERF-B3-A3-hear NCL Micaela COMP/ COMP
 a-mulna-i
 A2-work-ITV
 'Micaela heard that you worked.'
 b. x- \emptyset -y-ab' ix Mikin tol/ tzub'il
 PERF-B3-A3-hear NCL Micaela COMP/ COMP
 ach-mulna-i
 B2-work-ITV
 'Micaela heard that you worked.'

There is one exception to this rule. Example (38) shows that the use of *tzub'il* in the sense of 'how' is grammatical with a type2 complement.

⁷A detailed description of both complementizers can be found in section 4.1.

The meaning difference between complex sentences with the complementizer *tzub'il* and a type2 or a type1 complement becomes apparent when comparing examples (38) and (39).

- (38) x- \emptyset -y-il ix Mikin tzub'il a-vey-i
 PERF-B3-A3-see NCL Micaela how A2-sleep-ITV
 'Micaela saw how you sleep.'
- (39) x- \emptyset -y-il ix Mikin tzub'il chi-ach-vey-i
 PERF-B3-A3-see NCL Micaela COMP IMPF-B2-sleep-ITV
 'Micaela saw that you were sleeping.'

Example (39) expresses the fact that you were sleeping while example (38) refers to the way in which you are sleeping. This can be either the position of the body or the mode of sleeping, e.g. restless. At the same time, these two examples illustrate the morphological difference between intransitive type1 and type2 complements, the latter diverging from the former by lacking aspect and having a set A instead of a set B pronominal prefix. Another option for expressing 'how' is with *tzet*, which primarily expresses 'what'. *Tzet* requires the use of the auxiliary *un* 'do' as seen in (40).

- (40) x- \emptyset -y-il ix Mikin tzet chi- \emptyset -y-un
 PERF-B3-A3-see NCL Micaela COMP IMPF-B3-A3-do
 a-vey-i
 A2-sleep-ITV
 'Micaela saw how you sleep.'

In sum, type2 PVCs cannot take complementizers. The only exception is the complementizer *tzub'il*, which in combination with a type2 complement expresses the way in which the perceived action is performed.

3.1.3. *Tense/ aspect/ aktionsart*. As was shown in the structural description of type2 PVCs, they cannot take any of the aspect prefixes presented in chapter 4, section 1.3. In example (41) this is shown for imperfective aspect, which is realized via the verbal prefix *chi-*.

- (41) a. x- \emptyset -y-il naj w-apni b'ey naa an
 PERF-B3-A3-see he A1-arrive PREP house CL1s
 'He saw me arrive at the house.'

- b. * x- \emptyset -y-il naj chi-w-apni b'ey naa
 PERF-B3-A3-see he IMPF-A1-arrive PREP house
 an
 CL1s
 ‘He saw me arrive at the house.’

Without aspect, example (41-a) is grammatical, the addition of *chi-*, however, renders it ungrammatical as can be seen in (41-b). The same applies for the irrealis aspect or future tense prefix *oj-* as illustrated in example (42).

- (42) * x- \emptyset -y-il ix Mikin oj-aw-'el-toj
 PERF-B3-A3-see NCL Micaela FUT-A2-leave-DIR
 ‘Micaela saw you will leave.’

None of the morphological aspect prefixes can occur with type2 PVCs. In addition to those, Akatek has a number of tense-aspect and aktionsart clitics, which can modify the verbal complex either pre- or postverbally (ZAVALA, 1992b). The clitic for imperfective past, *ta'* (IMPF), is of great locational flexibility in the predicate. It often occurs postverbally as illustrated in (43). Like the aspectual prefixes, *ta'* is ungrammatical with type2 PVCs (see example (44)).

- (43) a-ma'-in ta' an
 A2-hit-B1 IMPFP CL1s
 ‘You have hit me (before).’
- (44) * x- \emptyset -y-il ix Mikin aw-'el-toj ta'
 PERF-B3-A3-see NCL Micaela A2-leave-DIR IMPFP
 ‘Micaela saw you having left.’

The marker for durative, continuative or non-punctual aktionsart, *k'al* or *k'alta'* (DUR), is generally translated with ‘always’. Its occurrence in an independent sentence is illustrated in (45).

- (45) chi-a-ma'-in k'al-ta' an
 IMPF-A2-hit-B1 DUR-IMPFP CL1s
 ‘You always hit me.’

In a transitive type2 PVC as exemplified in (46), *k'al* occurs directly after the suffix *-on*, and before the set B pronominal affix for the direct object, *in*.⁸ As illustrated in examples (46) and (47), in the same context, *k'al* and *k'alta'* differ in meaning, while *k'al* means ‘always’

⁸The set B could also prefix to the verbal complex.

(46), *k'alta'*, which is a combination of *k'al* and *ta'* (imperfective past), means 'after all, anyway' (47).

(46) x-∅-y-il ix Mikin a-ma'-on k'al in-an
 PERF-B3-A3-see NCL Micaela A2-hit-SUF DUR B1-CL1s
 'Micaela saw you always hitting me.'

(47) x-∅-y-il ix Mikin a-ma'-on k'al-ta'
 PERF-B3-A3-see NCL Micaela A2-hit-SUF DUR-IMPFP
 in-an
 B1-CL1s
 'She saw you hitting me anyway.'

The iterative or repetitive aktionsart clitic *-le* is a verbal suffix. In PVCs of type2, *-le* indicates that the action expressed by the complement verb was repeated or that in the case of the verb *el* 'leave' the action was not successful, which is illustrated in example (48).

(48) x-∅-y-il ix Mikin aw-el-le-toj
 PERF-B3-A3-see NCL Micaela A2-leave-ITE-DIR
 'Micaela saw you trying to leave.'

I have demonstrated that Akatek type2 PVCs cannot take aspect marking but aktionsart marking like *k'al* or *-le*. The observation that *k'al* also modifies non-verbal predicates (see chapter 4, section 1.3) supports the analysis of type2 PVCs as nominal constituents. In addition, type2 complements are still temporally simultaneous with their matrix predicate when modified by the aktionsart *k'al*. Temporal simultaneity is the topic of section 3.3.1.

3.1.4. *Determiners and pluralization.* Whether a complement type can occur with determiners or whether it can be pluralized is an indicator of its nounhood or of the degree to which it has been nominalized. Type2 complements cannot take the demonstratives *tu'* (proximate) and *ti'* (distal) as shown in example (49), unless *tu'* obtains a different interpretation meaning 'then', resulting in an interpretation of (49) as 'Micaela saw you leave then'.

(49) x-∅-y-il ix Mikin aw-'el-toj *tu'/ *ti'
 PERF-B3-A3-see NCL Micaela A2-leave-DIR DEM/ DEM
 'Micaela saw this/that your leaving.'

A modification with the indefinite article *jun* 'one' is likewise ungrammatical (50). A modification of type2 complements with a noun classifier, which functions as a definite article, is not acceptable, since

the complement cannot be identified as belonging to one of the noun classes.⁹

- (50) x-∅-y-il ix Mikin *jun aw-'el-toj tu'
 PERF-B3-A3-see NCL Micaela one A2-leave-DIR DEM
 'Micaela saw one/the your leaving.'

Singular quantifiers like *junun* 'each' require an NP or a proform like *eb'* 'they' as can be seen in (51). *Junun* cannot modify the whole complement.

- (51) x-∅-y-il ix Mikin y-el-toj junun eb'
 PERF-B3-A3-see NCL Micaela A3-leave-DIR each they
 'Micaela saw each one of them leave.'

Before taking a look at the ability of the complement to take plural quantifiers, we need to ask how pluralization takes effect in Akatek. There are no plural affixes. Non-human NPs can be interpreted as singular or plural without further specification. For human NPs there is an independent plural morpheme, *eb'*. A second independent morpheme, *wan*, is semantically unrestricted, i.e. it occurs with human and non-human NPs. In addition to its plural sense, *wan* also denotes definiteness (ZAVALA, 1992b).¹⁰ These two plural morphemes can both function as independent pronouns. Neither one can modify type2 complements of PVs as illustrated by the ungrammaticality of example (52).

- (52) x-∅-y-il ix Mikin *eb' / *wan aw-'el-toj
 PERF-B3-A3-see NCL Micaela PL/ PL A2-leave-DIR
 'Micaela saw your leavings.'

As a consequence of the impossibility to take plural markers, it is unlikely that plural quantifiers like *ek'al* 'many' or *maasanil* 'all' could be used to modify type2 complements. That this prediction is borne out is illustrated in example (53-a), while example (53-b) shows the normal occurrence of these quantifiers.

⁹Note that not all nouns take noun classifiers, and that the noun classes in Akatek are semantically motivated (refer to Chapter 4, Table 3), so that it is not surprising that complements cannot take a classifier.

¹⁰Both plural markers are subject to complex restrictions interrelated with the noun classifier system. For more details refer to ZAVALA (1992b).

- (53) a. x- \emptyset -y-il ix Mikin aw-'el-toj *ek'al/
 PERF-B3-A3-see NCL Micaela A2-leave-DIR many/
 *maasanil
 all
 'Micaela saw all your/ your many leavings.'
- b. x- \emptyset -y-il ix Mikin y-el-toj ek'al/
 PERF-B3-A3-see NCL Micaela A3-leave-DIR many/
 maasanil anima
 all people
 'Micaela saw many/ all people leave.'

I have shown that type2 PVCs are not like NPs in that they cannot take determiners, and they cannot be pluralized.

3.1.5. *Passive*. In chapter 3, I have shown that passivization of PVs with either the PVC subject or the whole PVC as the subject of the passivized PV is highly restricted for English PVCs. In order to investigate whether this restriction also applies to Akatek, I first describe the structure of passive constructions in Akatek. After that, an investigation of the passivization of complex perception constructions involving a type2 PVC in Akatek follows.

ZAVALA (1997) identifies three morphological passive constructions in Akatek: the *le*-passive, the *cha*-passive and the *b'il*-passive. The passivized verbs are marked only with set B pronominal affixes - because they are intransitive- and suffixed with one of the passive suffixes: *-le*, *-cha*, or *-b'il*.

There are two varieties of *le*-passives. Both are suffixed with the passive morpheme *-le* (PASS). One type of *le*-passive is obligatorily agentless, an example is given in (54). The other is optionally followed by an oblique object denoting the agent, which is marked with the preposition *uu* 'because of, by', as illustrated in example (55) by *y-uu eb'* 'by them'.

- (54) max \emptyset -tx'otx'-**le** s-mulna-il naj unin
 PERF B3-show-PASS A3-work-NMZR NCL boy
 'The job was shown to the boy (lit. the boy's job was shown).' PENALOSA & SAY (1992)
- (55) chi-tzu'-**le** naj y-uu eb'
 IMPF-reprimand-PASS he A3-by they
 'He was scolded by them.' PENALOSA & SAY (1992)

The second type of passive, the *cha*-passive, is marked with the passive suffix *-cha* (PASS). Parallel to the *le*-passive, the *cha*-passive can optionally take an oblique agent phrase like *wuu* ‘by me’ as can be seen in example (56). Semantically, the *cha*-passive expresses adversity for the patient combined with ability or achievement of the agent (ZAVALA, 1997). A contrastive example of a *le*-passive is provided in (57).

- (56) ach-ij-**cha** w-uu an
 B2-back.carry-PASS A1-by CL1s
 ‘I was able to carry you (to your detriment).’
 ZAVALA (1997), 454

- (57) ach-ij-**le** w-uu an
 B2-back.carry-PASS A1-by CL1s
 ‘You were carried by me.’ ZAVALA (1997), 454

The last kind of passive construction structurally differs from the ones described above. The passive morpheme *-b’il* (PASS/PF) is suffixed to the verb stem, but instead of a set B prefix like the first two passives, the *b’il*-passive obtains a set B suffix and is not marked for aspect. This makes the *b’il*-passive look like a non-verbal predicate. Semantically, the *b’il*-passive expresses perfectivity as indicated by the English translation of example (58).

- (58) tol i’-**b’il**-∅ s-paj jun juun tu’ w-uu
 because carry-PASS/PF-B3 A3-reply one paper DEM A1-by
 ‘Because the reply to the letter has been brought by me.’
 PENALOSA & SAY (1992)

Table 5 provides an overview of the different passive constructions compared to an active transitive structure. Active transitive verbs (V_{tr}) carry aspect marking (ASP) as well as set B and set A person marking. They can optionally be followed by one or two NPs denoting the agent (AGT-NP) or the patient (PAT-NP). In contrast, passives can never take a set A pronominal affix but only the set B marker. Structurally, all three passives share the ability to take an NP denoting the patient and an oblique NP (*A-uu* AGT-NP) denoting the agent. The three types of passives mainly differ in morphology by suffixing *-le*, *-cha*, or *-b’il*. Also, the *b’il*-passive behaves like a non-verbal predicate in not taking aspect and suffixing the set B marker. Finally, the *cha*-passive and the *b’il*-passive carry notions of adversity and perfectivity, respectively.

TABLE 5. Passive constructions

Voice	Verbal complex	Lexical adjuncts
Active transitive	ASP-B-A- V_{tr}	(AGT-NP) (PAT-NP)
<i>le</i> - passive	ASP-B- V_{tr-le}	(PAT-NP) (A- <i>uu</i> AGT-NP)
<i>cha</i> - passive	ASP-B- V_{tr-cha}	(PAT-NP) (A- <i>uu</i> AGT-NP)
<i>b'il</i> - passive	$V_{tr-b'il}$ -B	(PAT-NP) (A- <i>uu</i> AGT-NP)

The investigation concentrates on the PV, *il* 'see', but some examples with *ab'* 'hear' are also provided. As a starting point in the investigation, the following active voice constructions are used. Transitive and intransitive PVCs involving third person arguments, which can be lexically expressed as in examples (59-b) and (60-b), and transitive and intransitive PVCs with first and second person arguments as in examples (59-a) and (60-a).

- (59) a. x- \emptyset -y-il ix Mikin in-a-ma'-on an
 PERF-B3-A3-see NCL Micaela B1-A2-hit-SUF CL1s
 'Micaela saw you hit me.'
- b. x- \emptyset -y-il ix Mikin s-tzok'-on naj winaj
 PERF-B3-A3-see NCL Micaela A3-cut-SUF NCL man
 te' te' / si'
 NCL tree/ firewood
 'Micaela saw the man cut the tree/firewood.'
- (60) a. x- \emptyset -y-il ix Mikin aw-el-toj
 PERF-B3-A3-see NCL Micaela A2-leave-DIR
 'Micaela saw you leave.'
- b. x- \emptyset -y-il ix Mikin s-wey s-mam ix
 PERF-B3-A3-see NCL Micaela A3-sleep A3-father she
 'Micaela saw her father sleep.'

Regarding passivization of a complex construction consisting of a PV and a PVC like the English NI-PVC in (61), there are two basic possibilities. Either the complement verb passivizes as in example (62), or the matrix PV as in (63). If the PV passivizes, the subject of the passivized PV could either be the whole PVC as in (63-a) or only the PVC subject, and then either the subject of an active PVC as in (63-b) or of a passive PVC as in (63-c).

- (61) Jim saw [Jill hit Peter].
- (62) *Jim saw [Peter be hit by Jill].

- (63) a. *[Jill hit Peter] was seen by Jim.
 b. *[Jill] was seen [hit Peter].
 c. *[Peter] was seen [be hit by Jill].

As can be seen from the ungrammaticality of (62) and (63), for English NI-PVCs none of the theoretical options are grammatical. In the following, I investigate both options in Akatek: passivization of the complement as well as passivization of the matrix predicate.

Passivization of a type2 complement is grammatical with all three passive constructions presented above. Example (64) shows a type2 *le*-passive, example (65) a *cha*-passive, and (66) a *b'il*-passive based on the active transitive construction from example (59-a) above.

- (64) x- \emptyset -y-il ix Mikin in-ma'-le aw-uu an
 PERF-B3-A3-see NCL Micaela A1-hit-PASS A2-by CL1s
 'Micaela saw me being hit because of/ by you.'
- (65) x- \emptyset -y-il ix Mikin in-ma'-cha aw-uu an
 PERF-B3-A3-see NCL Micaela A1-hit-PASS A2-by CL1s
 'Micaela saw you hitting me/ managing to hit me.'
- (66) x- \emptyset -y-il ix Mikin (tzub'il/ tol)
 PERF-B3-A3-see NCL Micaela (COMP/ COMP)
 ma'-b'il-in aw-uu an
 hit-PASS/PF-B1 A2-by CL1s
 'Micaela saw (that) you have/had hit me.'

The main structural difference between independent passives and type2 passives is that they prefix set A instead of set B pronominal affixes. This is the case only for *le*- and *cha*-passives. The *b'il*-passive constructions suffix a set B marker like a non-verbal predicate. Hence, *b'il*-passives embedded by PVs cannot be interpreted as type2 PVCs, but as type1 PVCs. This analysis is supported by the possibility to add the complementizers *tol* and/or *tzub'il* to the complement as in example (66). As a result of its implication of perfectivity and its status as a type1 complement, the *b'il*-passive cannot denote an EVENT. As I will show in the section on type1 PVCs, this is in accordance with the observation that non-verbal predicates cannot function as type2 complements, but only as type1 complements with optional complementizers, and the *b'il*-passive in fact is a non-verbal predicate structure. The *le*- and the *cha*-passive however, maintain the EVENT interpretation of the complement, with the difference between the two being that the *cha*-passive adds a sense of achievement as reflected in the translation

of (65), ‘Micaela saw you managing to hit me’. More literally, (65) could be rephrased as ‘Micaela saw me successfully being hit by you’.

Examples (64) to (66) above are characterized by first and second person markers on the complement verb, which cannot be lexically instantiated due to the absence of independent pronouns for first and second person. Moreover, for first person singular, set A and set B affixes are identical, so that the above examples cannot prove that passivized type2 take set A affixes like active type2 complements. The following examples show again all three passive varieties based on the active type2 complement in example (59-b). Now, for the *le*- and the *cha*-passives in (67) and (68), respectively, the third person set A prefix *s-* appears while the *b’il*-passive in (69) is unmarked, which indicates third person zero marking. This clearly indicates that passive type2 complements are marked like intransitive active type2 complements. The type1 *b’il*-passive is marked with set B pronominal affixes like other intransitive, especially non-verbal, type1 complements.

- (67) x- \emptyset -y-il ix Mikin s-tzok’-le te’ te’
 PERF-B3-A3-see NCL Micaela A3-cut-PASS NCL tree
 y-uu naj winaj
 A3-by NCL man
 ‘Micaela saw the tree being cut by the man.’
- (68) x- \emptyset -y-il ix Mikin s-tzok’-cha te’ te’
 PERF-B3-A3-see NCL Micaela A3-cut-PASS NCL tree
 y-uu naj winaj
 A3-by NCL man
 ‘Micaela saw the man managing to cut the tree.’
- (69) x- \emptyset -y-il ix Mikin tzok’-b’il- \emptyset te’ te’
 PERF-B3-A3-see NCL Micaela cut-PASS/PF-B3 NCL tree
 y-uu naj winaj
 A3-by NCL man
 ‘Micaela saw the man had cut the tree.’

Next, I investigate the question whether in Akatek the matrix PV of a PVC can passivize. I follow up two options for the subject of the passivized PV: either the whole PVC is the subject of the passivized PV, or the PVC subject is also the PV subject.

The examples in (70) show that passivization of the PV is possible for all three types of passives in Akatek. The type2 PVC functions as the subject adjunct of the passivized matrix PV. The type2 PVC remains unchanged. Example (70-a) shows the ‘normal’ *le*-passive, in

(70-b), the achievement sense of the *cha*-passive is expressed in the English translation with ‘managed to see’, while the perfective sense of the *b’il*-passive in (70-c) is reflected in the translation with ‘has seen’ or ‘had seen’.

- (70) a. x-∅-’il-le y-uu ix Mikin aw-’el-toj
 PERF-B3-see-PASS A3-by NCL Micaela A2-leave-DIR
 ‘Micaela saw you leaving.’
 b. x-∅-’il-cha y-uu ix Mikin aw-’el-toj
 PERF-B3-see-PASS A3-by NCL Micaela A2-leave-DIR
 ‘Micaela managed to see you leave.’
 c. il-b’il-∅ y-uu ix Mikin aw-’el-toj
 see-PASS/PF-B3 A3-by NCL Micaela A2-leave-DIR
 ‘Micaela has/had seen you leave.’

Example (71) shows a *le*-passivized PV and example (72) a *cha*-passivized PV, each embedding a transitive type2.

- (71) x-∅-’il-le y-uu ix Mikin a-ma’-on
 PERF-B3-see-PASS A3-by NCL Micaela A2-hit-SUF
 in-an
 B1-CL1s
 ‘Micaela (accidentally) saw you hitting me.’
 (72) x-∅-’il-cha y-uu ix Mikin s-tzok’-on te’
 PERF-B3-see-PASS A3-by NCL Micaela A3-cut-SUF NCL
 si’ naj winaj
 firewood NCL man
 ‘Micaela managed to see the man cutting the wood.’

If the PVC subject instead of the whole type2 PVC functions as the subject of the passivized matrix PV, the subject is marked twice. As subject of the passivized PV and as subject of the PVC. Keeping in mind that in active PV constructions double objects are an option (cf. section 3.1.1), the occurrence of double subjects, i.e. subject of matrix PVs and of PVCs, is not surprising. All three passive constructions behave alike. The examples in (73) all exhibit set B pronominal affixes for second person, *ach*, on the passivized PV which are coreferential with the set A pronominal *a-* (for consonant-initial roots) of the transitive type2 PVC.

- (73) a. x-ach-'il-le a-ma'-on in-an
 PERF-B2-see-PASS A2-hit-SUF B1-CL1s
 'You were seen hitting me.'
- b. x-ach-'il-cha a-ma'-on in-an
 PERF-B2-see-PASS A2-hit-SUF B1-CL1s
 'You were caught hitting me.'
- c. il-b'il-ach a-ma'-on in-an
 see-PASS/PF-B2 A2-hit-SUF B1-CL1s
 'You have been seen hitting me (at least once).'

The same applies to intransitive type2 PVCs. Set A pronominal prefixes on the PVC verb express the PVC subject while set B pronominal affixes on the passivized PV are coreferential with them. In example (74) these prefixes are *aw-* (for vowel-initial roots) on the PVC verb and *ach* on the passivized matrix PV.

- (74) a. x-ach-il-le aw-'el-toj
 PERF-B2-see-PASS A2-leave-DIR
 'You were seen leave.'
- b. x-ach-il-cha aw-'el-toj
 PERF-B2-see-PASS A2-leave-DIR
 'You were caught (by vision) leaving.'
- c. il-b'il-ach aw-'el-toj
 see-PASS/PF-B2 A2-leave-DIR
 'You were spied on (when) leaving.'
 or: 'You were guarded (while) leaving.'

As can be observed in the translations of examples (73-b) and (74-b), the *cha*-passive's adversative sense is expressed by the verb 'caught', i.e. the perception was to the detriment of the one perceived. The *b'il*-passive even obtains two interpretations as depicted in example (74-c). The general notion is one of being watched, either in the sense of spying or in the sense of guarding.

The translations of the *le*-passive in example (75) illustrate that in Akatek *il* 'see' is a passive as well as an active PV, i.e. it can express either accidental seeing or purposeful seeing. The same observations apply to the examples in (76).

- (75) x- \emptyset -’il-le \emptyset -s-tzok’-on si’ naj winaj
 PERF-B3-see-PASS B3-A3-cut-SUF firewood NCL man
 ‘The man was seen cutting wood.’
 or: ‘The man was watched (guarded, checked on) cutting wood.’
- (76) a. x- \emptyset -’il-le s-wey naj Xhunik
 PERF-B3-see-PASS A3-sleep NCL John
 1. ‘Juan was seen sleeping.’
 2. ‘Juan was watched (taken care of) (while) sleeping.’
- b. x- \emptyset -’il-cha s-wey naj Xhunik
 PERF-B3-see-PASS A3-sleep NCL John
 ‘Juan was caught sleeping.’
- c. il-b’il- \emptyset s-wey naj Xhunik
 see-PASS/PF-B3 A3-sleep NCL John
 1. ‘Juan has/d been seen sleeping.’
 2. ‘Juan is being watched (taken care of) (while) sleeping.’

I have shown that there are three different types of passive constructions in Akatek: the *le*-passive, the adversative *cha*-passive and the perfective *b’il*-passive. All three passives can occur as PVCs. The *b’il*-passive, however, functions like a nonverbal predicate and is therefore no type2 PVC. In case the matrix PV is passivized, all three passive constructions are grammatical. Either the whole PVC can then function as the subject of the passivized PV or only the PVC subject. Thus, regarding passivization of PVCs, Akatek is very different from English, where those constructions are highly restricted. In the next section I investigate the ability of three more non-active voice constructions in Akatek to occur within complex constructions of PVs and type2 PVCs.

3.1.6. *Antipassive*. In general, antipassives (APs) are defined as de-transitivized verbs with the ‘new’ subject being the subject of the former transitive instead of the object of the former transitive - as is the case in passive constructions. ZAVALA (1997) distinguishes three different types of APs in Akatek: the ABSOLUTE AP, the INCORPORATING AP, and the DEMOTED PATIENT AP. In the following I present the structural properties of APs before I investigate whether PVs and PVCs can be antipassivized.

The ABSOLUTE AP is a construction consisting of a transitive verb suffixed with the AP morpheme *-w(i)* and marked like any intransitive verb with set B pronominal affixes only. The optionally occurring lexical NP refers to the subject of the former transitive clause. A typical example is given in (77).

- (77) ta chi-on-lo'-w on
 COND IMPF-B1p-eat-AP CL1p
 'If we eat ...' PENALOSA & SAY (1992)

In the INCORPORATING AP, whose verb is marked by the AP suffix *-w(i)*, the former direct object, i.e. usually the patient denoting NP, has to be directly postverbal and cannot take NCLs. However, there is no corresponding pronominal verbal affix for the patient. The set B marker on the detransitivized verb encodes the agent denoting subject. As can be seen in example (78), the semantic agent *no' txitam* 'the pig' of the transitive construction is the subject, unrealized on the verb since third person set B pronominal affixes are zero. The patient of the transitive construction, *aan* 'corncob', is not realized on the verb at all. This means that for first and second person patients this construction is not an option due to the lack of first and second person pronouns. *Aan* 'corncob' cannot take an article or a noun classifier nor can it be moved away from the verbal complex in the incorporating AP construction.

- (78) x-∅-nooch-wi aan no' txitam
 PERF-B3-eat.biting-AP corncob NCL pig
 'The pig was eating the corncob.' ZAVALA (1997), 456

The third type of AP is called DEMOTED PATIENT AP, since in this construction, the patient surfaces as an oblique NP marked with the preposition *iin* 'in'. The verb is marked either with a *-wa* or with a *-wi* suffix. In example (79), the patient *aan* 'corncob' can take a noun classifier *ixim* and is part of the PP *yiin ixim aan*.

- (79) x-∅-nooch-wa no' txitam y-iin ixim aan
 PERF-B3-eat.biting-AP NCL pig A3-LOC NCL corncob
 'The pig was eating on the corncob.' ZAVALA (1997), 456

In the demoted patient AP, the patient is made explicit, while in the incorporating AP it is less explicit, in that it cannot be marked. In the absolutive AP the patient is completely suppressed.

Table 6 provides a summary of the structures of APs in Akatek compared to the structure of an active transitive construction. Generally, the verbal suffix *w(i)/wa* detransitivizes the verb, which then takes only a set B pronominal affix instead of both set B and set A affixes. Accordingly, it can only have one adjunct NP. In AP constructions this only remaining NP is the subject NP of the former active transitive, usually denoting the agent, while the patient denoting object NP of

the former active transitive is either completely suppressed like in the absolutive AP or it can be present in the construction in two different ways. Either the noun is devoid of classifiers and numerals and is an integral part of the verbal complex (+ PatNP) as in the incorporating AP, or the patient is an oblique PP with the preposition *iin* ‘in’ (A-*iin* (PAT-noun)), which is then called a demoted patient AP construction.

TABLE 6. Antipassive (AP) constructions

Voice	Verbal complex and lexical adjuncts
Active transitive	ASP-B-A-V _{tr} (AGT-NP) (PAT-NP)
Absolutive AP	ASP-B-V _{tr-w(i)} (AGT-NP)
Incorporating AP	ASP-B-V _{tr-wi} + PAT-noun (AGT-NP)
Demoted patient AP	ASP-B-V _{tr-wi/wa} (AGT-NP) A- <i>iin</i> (PAT-NP)

The following two questions are central to the present investigation regarding AP constructions: Does the PVC antipassivize? Does the PV antipassivize?

Example (80-a) shows an active transitive type2 PVC, the verb is suffixed by *-on*, the set A marker is prefixed, the set B marker follows. If embedded under a matrix predicate as a type2 complement, an AP construction cannot use set B pronominal affixes like *ach* as is shown in example (80-b). Instead, it must use the set A prefix *a-* to be grammatical as can be observed in example (80-c).¹¹

- (80) a. x-∅-y-il ix a-ma'-on in an
 PERF-B3-A3-see she A2-hit-SUF B1 CL1s
 ‘She saw you hitting me.’
 b. * x-∅-y-il ix ach-ma'-wi w-iin an
 PERF-B3-A3-see she B2-hit-AP A1-in CL1s
 ‘She saw you hitting me.’

¹¹There is a meaning difference between active type2 and AP type2 complements as illustrated in example (i). While the active type2 is translated as ‘she heard the boy ask for work’, the AP type2 changes the sense to ‘she heard the boy inquire about his job’ indicating that the job had been promised to him before. Since this difference does not affect the EVENT interpretation of the complement type, it has not been explored in more detail.

- (i) a. x-∅-y-ab' ix s-q'an-on naj unin s-mulna-il
 PERF-B3-A3-hear she A3-ask-SUF NCL boy A3-work-NMZR
 ‘She heard the boy ask for work.’
 b. x-∅-y-ab' ix s-q'an-wa naj unin y-iin s-mulna-il
 PERF-B3-A3-hear she A3-ask-AP NCL boy A3-in A3-work-NMZR
 ‘She heard the boy inquire about his job.’

- c. x- \emptyset -y-il ix a-ma'-wi w-iin an
 PERF-B3-A3-see she A2-hit-AP A1-in CL1s
 'She saw you hitting me.'

Antipassivization of the type2 complement is grammatical for the absolutive AP as is demonstrated in examples (81-a) and (81-b). The suffix *-on* of the type2 complement is substituted for the AP suffix *-wi*. Instead of the set B pronominal affix, which usually marks AP constructions, a type2 AP is marked with set A like other intransitive type2 complements and like passive type2 complements. As example (81-c) shows, double object marking is also grammatical in AP constructions. The set B prefix *ach-* of the matrix PV, which denotes the direct object, is coreferential with the set A prefix *a-* of the AP type2 PVC, which denotes the subject of the type2 PVC.

- (81) a. x- \emptyset -y-il ix Mikin a-ma'-wi
 PERF-B3-A3-see NCL Micaela A2-hit-AP
 'Micaela saw you hitting.'
- b. x- \emptyset -y-il ix Mikin s-tzok'-wi naj winaj
 PERF-B3-A3-see NCL Micaela A3-cut-AP NCL man
 'Micaela saw the man cutting.'
- c. x-ach-y-il ix Mikin a-ma'-wi
 PERF-B2-A3-see NCL Micaela A2-hit-AP
 'Micaela saw you hitting.'

Incorporating AP of type2 is not an option for first and second person direct objects, since these have no independent lexical realizations. If the patient is a third person which can be lexically instantiated, type2 incorporating AP constructions are grammatical as illustrated in example (82). The type2 incorporating AP shows the following characteristics: the verb is detransitivized via the AP suffix *-wi*, consequently, only one argument is marked on the verb, this is done via a set A pronominal affix. The patient noun *si'* 'firewood' is semi-incorporated, while the agent denoting subject NP is lexically instantiated as *naj winaj* 'the man'.

- (82) x- \emptyset -y-il ix Mikin s-tzok'-wi si' naj
 PERF-B3-A3-see NCL Micaela A3-cut-AP firewood NCL
 winaj
 man
 'Micaela saw the man cutting firewood.'

Type2 PVCs can also be demoted patient AP constructions. Examples (80-c), repeated here as (83), and (84) illustrate a demoted first (*wiin an*) and third (*yiin te' te'*) person patient, respectively. As before, the intransitive AP construction of type2 is marked with set A pronominal affixes like the active intransitive type2 construction. As can be seen in the examples, both AP suffixes, *-wa* and *-wi*, are acceptable.

(83) x-∅-y-il ix Mikin a-ma'-wa/ -wi w-iin an
 PERF-B3-A3-see NCL Micaela A2-hit-AP/ -AP A1-in CL1s
 'Micaela saw you hitting me.'

(84) x-∅-y-il ix Mikin s-tzok'-wa/ -wi naj winaj
 PERF-B3-A3-see NCL Micaela A3-cut-AP/ -AP NCL man
 y-iin te' te'
 A3-in NCL firewood
 'Micaela saw the man cutting the tree.'

An absolutive AP of the PV *il* 'see' is shown in (85). The perceiver is the only argument of the verb. The antipassivization of the matrix PV of a complex construction involving a PVC is ungrammatical, since the PVC constitutes the direct object of the PV, which in AP constructions is either completely absent, semi-incorporated, or demoted to an oblique construction.

(85) x-ach-il-wi el-toj
 PERF-B2-see-AP DIR-DIR
 'You kept looking out.'

However, the antipassivized PV can take a type3 complement, which does not occur with active PV:

(86) x-∅-'il-wi tzok'-o si' ix Mikin
 PERF-B3-see-AP cut-TNF firewood NCL Micaela
 'Micaela watched the cutting of the wood.'

Type3 complements lack person marking, and semi-incorporate the object NP similar to the way this is done in the incorporating AP construction. Transitive type3 verbs obtain the transitive non-finite suffix *-o* (TNF) instead of the type2 suffix *-on*, the former direct object has to occur in the immediate postverbal position and cannot take any determiners. The former subject is unspecified as can be seen in example (86). Example (87) illustrates that a demoted patient AP matrix PV cannot take a type2 PVC, which would have to be present

in such a construction as an oblique argument taking the preposition *iin* ‘in’.

- (87) * x-Ø-'il-wa ix Mikin y-iin aw-el-toj
 PERF-B3-see-AP NCL Micaela A3-in A2-leave-DIR
 ‘Micaela saw you leaving.’

I have shown that antipassivization of type2 PVCs is grammatical in Akatek. As opposed to passive constructions, however, the PV cannot be antipassivized without suppressing the PVC.

3.1.7. *Cleft*. Another transformation process that can affect complex perception constructions is clefting. As illustrated in example (88), a perception construction involving an NI-PVC in English can cleft either the PVC subject, or the PVC object, or the whole PVC.

- (88) a. M saw [J do X].
 b. It was [J] that M saw [do X].
 c. It was [X] that M saw [J do].
 d. It was [J do X] that M saw.

The question I investigate in this section is whether similar clefting processes are grammatical in Akatek. As was mentioned in chapter 4, unlike English, Akatek does not have relative pronouns. However, Akatek does have a special cleft particle, *ja'* (CFT), which renders the identification of cleft constructions unambiguous. First of all, cleft constructions in independent active transitive and intransitive sentences are presented. Then, I present the abilities of type2 PVCs to be either partially or completely clefted.

The most marked cleft construction is to cleft the subject of transitive verbs, usually denoting the agent (ZAVALA, 1992b). When the subject of a transitive verb is clefted, it is put into the preverbal cleft position accompanied by the cleft particle *ja'*. The transitive verb obtains the suffix *-on* and marks only the direct object with a set B prefix. The subject does not have a referent within the verbal complex as can be gathered from the absence of a set A marker in example (89). Note that only third person set B markers are unrealized, set A markers are never unrealized. Example (89) does not conclusively show that the zero B3 marker on the verb denotes the object NP adjunct *naj Xhunik* ‘John’ and not the clefted subject *ix Malin* ‘Mary’. Evidence for this analysis is derived from constructions involving first or second person objects, which are realized on the verb. This is illustrated further below.

- (89) [ja'-∅ ix Malin] x-∅-ma'-on [naj Xhunik]
 [CFT-B3 NCL Mary] PERF-B3-hit-SUF [NCL John]
 'It is Mary who hit John.' ZAVALA (1992b), 258

If the direct object of a transitive verb is clefted, the verbal morphology remains unchanged in comparison to a 'basic' construction, as illustrated in example (90). Thus, cleft constructions involving the direct object are distinguished from cleft constructions involving the subject by changes in the morphology of the transitive verb: subject cleft is marked, object cleft is unmarked.

- (90) [ja'-∅ naj Xhunik] x-∅-s-ma' [ix Malin]
 [CFT-B3 NCL John] PERF-B3-A3-hit [NCL Mary]
 'It is John who Mary hit.' ZAVALA (1992b), 257

If the subject of an intransitive verb is clefted, compared to the clefting of the subject of a transitive verb, no changes in verbal morphology occur, since there is no need to distinguish between subject and object cleft.

- (91) [ja'-∅ naj Xhunik] x-∅-wey-i
 [CFT-B3 NCL John] PERF-B3-sleep-ITV
 'It is John who fell asleep.' ZAVALA (1992b), 216

Third person arguments are always clefted by *ja'*, which appears without a suffix due to the fact that third person set B markers are unrealized. Usually, a lexical instantiation of the clefted constituent follows the cleft particle, e.g. *naj Xhunik* 'John' in (91). For first and second person arguments, the morphology of the cleft particle changes as shown in Table 7, resulting in cleft pronouns for first and second person.¹² Table 8 provides an overview of cleft constructions of transi-

TABLE 7. Clefted first and second person pronouns and clitics (ZAVALA (1992b), 225)

Person/Number	CFT + B	CL	⇒	PRO CL
1s	ja' + in	an	⇒	jein an
2s	ja' + ach		⇒	jach
1p inclusive	ja' + on	(wej)	⇒	jeon (wej)
1p exclusive	ja' + on	on	⇒	jeon on
2p	ja + ach	wej	⇒	jexh wej

¹²Recall that there are no independent pronouns for first and second persons in Akatek. Clefted pronouns depend on the cleft particle *ja'*.

tive and intransitive verbs compared to the structure of normal active transitive clauses. The clefted argument, i.e. a set B marker and its

TABLE 8. Cleft constructions compared to active constructions in Akatek

	Cleft	Verbal complex	Lex. adjuncts
Active trans.		ASP-B-A- V_{tr}	(NP) (NP)
Subject cleft	<i>ja'</i> -B (NP)	ASP-B- V_{tr} - <i>on</i> (-ITV)	(NP)
Object cleft	<i>ja'</i> -B (NP)	ASP-B-A- V_{tr}	(NP)
Active intrans.		ASP-B- V_{intr}	(NP)
Cleft	<i>ja'</i> -B (NP)	ASP-B- V_{intr} (-ITV)	

lexical adjunct, is marked with the cleft particle *ja'* (*ja'*-B (NP)) and is located in the preverbal position. Transitive subject clefts are marked by detransitivization in combination with the verbal suffix *-on*, which also marks transitive type2 complements. The difference between subject cleft and type2 PVCs is that type2 complements marked with *-on* are still transitive, while cleft construction verbs marked with *-on* are intransitive. In the subject cleft construction, only the former direct object remains present within the verbal morphology in form of a set B prefix and a corresponding optional lexical adjunct (represented as (NP) in Table 8).

Similar to the investigation of passive and antipassive complex perception constructions in sections 3.1.5 and 3.1.6, in this section I investigate whether the PVC subject can be clefted, or the PVC object, or the whole PVC.

Clefting the subject of an intransitive type2 PVC simply extracts the subject denoting NP to the front position of the complex construction. The cleft marker *ja'* is either unmarked for third person like in example (92), or marked for first or second person, then taking the form of the cleft pronouns described in Table 7.

- (92) *ja'*- \emptyset naj Xhunik x- \emptyset -y-il ix Mikin
 CFT-B3 NCL John PERF-B3-A3-see NCL Micaela
 s-mulna-i
 A3-work-ITV

‘It was John whom Micaela saw work.’

Subjects of transitive type2 can also be clefted. This is a more complicated process, however. Example (93-a) illustrates an independent

transitive clause, which underwent subject cleft in (93-b). The ungrammaticality of (93-c) demonstrates, that the subject denoting pronominal affix cannot be marked on the verb any longer.

- (93) a. ach-in-ma' an
B2-A1-hit CL1s
'I hit you.'
- b. jein ach-ma'-on an
PRO1s B2-hit-SUF CL1s
'It was me who hit you.'
- c. *jein ach-in-ma'-on an
PRO1s B2-A1-hit-SUF CL1s
'It was me who I hit you.'

In example (94) a transitive type2 construction is embedded by the PV *il* 'see'. In the cleft construction in (95), it is obvious that even though the subject of the type2 complement has been extracted in the form of *jein* 'it's me', it still is marked on the complement verb via the pronominal affix *-in* as well. Trying to leave the subject marking on the complement out as done in example (96) renders the construction ungrammatical.

- (94) x-∅-y-il ix Mikin ach-in-ma'-on an
PERF-B3-A3-see NCL Micaela B2-A1-hit-SUF CL1s
'Micaela saw me hit you.'
- (95) jein (x-)∅-y-il ix Mikin ach-in-ma'-on an
PRO1s PERF-B3-A3-see NCL Micaela B2-A1-hit-SUF CL1s
'It was me who Micaela saw (me) hit you.'
- (96) *jein (x-)∅-y-il ix Mikin ach-ma'-on an
PRO1s PERF-B3-A3-see NCL Micaela B2-hit-SUF CL1s
'It was me who Micaela saw (me) hit you.'

As opposed to the extraction of a first person subject into the preverbal cleft position, a third person subject can be extracted and optionally be marked on the complement verb as illustrated in example (97) by the round brackets around the subject pronominal affix *s*.

- (97) ja'-∅ naj Xhunik x-∅-y-il ix Mikin
CFT-B3 NCL John PERF-B3-A3-see NCL Micaela
ach-(s-)ma'-on-i
B2-A3-hit-SUF-ITV
'It was John whom Micaela saw hit you.'

Example (97) shows that a transitive type2 PVC with its subject being clefted is optionally still marked for the subject. If the subject marking is left out, the type2 PVC is only marked for the (former) direct object and is thus intransitive. In this case, the pronominal affix does not change from set B to set A marking as is typical for intransitive type2 PVCs. Support for this analysis comes from the fact that example (98), which could be analyzed as detransitivized due to subject cleft and therefore marked with set A marking typical of intransitive type2 complements, is ungrammatical if interpreted as subject cleft. In fact, (98) shows an object cleft construction, which is grammatical in the reading ‘It was me who Micaela saw you hit (me)’.

- (98) jein (x-)∅-y-il ix Mikin a-ma'-on an
 PRO1s PERF-B3-A3-see NCL Micaela A2-hit-SUF CL1s
 ‘*It was me who Micaela saw (me) hit you.’
 ‘It was me who Micaela saw you hit (me).’

Clefting the object of an independent transitive clause normally does not affect the structure of the construction as illustrated in example (99).

- (99) ja'-∅ te' si' x-∅-y-il ix Mikin
 CFT-B3 NCL firewood PERF-B3-A3-see NCL Micaela
 ∅-s-tzok'-on naj Xhunik
 B3-A3-cut-SUF NCL John
 ‘It was firewood what Micaela saw John cutting.’

However, the situation becomes again more complicated when first and second person arguments of type2 complements are considered. Example (100-a) shows a clefted object of a transitive type2 parallel to the one shown in example (99). Sentence (100-b) demonstrates that the pronominal affix denoting the direct object of the transitive type2 complement can also be omitted, so that instead of *achsma'on* in (100-a) the result is *sma'on*.

- (100) a. jach x-∅-y-il ix Mikin ach-s-ma'-on
 PRO2s PERF-B3-A3-see NCL Micaela B2-A3-hit-SUF
 naj Xhunik
 NCL John
 ‘It was you who Micaela saw John hitting (you).’

- b. jach \emptyset -y-il ix Mikin s-ma'-on naj
 PRO2s B3-A3-see NCL Micaela A3-hit-SUF NCL
 Xhunik
 John
 'It was you who Micaela saw John hitting (you).'

The direct object of the complement clause can be raised to the position of the direct object of the matrix predicate as demonstrated in (101-a). It is ungrammatical to retain the object marking on the type2 complement (101-b), which is possible in example (100-a), where no object raising has occurred.

- (101) a. jach x-ach-y-il ix Mikin s-ma'-on
 PRO2s PERF-B2-A3-see NCL Micaela A3-hit-SUF
 naj Xhunik
 NCL John
 'It was you whom Micaela saw John hit.'
- b. *jach x-ach-y-il ix Mikin
 PRO2s PERF-B2-A3-see NCL Micaela
 ach-s-ma'-on naj Xhunik
 B2-A3-hit-SUF NCL John
 'It was you whom Micaela saw John hit.'

The whole type2 complement can also be clefted as demonstrated in example (102) for the intransitive complement *aweltoj* 'your leaving' and in (103) for the transitive complement *atzok'on si'* 'your cutting firewood'. These constructions indicate that the perception happens precisely at the moment when the perceived EVENT takes place. With a type2 complement denoting an EVENT that has no concrete beginning and end as e.g. *amulna* 'your working', PVC cleft is unacceptable as shown in example (104).

- (102) ja'- \emptyset aw-el-toj (x)- \emptyset -y-il ix Mikin.
 CFT-B3 A2-leave-DIR PERF-B3-A3-see NCL Micaela
 'Micaela saw you leaving (at the moment you were leaving).'
- (103) ja'- \emptyset \emptyset -a-tzok'-on si' (x)- \emptyset -y-il ix
 CFT-B3 B3-A2-cut-SUF firewood PERF-B3-A3-see NCL
 Mikin.
 Micaela
 'Micaela saw you cutting firewood (at the moment you were cutting wood).'

- (104) * ja'-Ø a-mulna x-Ø-y-il ix Mikin
 CFT-B3 A2-work PERF-B3-A3-see NCL Micaela
 'Micaela saw your working.'

In sum, I have demonstrated that the subject or the object of a type2 PVC or even the whole type2 PVC can be clefted.

3.1.8. *Summary.* A summary of the structural criteria used for the characterization of type2 PVCs in Akatek is given in Table 9. Type2 PVCs are nominal adjuncts. Regarding the typology of complementation presented in chapter 2, section 4.2, type2 PVCs are nominalizations (NMLZs). This complement type lacks complementizers as well as aspect marking. The aktionsart markers for the durative or the iterative are grammatical. Neither determiners, nor pluralization occur. Regarding passive and antipassive I showed that the complete PVC can be passivized or antipassivized. If the PV is passivized, either the whole PVC or only PVC subject can be the PV subject. An antipassivized PV, on the other hand, can take no type2 complements. In complex perception constructions, type2 PVCs can be clefted either as wholes, or the subject or object of the PVC can be clefted.

TABLE 9. Structural characterization of type2 PVCs

Criterion	Type2 PVC
Constituency	nominal
Complementizer	-
Complement type	NMLZ
Aspect: PERF/IMPF	-
Tense-aspect: IMPFP	-
Tense: FUT	-
Aktionsart: DUR/ITE	+
Determiners	-
Pluralization	-
Passive PVC	+
Passive PV: whole PVC	+
Passive PV: PVC subject	+
Antipassive PVC	+
Antipassive PV	-
Cleft : PVC subject	+
Cleft : PVC object	+
Cleft : PVC	+

3.2. The suffix *-on*. The *-on* suffix - without exception - occurs only on transitive verbs, which can then additionally take the intransitive thematic vowel *-i*, if the verb is the final constituent, resulting in *-oni*. I have shown that the verbal suffix *-on* is a central structural property of transitive type2 constructions. The same suffix also occurs on transitive verbs when the subject is clefted or relativized. Also, *-on* optionally occurs on type2 CVCs as is shown in section 3.4.7. What I have not explicitly mentioned until now, is the fact that the same suffix occurs also on transitive verbs in independent basic sentences. In the present section I try to bring together what has been hypothesized about the role of the suffix *-on* hoping that the results help to more clearly characterize the status of type2 complements.

The main difference between type2 constructions on the one hand and relative and cleft constructions on the other is that the former structures retain person marking for two core arguments while the latter mark only one argument on the verb. This seems plausible considering the fact that in relativization and in cleft constructions the subject has been raised to the matrix predicate. The examples below illustrate this difference between a type2 complement construction (105), subject cleft (106), and relativization (107).

- (105) x- \emptyset -y-ab' ix Mikin \emptyset -s-txon-on si'
 PERF-B3-A3-hear NCL Micaela B3-A3-sell-SUF firewood
 naj winaj
 NCL man
 'Micaela heard the man selling firewood.'

- (106) ja'- \emptyset jun ti' hach-kol-on-oj y-iin y-ib'an
 CFT-B3 one DEM B2-help-SUF-IRR A3-in A3-on.top
 q'in-al
 life-VL
 'This one will help you all your life.'
 PENALOSA & SAY (1992)

- (107) x- \emptyset -s-chi naj winaj chi- \emptyset -ma'-on kam
 PERF-B3-A3-say NCL man IMPF-B3-hit-SUF die
 no' tu'
 PRO:animal DEM
 '... said the man who was killing the animal.'
 PENALOSA & SAY (1992)

The same extraction of the subject happens in Wh-questions like (108). The Wh-word is extracted from the postverbal argument position to

the preverbal topic or cleft position. As a result, only the direct object is marked on the verb (via set B markers), the verb is suffixed by *-on* and by the thematic vowel for intransitive verbs, *-i*.

- (108) maj x-in-ma'-on-i
 who PERF-B1-hit-SUF-ITV
 'Who hit me?' ZAVALA (1992b), 88

Similar constructions can be found with the existential *ey* in the preverbal topic position:

- (109) ey- \emptyset anima chi- \emptyset -'al-on-i tzub'il tol
 EX-B3 Sp:person IMPF-B3-say-SUF-ITV COMP COMP
 peena- \emptyset te' kape
 bad-B3 NCL Sp:coffee
 'There are people that say coffee is bad.' FRANCO (1993)

However, there are two notable exceptions. First, for first and second person subjects the changes, i.e. the suffix *-on* and detransitivization, are optional. Example (110) shows a cleft construction with the suffix *-on* and only set B person marking, while in example (111) the suffix does not occur and both set A and set B are marked on the verb.

- (110) jach x- \emptyset -'a'-on jun te' xuk e-in
 PRO2s PERF-B3-give-SUF one NCL large.basket to-B1
 an
 CL1s
 'It was you who gave me the large basket.'
 ZAVALA (1992b), 226

- (111) jein x- \emptyset -in-ma' ix Malin an
 PRO1s PERF-B3-A1-hit NCL Mary CL1s
 'It was me who hit Mary.' ZAVALA (1992b), 293

Second, if the direct object instead of the subject is clefted or relativized, neither the suffix *-on* occurs, nor does the verb become intransitive. This is evidenced by *max- \emptyset -s-q'oj* '(they) had thrown (him)' in example (112) and *\emptyset -s-lo'-ey-toj* '(he) ate (them)' in example (113).

- (112) man \emptyset -y-ootaj eb' ta ja'- \emptyset pax jun alkal
 NEG B3-A3-know they COND CFT-B3 also one Sp:mayor
 tu' max- \emptyset -s-q'oj kan-toj eb' tu'
 DEM PERF-B3-A3-throw DIR-DIR they DEM
 'They didn't know it was the mayor they had thrown
 away.' PENALOSA & SAY (1992)
- (113) x- \emptyset -w-il kaa-eb' ixim paat
 PERF-B3-A1-see two-NUMCL NCL tortilla
 \emptyset -s-lo'-ey-toj naj Xhunik an
 B3-A3-eat-DIR-DIR NCL John CL1s
 'I saw the two tortillas that John ate.'
 ZAVALA (1992b), 298

Finally, cases of subject cleft with the suffix *-on*, but also with both set A and set B pronominal affixes can be observed as in example (114). This example additionally illustrates another usage of the suffix *-on*, which is related to the conjunction *katu'* 'and then'. In section 3.4, the conjunction *katu'* is listed among the environments in which type2 constructions can occur. An example for *katu'* followed by a transitive type2 construction is provided in (114).

- (114) ja'- \emptyset naj in-y-i'-on aa-tej y-uul ja'
 CFT-B3 he B1-A3-carry-SUF DIR-DIR A3-inside water
 an katu' in-y-i'-on toj naj b'ey naa an
 CL1s CONJ B1-A3-carry-SUF DIR he at house CL1s
 'He was the one who took me out of the water and then
 (he) took me home.' FRANCO (1993)

The occurrence of type2 constructions after the conjunction *katu'* also explains a different usage of the suffix *-on*. In example (116) *katu'* is absent, the transitive verb is marked for aspect, which proves that it is not a type2 complement, with both set A and set B pronominal affixes, and with the suffix *-on*. A look at the preceding discourse reveals a possible explanation. Sentence (115) immediately precedes sentence (116) in the story from which they were taken. Note that (115) is marked by imperfective aspect and (116) by perfective aspect. The situation depicted is such that he is in the process of feeding the animals when he starts thinking of something mischievous. The role of the *-on* is to connect sentence (116) to the preceding sentence (115).

- (115) chi- \emptyset -y-a' \emptyset -lo'-w-oj
 IMPF-B3-A3-put B3-eat-AP-IRR
 'He feeds them.' PENALOSA & SAY (1992)
- (116) max \emptyset -s-na'-on aa tx'itaj-al
 PERF B3-A3-think-SUF DIR rascal-VL
 'It occurred to him to do something mischievous.'
 PENALOSA & SAY (1992)

Another piece of discourse is provided in examples (117) to (119). Here, all three sentences are marked by perfective aspect. Once the event depicted in sentence (117) is finished, then the same subject continues with a different action in sentence (118). And sentence (118) is marked by *-on*. In the third example, (119), the continuing action of still the same subject is described, and the sentence is also marked with the suffix *-on*.

- (117) max \emptyset -wey y-etoj ox-wan ix tu'
 PERF B3-sleep A3-with three-NUMCL woman DEM
 'He slept with the three women.'
 PENALOSA & SAY (1992)
- (118) max \emptyset -y-i'-on-tej piocha tu'
 PERF B3-A3-carry-SUF-DIR Sp:pick DEM
 'He fetched the picks ... ' PENALOSA & SAY (1992)
- (119) max \emptyset -ek' \emptyset -y-a'-on kan b'ey patron tu'
 PERF B3-cross B3-A3-put-SUF DIR at Sp:boss DEM
 '... and brought them to the boss.'
 PENALOSA & SAY (1992)

I claim that the suffix *-on* has an additional discourse function connecting actions of the same referent - similar to the way *katu'* does - as shown in examples (117) to (119), or - depending on aspect marking - indicating that two EVENTS take place simultaneously as illustrated in examples (115) and (116). This second function of *-on* establishes anaphoric reference.

Diachronically, the *-on-i* was a nominalizer that has been reconstructed as Proto-Mayan (*PM) *-(V)n (SMITH-STARK, 1978; ZAVALA, 1992b). The following hypothesis regarding the diachronic status of the suffix *-on* has been suggested (SMITH-STARK, 1978), 182f.:

PM had an agentive voice suffix, *-(V)n, which could be added to transitive stems to form an intransitive stem. The agentive voice was employed whenever the agent was

questioned, relativized, or clefted, as long as at least one of the arguments was third person. The agentive voice verb cross-referenced the agent, though the patient is still expressed or implied with no overt modification.

Smith-Stark's considerations did not include all aspects of antipassives, such as nominalization (SMITH-STARK, 1978). In sum, the diachronic analysis of the suffix *-on* explains the synchronic usage of this suffix in question formation, relativization, and cleft in Akatek. Note that these syntactic processes only result in antipassive structures, i.e. in detransitivized constructions, when the subject is questioned, relativized, or clefted. The role of the *-on* in type2 complements and in discourse, where the verb is not detransitivized, remains unexplained.

Synchronically, **(V)n* developed into a suffix *-ni* in many Mayan languages, e.g. in Jakaltek. In Jakaltek, the suffix corresponding to *-on-i* is *-n(i)*. A synchronic analysis of the suffix *-n(i)* in Jakaltek (CRAIG, 1976a) shows a high degree of overlap with the function of *-on(-i)* in Akatek. However, CRAIG (1976a) carefully distinguishes between two homophonous *-n(i)* suffixes. One marks operations on subjects of transitives, the other marks transitive type2 complements and verbs of coordinated transitive clauses. In the latter case both subject and object pronominal affixes occur on the suffixed verb, while in the former only the object pronominal affix remains. This remaining of the object pronominal affix on the verb is appropriate for intransitive verbs, which take set B affixes as their only arguments. As shown in the examples below, Jakaltek marks all operations on subjects of transitives, the set A pronominal affix is deleted and *-n(i)* is suffixed to the verb (CRAIG, 1976a). This is the case in relativization (120-a), clefting (120-b) and question formation (120-c).

- (120) a. x- \emptyset -ul naj x- \emptyset -'il-ni ix
 PERF-B3-arrive he PERF-B3-see-SUF she
 'He who saw her arrived.'
- b. ja'- \emptyset naj x- \emptyset -'il-ni ix
 CFT-B3 he PERF-B3-see-SUF she
 'It is he who saw her.'
- c. mac x- \emptyset -'il-ni ix
 who PERF-B3-see-SUF she
 'Who saw her?' CRAIG (1976a), 143f.

The function of the *-n(i)* suffix is to resolve the ambiguity resulting from the deletion or movement of postverbal NPs of transitive verbs (CRAIG, 1977). NPs are not marked for case. If both arguments are

third person and instead of two NPs only one NP occurs, it is unclear in some cases whether the NP needs to be interpreted as O or as S. If the same three operations, i.e. relativization, clefting, and question formation, are performed on the object NP, the object is simply omitted and there are no changes on the verb. In other words, the suffix *-n(i)* does not occur and the verb stays marked with both set A and set B pronominal affixes, as shown in (121).

- (121) x- \emptyset -ul ix x- \emptyset -y-il naj
 PERF-B3-arrive she PERF-B3-A3-see he
 ‘The woman that he saw arrived.’ CRAIG (1976a), 144

The occurrence of *-ni* allows to disambiguate third person object NPs from third person subject NPs in extraction processes (CRAIG, 1976a). For first and second person subjects there is no need for disambiguation, so that the *-n(i)* does not occur in these cases in Jakaltek.

In sum, I have identified three main environments for the occurrence of the suffix *-on* in Akatek: in extraction processes affecting transitive subjects, in type2 complements and in coordinated constructions. In extraction processes *-on* serves to distinguish subject extraction from object extraction. In the latter two environments, i.e. in type2 complements and in coordinated constructions, the suffix indicates continuity and connectedness of two clauses, what I called temporal simultaneity in section 3.3.1. Diachronic work on the Mayan language family (SMITH-STARK, 1978) as well as synchronic work on the closely related language Jakaltek (CRAIG, 1976a) support the analysis of the Akatek suffix *-on* presented here.

3.3. Semantic characterization. For the semantic characterization of type2 PVCs, the following criteria are taken into consideration: temporal simultaneity, type of complement predicate, negation and modality. The central goal is to establish whether type2 PVCs are basically EVENT denoting or not. The perception of an EVENT is only possible while the EVENT itself is happening. Therefore, EVENT denoting complements must be cotemporal with their matrix PVs. The predicate of the PVC must express some change or transformation over time that can be observed, i.e. the predicate must be characterized as active, temporary and transient. Negation of EVENT denoting complements is impossible, unless the EVENT does not actually happen, so that either an implication of failure arises or someone refrained from doing something. Only temporal, degree or frequency adverbs are grammatical in EVENT denoting constructions. Sentential adverbs like *certainly*

or *possibly* can only occur with PROPOSITION denoting complements and not with EVENT denoting ones.

3.3.1. *Temporal simultaneity.* EVENTS can only be perceived during the time they happen. Consequently, EVENT denoting PVCs must be temporally simultaneous with their matrix perception predicate. The tense or aspect of the matrix clause determines the tense or aspect of the complement, i.e. in the simplest case the PVC does not have a temporal interpretation of its own like in English and is thus not able to differ in temporal interpretation relative to the matrix PV. On the syntactic level, the requirement for temporal simultaneity results in the complement's lacking overt tense or aspect marking. In English, NI-PVCs, *ing*-PVCs and PNOMs can neither be marked with the past tense morpheme *-ed* nor can they occur with the aspectual auxiliary *have*. In chapter 3, I stipulated that *ing*-PVC have an aspectual specification [+progressive], while NI-PVC are [-progressive].

What has been observed in English (cf. chapters 3), also applies to Akatek. Type2 PVCs that denote EVENTS generally lack tense or aspect marking, as has been shown in section 3.1.3. The durative and the iterative aktionsart markers are the only ones that are grammatical with type2 PVCs. In addition, two clitics indicating aktionsart in Akatek, which haven't been discussed before, illustrate the constraint on temporal simultaneity regarding EVENT denoting PVCs. Example (122) shows the clitic *to*, 'still', and example (123) the clitic *xa* 'already'. These aktionsart clitics can occur in various locations within the sentence, e.g. *to* is suffixed to the verb while *xa* is inserted between aspect and person prefix.

(122) \emptyset -q-il-to a-chop
 B3-A1p-see-still A2-buttocks
 'Let us see your buttocks.' PENALOSA & SAY (1992)

(123) chi-xa-hach-w-il-ol-oj
 IMPF-already-B2-A1-see-DIR-IRR
 'I'll see you when I return.' PENALOSA & SAY (1992)

The ability of aktionsart clitics such as *to* and *xa* to occur with type2 PVCs depends on their meaning. The particle *xa* 'already' for example cannot be used in place of *to* 'still' in the PVC shown in (124), because *xa* makes an interpretation of simultaneity impossible.

(124) x- \emptyset -y-il ix Mikin to/ *xa aw-'el-toj
 PERF-B3-A3-see NCL Micaela still/ already A2-leave-DIR
 'Micaela still saw you leave.'

3.3.2. *Type of complement predicate.* The type of PVC predicate was identified as one of the characteristics that distinguish EVENT denoting PVC types from PVC types denoting PROPOSITIONS in English (refer to chapter 3). EVENT denoting PVCs must have predicates that describe some perceivable change or transformation over time, i.e. EVENT denoting predicates are characterized as temporary, active and transient. This means that stative predicates or those describing imperceptible states cannot occur in complement types that are restricted to an EVENT interpretation. Especially verbs expressing mental states like *know* should not occur in such a complement type.

A verb of cognition like *ootaj* ‘know’ cannot be the predicate of type2 PVCs as shown in the ungrammaticality of example (125-a). The parallel type1 PVC with a complementizer and without the verbal suffix in (125-b) is acceptable.

- (125) a. * x- \emptyset -y-il ix Mikin naj Xhunik
 PERF-B3-A3-see NCL Micaela NCL John
 \emptyset -y-ootaj-on naj pale
 B3-A3-know-SUF NCL priest
 ‘Micaela saw John know the priest.’
 b. x- \emptyset -y-il ix Mikin tol \emptyset -y-ootaj
 PERF-B3-A3-see NCL Micaela COMP B3-A3-know
 naj pale naj Xhunik
 NCL priest NCL John
 ‘Micaela saw that John knows the priest.’

For a predicate like *kus* ‘be sad’, on the other hand, both types of complements are acceptable. It can either be a type1 PVC with optional complementizers as depicted in example (126-a), or a type2 complement as in (126-b).

- (126) a. x- \emptyset -y-il naj Luin (tsub’il/ tol)
 PERF-B3-A3-see NCL Pedro (COMP/ COMP)
 chi- \emptyset -kus ix Mikin
 IMPF-B3-be.sad NCL Micaela
 ‘Peter saw that Micaela was sad.’
 b. \emptyset -y-il ix Mikin s-kus ix unin
 PERF-B3-A3-see NCL Micaela A3-be.sad NCL child
 ‘Micaela saw the child being sad.’

The predicate *howi* ‘be angry’ is marginally grammatical in type2 PVCs as in example (127-a). If the directional *el* ‘exit’ (DIR) is added

to *howi* as demonstrated in example (127-b), then verb obtains an inchoative interpretation, so that the process is made explicit and the sentence is fully grammatical.

- (127) a. ? \emptyset -y-il ix Mikin s-howi ix unin
 B3-A3-see NCL Micaela A3-be.angry NCL child
 ‘Micaela saw the boy being angry.’
 b. y-il ix Mikin s-howi el ix unin
 B3-A3-see NCL Micaela A3-be.angry DIR NCL child
 ‘Micaela saw the girl getting/ becoming angry.’

I have shown that type2 PVCs in Akatek do not allow mental state verbs like *ootaj* ‘know’. This is an indication in favor of the analysis of type2 PVCs as exclusively EVENT denoting. Instead, the main verbs in type2 PVCs tend to be prototypical action predicates like *ma* ‘hit’, *tzok* ‘cut’, and *el* ‘leave’, which occur in most type2 PVCs in this chapter. Moreover, I have shown that predicates like *kus* ‘be sad’ and *howi* ‘be angry’ can occur in type2 and in type1 PVCs.

3.3.3. *Negation.* EVENT denoting complement types generally do not allow negation as has been shown for English in chapter 3. However, there are some exceptions. If the complement expresses that someone refrains from doing something, i.e. if the NI-PVC in example (128-a) is interpreted as in (128-b), then negation is grammatical.

- (128) a. John saw Mary not smoke. HIGGINBOTHAM (1983), 111
 b. John saw Mary refrain from smoking.

Another exception is that whenever an implication of failure is given, then EVENT denoting NI-PVCs can be negated:

- (129) I saw the car not start. HIGGINBOTHAM (1983), 111

Type2 PVCs cannot be marked with aspect. In chapter 4 I have shown that aspect interacts with negation in that for each of the three tense-aspect prefixes there is a different negative marker. Hence, a clause can only be negated if it has aspect. However, if a clause has aspect, it does not qualify as a type2 complement. As illustrated, the type2 PVC in (130-a) can only be negated with the negative morpheme *maa* in (130-b) if perfective aspect is added and the pronominal affix on the PVC verb changes from the set A for type2 to the set B for type1 PVCs.¹³

¹³In addition, there is a continuation requirement, i.e. something else needs to happen.

- (130) a. x- \emptyset -y-il ix aw-'el-toj
 PERF-B3-A3-see she A2-leave-DIR
 'She saw your leaving.'
- b. x- \emptyset -y-il ix maa-ach-el-toj katu'
 PERF-B3-A2-see she NEG-B2-leave-DIR CONJ
 x- \emptyset -too ix
 PERF-B3-go she
 'She saw you didn't leave and so she left.'

The verb *el* 'leave' can be negated, (130-b), because the perceiver can still see the person who did not leave. In the case of the verb *hul* 'arrive', the perceiver cannot actually see anybody. Therefore *hul* 'arrive' cannot be negated at all as a PVC. (131) shows a type2 PVC involving *hul* 'arrive'.

- (131) oj- \emptyset -haw-il s-hul eb'
 FUT-B3-A2-see A3-arrive.here they
 'You will see them come.'

In sum, type2 PVCs cannot be negated and the negation of type1 PVCs expressing perceivable EVENTS depends on whether someone or something can be physically perceived.

3.3.4. *Modality*. The purpose of this section is to investigate in what way type2 PVCs are subject to modal modification. One property of PROPOSITION denoting complement types is their ability to accept sentential adverbials like *certainly*, *probably*, or *likely*. Purely EVENT denoting complement types do not support this kind of modality. Modification with degree or frequency adverbials was analyzed in chapter 3 as characteristic of EVENT descriptions. Modal auxiliaries like *be able*, on the other hand, do not express something directly accessible to the senses and should therefore be excluded from modifying EVENT denoting complement types.

Constructions with the modal auxiliary *ske* 'be able' can be embedded under PVs as demonstrated in example (132-a).

- (132) a. x- \emptyset -y-il ix Mikin \emptyset -ske' a-mulna
 PERF-B3-A3-see NCL Micaela B3-be.able A2-work
 'Micaela saw you be able to work.'
 'Micaela saw (that) you can work.'
- b. * x- \emptyset -y-il ix Mikin a-ske' a-mulna
 PERF-B3-A3-see NCL Micaela A2-be.able A2-work
 'Micaela saw you be able to work.'

The auxiliary *ske'* functions as a matrix predicate for the type2 complement *amula* 'your working'. The role of *ske'* as a matrix predicate for type2 complements is explored in section 3.4.5. The complex construction consisting of *ske'* and its complement is not a type2 PVC as illustrated by the ungrammaticality of example (132-b). The set B pronominal affix of the modal auxiliary *ske'* cannot be changed to the set A pronominal affix *a-* denoting the subject of the PVC predicate *mulna* 'work'. In turn, *ske'* can optionally take aspect and a complementizer, as demonstrated in (133).

- (133) x- \emptyset -y-ab' ix Mikin tol chi- \emptyset -ske'
 PERF-B3-A3-hear NCL Micaela COMP IMPF-B3-be.able
 s-b'itni ix unin
 A3-sing NCL child
 'Micaela heard that the child can sing.'

The degree adverb *wal* 'really, a lot' can modify adjectives, nouns and verbs. Example (134) shows the latter two uses.

- (134) a. wal no' chee
 really NCL horse
 'There are a lot of horses.'
 b. wal chi- \emptyset -mulna naj
 really IMPF-B3-work he
 'He works a lot/ too much.'

Wal can modify type2 PVCs as can be seen in the examples in (135).

- (135) a. x- \emptyset -y-il ix Mikin wal a-ma'-on
 PERF-B3-A3-see NCL Micaela really A2-hit-SUF
 in-an
 B1-CL1s
 'Micaela saw how much you hit me.'
 b. x- \emptyset -y-ab' ix wal aw-ok'-i
 PERF-B3-A3-hear she really A2-cry-ITV
 'She heard how much you cry.'

Frequency adverbs like *juntajel* 'each time' in (136) or *hunel* 'once' in (137) can modify type2 complements.

- (136) x- \emptyset -y-il ix Mikin in-a-ma'-on juntajel
 PERF-B3-A3-see NCL Micaela B1-A2-hit-SUF each.time
 'Micaela saw every time you hit me.'

- (137) x-∅-y-il ix Mikin aw-'el-toj jun-el
 PERF-B3-A3-see NCL Micaela A2-leave-DIR one-time
 ch'an
 only
 'Micaela saw you hit me only once.'

Modification with *jaxkati* 'like this' is also grammatical and requires a demonstration of the way in which the perceived action was performed.

- (138) x-∅-y-il ix Mikin aw-'el-toj jaxkati'
 PERF-B3-A3-see NCL Micaela A2-leave-DIR like.this
 'Micaela saw you leave like this.'

A modality clitic that occurs with type2 PVC is the admirative clitic *la*. ZAVALA (1992b) describes the meaning of *la* as ranging from amazement to complaint or presumption. The admirative in example (139) has to be reflected in an adequate tone of voice expressing amazement, complaint, presumption or something in between when translated into English.

- (139) x-∅-y-il ix Mikin aw-'el-toj jaxka-ti'
 PERF-B3-A3-see NCL Micaela A2-leave-DIR like-DEM
 la
 ADM
 'Micaela saw you leave like this!'

As is typical for purely EVENT denoting PVC types, type2 PVCs in Akatek cannot be modified with the sentential adverb *tejan* 'possibly' as shown in (140-a). *Tejan* can modify the matrix PV as can be seen in (140-b).

- (140) a. * x-∅-y-il ix Mikin tejan
 PERF-B3-A3-see NCL Micaela possibly
 aw-el-toj
 A2-leave-DIR
 'Micaela saw you possibly leave.'
 b. tejan x-∅-y-il ix Mikin aw-el-toj
 possibly PERF-B3-A3-see NCL Micaela A2-leave-DIR
 ewi'
 yesterday
 'Possibly Micaela saw you leave yesterday.'

I have shown that type2 PVCs cannot be modified by the auxiliary *ske* ‘be able’, but by a number of frequency and degree adverbials. The inability to occur with sentential adverbials like *tejan* ‘possibly’ was identified as a defining feature of purely EVENT denoting PVCs. This prediction is borne out for type2 PVCs.

3.3.5. *Summary.* I have investigated the following properties for the semantic characterization of type2 PVCs: temporal simultaneity, type of complement predicate, negation, and modality. As the results in Table 10 show, temporal simultaneity is required, the PVC predicate must be perceivable, and negation as well as modification with modal auxiliaries and sentential adverbs are impossible. However, type2 can be modified with degree and frequency adverbials, which is a property of EVENT denoting complement types.

TABLE 10. Semantic characterization of type2 PVCs

Criterion	Type2 PVC
Temporal simultaneity	+
Perceptible predicates	+
Process predicates	+
Negation	-
Modality: modal auxiliary	-
Modality: degree/frequency adverb	+
Modality: sentential adverb	-

3.4. Matrix predicates. Besides PVs, there are a number of matrix predicates that obligatorily or optionally embed type2 complements. Additionally, type2 complements can occur after the conjunction *katu*’ and with certain auxiliaries functioning as main predicates (ZAVALA, 1992b):

1. The conjunction *katu*’,
2. NVPs with adverbial function like *watx*’ ‘good’,
3. Adverbs followed by *un* ‘do’,
4. The modal auxiliary *sq’e* ‘be able’,
5. Aspectual auxiliaries like the progressive *lanan/lalan*,
6. Motion verbs (depending on aspect),
7. Causative verbs like *chej* ‘force’.

Now I present examples regarding the other kinds of matrix predicates for type2 complements. Emphasis is given to the last item in the above list, causative verbs like e.g. *chej* ‘force’, because causatives and perception verbs in English and Romance languages have been observed to share a number of properties (cf. GUASTI (1993)).

3.4.1. *katu* ‘and then’. In case both clauses that are coordinated with the conjunction *katu* ‘and then’ lack aspect marking, the second clause takes the form of a type2 complement. Per default, an interpretation of past tense is applied if there is no aspect marking as illustrated in example (141). A contrastive example with *katu* conjoining two clauses with imperfective aspect, i.e. two independent clauses, is provided in (142).

- (141) ey- \emptyset jun icham yaab'il \emptyset -ok y-iin ix *katu*' s-kam
 EX-B3 a old sickness B3-enter A3-in she CONJ A3-die
 ix
 she
 ‘She came down with a terrible sickness and she died.’
 FRANCO (1993)

- (142) ma chi-ku-b'et sey-o lujum b'aab'el on *katu*'
 DISJ IMPF-B1p-go seek-TNF worm first CL1p CONJ
 chi-ku-b'et mitx'-o chaaw tu' on
 IMPF-B1p-go grab-TNF crab DEM CL1p
 ‘Or we went looking for worms first and then we went to
 catch crabs.’ FRANCO (1993)

3.4.2. *Aspectual verbs*. Aspectual verbs like *lalan* (PROG), *xew* ‘finish’, *laa* ‘end’ and *chaak* ‘begin’ can embed type 2. While *lalan* behaves like a nonverbal predicate, *xew* is an intransitive verb, and *laa* and *chaak* are transitive verbs.

The progressive auxiliary *lalan* embeds type2 complements. *Lalan* indicates that the process expressed in the complement is continuing in the present or the immediate past (ZAVALA, 1992b).

- (143) lalan- \emptyset s-too naj
 PROG-B3 A3-go he
 ‘He is going now.’

Transitive type2 complements embedded by *lalan* are ungrammatical without the suffix *-on* as evidenced by comparison of example (144-a) with example (144-b).

- (144) a. lalan- \emptyset \emptyset -s-ma'-on naj unin ix Mikin
 PROG-B3 B3-A3-hit-SUF NCL child NCL Micaela
 'Micaela is hitting the boy.'
- b. * lalan- \emptyset \emptyset -s-ma' naj unin ix Mikin
 PROG-B3 B3-A3-hit NCL child NCL Micaela
 'Micaela is hitting the boy.'

A type2 construction can be embedded by a PV with *lalan* added or not as shown in (145-a) and (145-b), respectively. Structurally, there are no changes, but semantically, the *lalan*-complement receives the interpretation of an *ing*-PVC in English whereas the type2 PVC without *lalan* is comparable to an NI-PVC.

- (145) a. \emptyset -y-il ix Mikin lalan- \emptyset a-mulna-i
 B3-A3-see NCL Micaela PROG-B3 A2-work-ITV
 'Micaela saw you working.'
- b. \emptyset -y-il ix Mikin a-mulna-i
 B3-A3-see NCL Micaela A2-work-ITV
 'Micaela saw you work.'

Unlike the constituency restrictions for type2 complements regarding the placement of sentence final clitics, complements with *lalan* can be either a part of the sentence or follow it. This is shown by the location of the clitic at the end of the complex construction in (146-a) and by the placement of the clitic *an* in (146-b).

- (146) a. x- \emptyset -w-il [lalan- \emptyset s-kam-el jun winaj]
 PERF-B3-A1-see [PROG-B3 A3-die-DIR one man]
 an
 CL1s
 'I saw the man dying.'
- b. x- \emptyset -w-il an [lalan- \emptyset s-kam-el jun
 PERF-B3-A1-see CL1s [PROG-B3 A3-die-DIR one
 winaj]
 man]
 'I saw the man dying.'

The intransitive verbs *xew* 'finish' and the transitive verb *laa* 'end' also embed type2 complements. The transitive *laa* often is used in its intransitive antipassive form *laawi*. Examples for both matrix predicates are provided in (147) and (148).

- (147) a. \emptyset -xew a-mulna-i
B3-finish A2-work-ITV
'You finished working.'
- b. \emptyset -xew \emptyset -a-tzok'-on si'
B3-finish B3-A2-cut-SUF firewood
'You finished cutting firewood.'
- (148) a. x- \emptyset -laa-wi a-mulna-i
PERF-B3-end-AP A2-work-ITV
'You finished working.'
- b. x- \emptyset -laa-wi \emptyset -a-tzok'-on si'
PERF-B3-end-AP B3-A2-cut-SUF firewood
'You finished cutting firewood.'

The last aspectual verb I present in this section is the transitive verb *chaak* 'begin'. Example (149-a) shows that *chaak* embeds intransitive type2 complements. This complex structure underlies a same-subject restriction, i.e. the subject can neither be left out on the matrix verb (149-b) nor on the embedded type2 verb (149-c). In other words, *chaak* cannot take intransitive type3 complements as illustrated in (149-c).

- (149) a. x- \emptyset -a-chaak a-b'ey-i
PERF-B3-A2-begin A2-walk-ITV
'You began to walk.'
- b. * \emptyset -chaak a-b'ey-i
B3-begin A2-walk-ITV
'You began to walk.'
- c. * x- \emptyset -a-chaak b'ey-oj
PERF-B3-A2-begin walk-IRR
'You began to walk.'

A transitive type2 complement embedded by *chaak* is shown in example (150-a). As opposed to intransitive type3 complements, which are ungrammatical (149-c), transitive type3 complements are perfectly acceptable. Example (150-b) depicts a transitive type3 complement. The verb is bare except for the transitive non-finite suffix *-o*. The former object NP *si* 'firewood' denoting the patient immediately follows the type3 verb *tzok'o* 'cut'. There appears to be no meaning difference between (150-a) and (150-b).

- (150) a. \emptyset -a-chaak \emptyset -a-tzok'-on si'
B3-A2-begin B3-A2-cut-SUF firewood
'You began to cut firewood.'

- b. x-∅-a-chaak tzok'-o si'
 PERF-B3-A2-begin cut-TNF firewood
 'You began to cut firewood.'

For third person agents, the complement can also precede the lexically instantiated subject, e.g. *ix Mikin* 'Micaela' in examples (151-a) and (151-b). In these two construction, the meaning difference is one between describing the EVENT with a type2 complement as in (151-a) and naming it as in the type3 complement in (151-b). The type3 complement can be used for example in a context where the woodcutting had been scheduled for a certain time, while the type2 complement simply describes the EVENT.

- (151) a. x-∅-s-chaak ∅-s-tzok'-on si' ix
 PERF-B3-A2-begin B3-A3-cut-SUF firewood NCL
 Mikin
 Micaela
 'Micaela began to cut firewood.'
- b. x-∅-s-chaak tzok'-o si' ix Mikin
 PERF-B3-A2-begin cut-TNF firewood NCL Micaela
 'Micaela began the cutting of the firewood.'

A concluding observation is taken from the closely related dialect of Chuj spoken in San Sebastian Coatán. In Chuj, there are two different progressive markers, *wan* and *wal*, which also take type2 constructions, see (152-a) and (152-b). In this variety of Chuj, even the future aspect marker *oj* embeds type2 complements as shown in (152-c).

- (152) a. wan s-b'ey-i
 PROG A3-walk-ITV
 'He was walking.'
- b. wal s-b'ey-i
 PROG A3-walk-ITV
 'He is walking.'
- c. oj a-b'ey-i
 FUT A2-walk-ITV
 'You will walk.' MAXWELL (1978), 135

These examples illustrate that aspectual auxiliaries functioning as matrix predicates for type2 complements is a common but not uniform phenomenon in Mayan languages.

3.4.3. *Nonverbal predicates.* There are a number of adverbs and adjectives functioning as nonverbal predicates, which can also embed type2 complements. Among them are *sa'al* 'good' as shown in (153), *tsak'b'il* 'quickly' as can be seen in example (154), *watx'* 'good' as demonstrated in (155-a), *k'uan k'ulal* 'slowly' as in (156-a), and *seb'* 'early' as illustrated in (157-a).

- (153) sa'al- \emptyset \emptyset -ey-i'-on-aa-tej ey-ats'am
 good-B3 B3-A2p-carry-SUF-DIR-DIR A2p-salt
 'It's good that you pick up your salt. (lit. 'It's good, your picking up your salt.')
- (154) tsak'b'il- \emptyset a-mulna-i
 quick-B3 A2-work-ITV
 'You work quickly!'
- (155) a. watx'- \emptyset a-mulna-i
 good-B3 A2-work-ITV
 'You work well.'
- b. watx'- \emptyset chi-ach-mulna-i
 good-B3 IMPF-B2-work-ITV
 'It's good that you work.'
- (156) a. k'uan k'ulal- \emptyset \emptyset -y-aa-on-ok s-b'it ix
 slow slow-B3 B3-A3-put-SUF-DIR A3-song she
 'She sings her song slowly.'
- b. k'uan k'ulal- \emptyset x- \emptyset -y-aa-ok s-b'it ix
 slow slow-B3 PERF-B3-A3-put-DIR A3-song she
 'She sang her song slowly.'
- (157) a. seb'- \emptyset y-apni naj
 early-B3 A3-arrive he
 'He arrives early.'
- 'He should come early (e.g. telling another person).'
- b. seb'- \emptyset x- \emptyset -apni naj
 early-B3 PERF-B3-arrive he
 'He arrived early.'

The last three examples, (155-a), (156-a) and (157-a), have a second variant, (155-b), (156-b) and (157-b), respectively, in which the complement is marked by perfective or imperfective aspect, so that a type1 instead of a type2 complement is used since type2 complements cannot carry aspect marking.

Nonverbal predicates like *watx'* 'good' can also embed type3 complements. Type3 complements lack aspect and person marking and are marked by the transitive non-finite suffix *-o* (TNF) as shown in example (158-a). In contrast to a parallel type2 complement like the one in (158-b), the difference between type3 and type2 complements is obvious. While type3 expresses the general concept or idea of watching sheep (158-a), type2 refers to a specific action by an explicit agent (158-b).

- (158) a. *watx'*- \emptyset *il-o* *me'*
 good-B3 see-TNF sheep
 'It is good to watch sheep (lit. watching sheep is good).'
 ZAVALA (1997), 457
- b. *watx'*- \emptyset \emptyset -aw-il-on *me'*
 good-B3 B3-A2-see-SUF sheep
 'It is good that you watch sheep.'

Type2 complements of nonverbal predicates do not allow the insertion of the progressive auxiliary *lalan* as can be observed in (159-a) unless, as example (159-b) shows, the conditional complementizer *ta* 'if' is added.

- (159) a. * *watx'*- \emptyset *lalan*- \emptyset *a-mulna-i*
 good-B3 PROG-B3 A2-work-ITV
 'It's good you're working.'
- b. *watx'*- \emptyset *ta* *lalan*- \emptyset *a-wey-i*
 good-B3 COND PROG-B3 A2-sleep-ITV
 'It's good if you're sleeping.'

In section 4, where type1 complements are described, more details on non-verbal predicates taking type1 complements are provided.

3.4.4. *un* 'do'. The auxiliary verb *un* 'do' can also function as matrix predicate for type2 complements as illustrated for a transitive type2 complement in example (160) and for an intransitive one in example (161).

- (160) *key-tu'* \emptyset -y-un \emptyset -a-naa-on-i
 manner-DEM B3-A3-do B3-A2-think-SUF-ITV
 '... so you will remember me.' PENALOSA & SAY (1992)
- (161) *lin-an* x- \emptyset -y-un s-wey naj Luin
 standing-POSIT PERF-B3-A3-do A3-sleep NCL Pedro
 'Peter fell asleep standing.' ZAVALA (1992b), 118

3.4.5. *Verbs of Ability*. A number of verbs referred to as verbs of ability also embeds type2 complements. Among them are *ske* 'be able', *ootaj* 'know', and *ilel* 'learn'. As has been mentioned in section 3.3.4, the auxiliary verb *ske* 'be able' embeds type2 complements. Paralleling the behaviour of complex 'PV + type2 PVC' constructions, type2 complements of *ske* 'be able' can indicate the subject of the complement clause both in the complement and on the matrix predicate. The two options are illustrated for intransitive type2 complements in example (162), and for transitive ones in (163).

- (162) a. *chi-∅-ske'* *a-b'ey-i*
 IMPF-B3-be.able A2-walk-ITV
 'You can walk.'
 b. *chi-ach-ske'* *a-b'ey-i*
 IMPF-B2-be.able A2-walk-ITV
 'You can walk.'
- (163) a. *chi-∅-ske'* *a-ma'-on-in* *an*
 IMPF-B3-be.able A2-hit-SUF-B1 CL1s
 'You can hit me.'
 b. *chi-ach-ske'* *a-ma'-on-in* *an*
 IMPF-B2-be.able A2-hit-SUF-B1 CL1s
 'You can hit me.'

In Akatek, *ootaj* 'know' cannot normally embed type2 complements as demonstrated by the ungrammaticality of example (164), except if *ootaj* is used to convey a sense of ability. For example, if one wants to express the ability to make tortillas, there are two constructions available: either a type1 complement with aspect (165-a), or an aspectless type2 complement with the suffix *-on* (165-b).

- (164) * *∅-y-ootaj* *ix* *Mikin* *aw-'el-toj*
 B3-A3-know NCL Micaela A2-leave-DIR
 'Micaela knew your leaving.'
- (165) a. *∅-y-ootaj* *ix* *unin* *chi-∅-y-aa-ok* *paat*
 B3-A3-know NCL child IMPF-B3-A3-put-DIR tortilla
 'The child knows how to make tortillas.'
 b. *∅-y-ootaj* *ix* *unin* *∅-y-aa-on-ok* *paat*
 B3-A3-know NCL child B3-A3-put-SUF-DIR tortilla
 'The child knows how to make tortillas.'

The verb for learning *ilel* consists of the PV *il* ‘see’ and the directional *el* ‘exit’. This verb also embeds type2 complements as can be seen in example (166). The subject of both matrix and complement clause, *ix unin* ‘the child’, can occur either behind the PV or behind the PVC as the examples show. The only difference is that the type2 complement verb *b’ey* ‘walk’ only obtains a thematic vowel (ITV) if it occurs in final position like in (166-a).

- (166) a. x- \emptyset -y-ilel ix unin s-b’ey-i
 PERF-B3-A3-learn NCL child A3-walk-ITV
 ‘The child learnt to walk.’
 b. x- \emptyset -y-ilel s-b’ey ix unin
 PERF-B3-A3-learn A3-walk NCL child
 ‘The child learnt to walk.’

3.4.6. *Motion verbs.* Motion verbs can take either type1 or type2 complements (ZAVALA, 1992b). A type1 complement with a motion verb matrix predicate is restricted in that it cannot take explicit aspect. It is per default interpreted as remote past as illustrated in (167-a). Motion verbs with type2 complements, marked by the suffix *-on*, receive an interpretation as recent past as illustrated in (167-b).

- (167) a. x-b’et w-il ach-an
 PERF-walk A1-see B2-CL1s
 ‘I went to see you (some time ago).’
 ZAVALA (1992b), 312
 b. x-b’et w-il-on ach-an
 PERF-walk A1-see-SUF B2-CL1s
 ‘And I went to see you.’ ZAVALA (1992b), 312

3.4.7. *Causative verbs.* Some causative verbs (CVs) in Akatek can take either type2 or type3 complements (ZAVALA, 1992b). The main difference in behaviour between type2 complements of CVs and type2 PVCs is that in causative constructions transitive type2 are only optionally marked with the suffix *-on*.

Structurally, transitive and intransitive causative verb complements (CVCs) have to be distinguished. Transitive CVC verbs occur after the lexically realized causer, i.e. the subject of the CV denoting the agent (AGT), while the causee, the direct object of the CV denoting the patient (PAT_i), is coreferential with the subject of the CVC verb denoting the agent (AGT_i), as is represented in (168). The final position is occupied by the patient denoting direct object (PAT) of the CVC

- (171) a. x-ach-w-a' xew an
 PERF-B2-A1-put rest CL1s
 'I made you rest.' ZAVALA (1992b), 320
- b. x-∅-(y)-a' ix naj xew-oj
 PERF-B3-A3-put she he rest-IRR
 'She made him rest.' ZAVALA (1992b), 321

The third CV described in this study is *ujte* 'chase'. As illustrated below, in a causative construction with *ujte* the CVC verb can either directly follow the CV as in (172-a), or it can be located at the end of the construction as in (172-b). The third option for the location of the complement verb is in between the two lexical arguments, where it can either be a bare type3 verb (172-c) or a type2 verb carrying a pronominal affix for the causee (172-d). The meaning of all four constructions is alike.

- (172) a. x-∅-y-ujte wey naj unin ix Mikin
 PERF-B3-A3-chase sleep NCL child NCL Micaela
- b. x-∅-y-ujte ix Mikin naj unin wey-oj
 PERF-B3-A3-chase NCL Micaela NCL child sleep-IRR
- c. x-∅-y-ujte ix Mikin wey naj unin
 PERF-B3-A3-chase NCL Micaela sleep NCL child
- d. x-∅-y-ujte ix Mikin s-wey naj unin
 PERF-B3-A3-chase NCL Micaela A3-sleep NCL child
 'Micaela sent the child to sleep.'

The following examples show the CV *chej* 'ask s.o. to do s.th.', *chej-toj*¹⁴ 'send s.o. to a location', or *chejte* 'make/force/urge s.o. to do s.th. (repeatedly)'. In example (172-d) above, the intransitive type2 complement occurs in clause medial position. I have not shown so far whether type2 CVCs can occur at the end of the complex structure or directly behind the CV. If the complement verb is moved to the end of the complex construction, type2 complements are ungrammatical with the suffix *-oj* (173-a), but grammatical with the intransitive thematic vowel *-i* (ITV) as can be seen in example (173-b).

- (173) a. * ∅-s-chej ix Mikin naj unin s-wey-oj
 B3-A3-ask NCL Micaela NCL child A3-sleep-IRR
 'Micaela asked the boy to (go to) sleep.'

¹⁴This verb consists of *chej* 'ask s.o. to do s.th.' and *toj*, which is a directional indicating 'thither'.

- b. \emptyset -s-chej ix Mikin naj unin s-vey-i
 B3-A3-ask NCL Micaela NCL child A3-sleep-ITV
 ‘Micaela asked the boy to (go to) sleep.’

Directly behind *chej*, the intransitive CVC can either be a type2 complement as in example (174-a), or a type3 complement as shown in (174-b).

- (174) a. x-ach-s-chej a-vey naj Xhunik
 PERF-B2-A3-ask A2-sleep NCL John
 ‘John sent you to sleep.’
 b. x-ach-s-chej wey naj Xhunik
 PERF-B2-A3-ask sleep NCL John
 ‘John sent you to sleep.’

Transitive type3 CVCs remain unchanged when they occur in either of the three positions discussed above for intransitive CVCs: directly postverbal, between the two lexically instantiated NPs (if present), or sentence final. The round brackets in (175) indicate that either location of the complement results in a grammatical sentence.

- (175) \emptyset -s-chej-toj (tx'a'-o sek')₁ naj Xhunik ()₁
 PERF-B3-A3-send (wash-TNF plate) NCL John ()
 ix unin ()₁
 NCL child ()
 ‘John sent the child there to wash dishes.’

Instead of a type2 or type3 complement, CVs can also embed incorporating APs as can be seen in example (176).

- (176) \emptyset -s-chej-toj naj Xhunik naj Luin \emptyset -tx'a'-wi
 B3-A3-ask-DIR NCL John NCL Peter B3-wash-AP
 sek'
 dishes
 ‘John sent Peter to wash dishes.’

Similar to complement taking PVs, CVs can also be passivized. I only provide some illustrative examples. Directly following the passivized CV, either a type3 (177-a) or a type2 (177-b) complement can occur. As is the case in *le*-passives, the agent denoting NP, here the causer, can be expressed by an oblique object with the preposition *uu* ‘by’. Example (178) demonstrates a transitive type3 complement *tx'a'o sek'* ‘wash dishes’ embedded by a passivized CV.

- (177) a. \emptyset -chejte-le wey ix Mikin y-uu naj Xhunik
 B3-force-PASS sleep NCL Micaela A3-by NCL John
 ‘Micaela was urged to sleep by John.’
- b. \emptyset -chejte-le s-wey ix Mikin y-uu naj
 B3-force-PASS A3-sleep NCL Micaela A3-by NCL
 Xhunik
 John
 ‘Micaela was urged to sleep by John.’
- (178) x-ach-chej-le toj tx’a’-o sek’ y-uu naj
 PERF-B2-send-PASS DIR wash-TNF dishes A3-by NCL
 Xhunik
 John
 ‘You were sent there to wash dishes by John.’

If the subject of an intransitive complement of a causative matrix predicate is extracted to the cleft position, it can either be the subject of a type3 complement as shown in (179-a), or the subject of a type2 complement as shown in (179-b). In the cleft constructions below, the meaning difference between type3 and type2 complements becomes apparent. The type2 complement indicates that the speaker witnesses the result of the causation with respect to the causee, i.e. John’s leaving, while the type3 complement simply states that the causation has taken place without the EVENT necessarily taking place at that moment.

- (179) a. ja’- \emptyset naj Xhunik x- \emptyset -y-ujte el-toj
 CFT-B3 NCL John PERF-B3-A3-force leave-DIR
 ix Mikin
 NCL Micaela
 ‘It was John whom Micaela forced to leave.’
- b. ja’- \emptyset naj Xhunik x- \emptyset -y-ujte
 CFT-B3 NCL John PERF-B3-A3-force
 y-el-toj ix Mikin
 A3-leave-DIR NCL Micaela
 ‘It was John whom Micaela forced to leave (while seeing him leave).’

In transitive type2 CVCs, parallel to what was observed in section 3.1.7 regarding transitive type2 PVCs, the pronominal affix indicating the extracted subject is optional. At the same time, if the subject affix is

omitted, the type2 complement is not marked as an intransitive structure with set A affixes, as shown by the ungrammaticality of example (180-b).

- (180) a. ja'- \emptyset naj Xhunik x- \emptyset -y-ujte ok ix
 CFT-B3 NCL John PERF-B3-A3-force DIR NCL
 Mikin ach-(s-)ma'-on-i
 Micaela B2-(A3-)hit-SUF-ITV
 'It was John whom Micaela asked to hit you.'
- b. * ja'- \emptyset naj Xhunik x- \emptyset -y-ujte ok ix
 CFT-B3 NCL John PERF-B3-A3-force DIR NCL
 Mikin a-ma'-on-i
 Micaela A2-hit-SUF-ITV
 'It was John whom Micaela asked to hit you.'

Extraction of the direct object of a transitive complement embedded by the CV *chej* is illustrated in example (181-a). The direct object can optionally be marked on the complement verb in form of the pronominal affix for a second person direct object, *ach-*. In any case, i.e. with or without the set B pronominal affix, the verb *sma'a'* is marked with the transitive thematic vowel *a'*. Example (181-b) shows the alternative constructions with the suffix *-on* and the intransitive thematic vowel *-i*. Like in example (181-a) the direct object prefix is optional as indicated by round brackets.

- (181) a. jach x- \emptyset -s-chej-ok ix Mikin naj
 PRO2s PERF-B3-A3-force-DIR NCL Micaela NCL
 Xhunik (ach-)s-ma'-a'
 John (B2-)A3-hit-TTV
 'It was you whom Micaela forced John to hit.'
- b. jach x- \emptyset -s-chej-ok ix Mikin naj
 PRO2s PERF-B3-A3-force-DIR NCL Micaela NCL
 Xhunik (ach-)s-ma'-on-i
 John (B2-)A3-hit-SUF-ITV
 'It was you whom Micaela forced John to hit.'

Even though type2 CVCs are similar to type2 PVCs, the former are of greater flexibility regarding argument order. Besides type2 CVCs, there are also CVCs of type3 and incorporating AP complements. I have shown that, parallel to the behavior of type2 PVCs, CV passivization and clefting are grammatical with type2 CVCs.

3.4.8. *Summary.* As non-perception matrix predicates of type2 complements I identified aspectual verbs, nonverbal predicates, the auxiliary *un* ‘do’, verbs of ability, motion verbs and CVs. In addition, type2 complements occur after the conjunction *katu* ‘and then’.

3.5. Summary. In this section I have provided a detailed description of type2 PVCs in Akatek. As can be gathered from Table 11, the nominal type2 PVC shares most of its structural and all of its semantic characteristics with the nominal PVC type in English, PNOM, which has been described in chapter 3. Structurally, both PVC types lack

TABLE 11. Structural and semantic characteristics of Akatek type2 PVCs compared to English PNOMs

	Type2 PVC	PNOM
Complement type	NMLZ	NMLZ
COMP	-	-
Case/ AGR: intr A	GEN	GEN
Case/ AGR: trans A	GEN	GEN
Case/ AGR: trans P	ABS	<i>of</i> NP
Tense/ Aspect	-	-
DET/ PL	-	+
Passive PVC	+	+
Passive PV: whole PVC	+	+
Passive PV: PVC subject	+	-
Cleft: PVC subject	+	-
Cleft: PVC object	+	-
Cleft: PVC	+	+
Semantic type	EVENT	EVENT
Temporal simultaneity	+	+
Perceptible predicates	+	+
Process predicates	+	+
Negation	-	-
Sentential adverbs	-	-
<i>ske</i> / <i>be able</i>	-	-

a complementizer, mark their subjects with the genitive, and do not admit aspect or tense marking, while passivization and clefting of the whole PVC is grammatical. The two nominalizations differ in object marking. The Akatek type2 PVC marks the object as a core argument with absolutive agreement, PNOM encodes the logical direct object as an oblique object in the form of a PP with the preposition *of*. The second main structural difference is that - as opposed to type2 PVCs

- PNOMs accept determiners and can be pluralized. Passivization or clefting of the PVC subject or object is grammatical for type2 PVCs but not for PNOMs. The two PVC types share all semantic characteristics that were taken into consideration. Temporal simultaneity is required as well as complement predicates that express perceptible processes. Ungrammatical are negation, sentential adverbs and the modal auxiliaries *ske'* / *be able*. Especially the conformity of both PVC types regarding the semantic criteria demonstrates that type2 PVCs in Akatek - like PNOMs in English - are unambiguously EVENT denoting. I have thus confirmed Hypothesis II. At least one PVC type is exclusively EVENT denoting. While type2 PVCs are marked by a nominalizing suffix that only occurs on transitive verbs, PNOMs are marked by a participial suffix. In addition to the structural and semantic characteristics that the nominal PVCs in Akatek and English share, both PVC types can alternatively be embedded by the following non-PV matrix predicates (see Table 12): non-verbal predicates like Akatek *watx'* 'be good' or English *be slow*, aspectual verbs like Akatek *laa* 'end' or English *begin*, and causative verbs like Akatek *chej* 'force' or English *cause*.

TABLE 12. Matrix predicates of Akatek type2 complements and English PNOMs

Matrix predicate type	e.g. for Akatek type2	e.g. for English PNOM
PVs	<i>il</i> 'see'	<i>see</i>
CVs	<i>chej</i> 'force'	<i>cause</i>
Aspectual auxiliaries	<i>laa</i> 'end'	<i>begin</i>
Non-verbal predicates	<i>watx'</i> 'be good'	<i>be slow</i>

In sum, type2 PVCs in Akatek are nominalized PVCs like the English PNOMs, so that in both languages nominalized complements are used to denote EVENTS. The second type of PVCs that occurs in Akatek is the topic of the next section.

4. PVCs of type1

Type1 PVCs have the structure of independent sentences and can take a variety of complementizers: wh-complementizers like *b'ey* 'where' or *tzetal* 'what', the conditional complementizer *ta* 'whether, if' and *tol* and *tzub'il*, both meaning 'that'. The latter two complementizers result in PVC types similar to *that*-PVCs in English. Examples for type1 PVCs with the complementizer *tol* are provided in (182) for *il* 'see' and

in (183) for *ab'* 'hear'. An example for a type1 PVC similar to the one in (182) but without a complementizer is shown in (184).

- (182) max \emptyset -y-il-on naj xin tol yel- \emptyset
 PERF B3-A3-see-SUF he then COMP true-B3
 chi- \emptyset -s-na' naj
 IMPF-B3-A3-think he
 'He saw then that it was true what he thought.'
 PENALOSA & SAY (1992)

- (183) chi- \emptyset -y-ab'-en naj icham b'alam tu' tol
 IMPF-B3-A3-hear-SUF NCL old tiger DEM COMP
 kaw ek'al eb' naj
 very many PL he
 'The old tiger hears that they were many.'
 PENALOSA & SAY (1992)

- (184) max \emptyset -y-il-on eb' xin yel- \emptyset chi- \emptyset -y-al
 PERF B3-A3-see-SUF they then true-B3 IMPF-B3-A3-say
 naj
 he
 'They saw that he had spoken the truth.'
 PENALOSA & SAY (1992)

The structure of the section as follows. Complementizers are treated at the very beginning (section 4.1) and separately from the structural properties of type1 PVCs (section 4.2). The reason for this is that the presence of complementizers is the property that distinguishes type1 complements from independent clauses. The types of non-PV matrix predicates are included in the structural properties section. The final section describes the semantic properties of type1 PVCs (section 4.3). Overall, fewer criteria are presented in the whole section, since except for the complementizers type1 PVCs are like independent sentences.

4.1. Complementizers. In this section, the different complementizers occurring in type1 PVCs, *tzub'il* and *tol*, are presented. *Tol* can be combined with the conditional *ta* resulting in *tatol*.¹⁵ In general, *tzub'il* and *tol* occur either alone, or in combination as *tzub'il tol*, or

¹⁵An example with the complementizer *tatol* is given in (i).

- (i) \emptyset -y-ab'le ix Mikin ta-tol ach-'el-toj
 B3-A3-ask NCL Micaela COND-COMP B2-leave-DIR
 'Micaela inquired if you left.'

not at all. An innovation based on the Spanish complementizer *que* ‘that’ is *ketol*, which is used instead of *tzub’il tol* (ZAVALA, 1992b). There is no distinct syntactic or semantic difference between the usage of *tol*, *tzub’il* and *tzub’il tol*.

In Akatek, complements usually follow their matrix clause. However, they can also be fronted, which brings them into the topic position of the sentence. A fronted complement does not necessarily take a complementizer as shown in example (185).

- (185) oj-in-kam chi-∅-w-ab’e
IRR-B1-die IMPF-B3-A1-feel
‘I feel that I will die.’ PENALOSA & SAY (1992)

4.1.1. *Tol*. The complementizer *tol* has been analyzed as a subjunctive marker (ZAVALA, 1992b). As illustrated in the examples below, besides ‘that’ it expresses ‘because’, ‘since’, or ‘so’. In example (186), the first occurrence of *tol* is in combination with *xan* ‘thus’, the second *tol* functions as a subjunctive marker for a quote. Similarly, example (187) shows the subjunctive function of *tol*: it changes the meaning of the complement clause *chikoman junoj kokaxhail* ‘we buy a coffin’ to the subjunctive ‘we had better buy a coffin’. The third example shows *tol* indicating ‘because, since’ with a non-verbal predicate *ixach* ‘you are a woman’.

- (186) xan tol max ∅-y-al in-patron tol
thus COMP PERF B3-A3-say A1-Sp:boss COMP
chi-in-wey ey-etoj ey-ox-wan-il
IMPF-B1-sleep A2p-with A2p-three-NUMCL-VL
‘... so that my boss said I should sleep with the three of you.’ PENALOSA & SAY (1992)
- (187) tol chi-∅-ko-man jun-oj ko-kaxha-il
COMP IMPF-B3-A1p-buy one-IRR A1p-box-VL
‘We had better buy a coffin.’ PENALOSA & SAY (1992)
- (188) k’am-∅ y-ip a-q’ab’ tol ix-ach
NEGEX-B3 A3-strength A2-hand COMP woman-B2
‘Your hands aren’t strong because you are a woman.’
PENALOSA & SAY (1992)

After verbs of perception, communication and cognition *tol* is translated with ‘that’ as shown in (189), (190) and (191), respectively.

- (189) max \emptyset -y-il ix xin tol txekel- \emptyset el-tej
 PERF B3-A3-see she then COMP visible-B3 DIR-DIR
 y-ee
 A3-tooth

‘She noticed that his teeth were visible.’

PENALOSA & SAY (1992)

- (190) \emptyset -w-al-on-i tol oj-ach-kam-oj y-etoj ix
 B3-A1-say-SUF-ITV COMP FUT-B2-die-IRR A3-with she
 ‘I said that you and she were going to die.’
 PENALOSA & SAY (1992)

- (191) \emptyset -y-ootaj ix Mikin tol x- \emptyset -too ix unin
 B3-A3-know NCL Micaela COMP PERF-B3-go NCL child
 ‘Micaela knew that the child had left.’

Example (192-a) shows that the complementizer is optional. This optionality, however, is a result of the progressive nature of the complement sentence. Is the progressive auxiliary exchanged for an imperfective aspect marker as in example (192-b), the complementizer is obligatory and the meaning of the complement changes from ‘was learning to walk’ to ‘began to walk’. Only if a following sentence specifies the context, then, like in example (192-c), the complementizer can be left out.

- (192) a. x- \emptyset -y-il ix Mikin (tol) lalan- \emptyset
 PERF-B3-A3-see NCL Micaela (COMP) PROG-B3
 s-b’ey-aa-oj ix unin
 A3-walk-DIR-IRR NCL child
 ‘Micaela saw (that) the child was learning to walk.’
- b. x- \emptyset -y-il ix Mikin *(tol)
 PERF-B3-A3-see NCL Micaela *(COMP)
 chi- \emptyset -b’ey-aa-oj ix unin
 IMPF-B3-walk-DIR-IRR NCL child
 ‘Micaela saw that the child began to walk.’
- c. x- \emptyset -y-il ix Mikin
 PERF-B3-A3-see NCL Micaela
 chi- \emptyset -b’ey-aa-oj ix unin katu’ ...
 IMPF-B3-walk-DIR-IRR NCL child and.then ...
 ‘Micaela saw the child beginning to walk and then ...’

The complementizer *tol* can occur with type1 complements, but not with type2 complements as shown by the ungrammaticality of example

(193-b) (no aspect marking and set A instead of set B marking) in contrast to the grammatical type1 complement in (193-a). If, however, the verb of the complement sentence is nominalized via derivational morphology, e.g. *skamb'al* in example (193-c), then it can occur with *tol*.

- (193) a. \emptyset -y-ab' ix Mikin tol x- \emptyset -kam no'
 B3-A3-hear NCL Micaela COMP PERF-B3-die NCL
 chee
 horse
 'Micaela heard that the horse has died.'
- b. * \emptyset -y-ab' ix Mikin tol s-kam no' chee
 B3-A3-hear NCL Micaela COMP A3-die NCL horse
 'Micaela heard that the horse dies.'
- c. \emptyset -y-ab' ix Mikin tol s-kam-b'al no'
 B3-A3-hear NCL Micaela COMP A3-die-INSTR NCL
 txitam
 pig
 'Micaela heard that the pig was scheduled to die.'

The PV *ab'* 'hear' obtains a hearsay meaning when used with type1 complements as illustrated in the examples below:

- (194) a. x- \emptyset -y-ab' ix Mikin tol \emptyset -b'et naj
 PERF-B3-A3-hear NCL Micaela COMP B3-walk NCL
 Luin txomb'al yet ewi'
 Peter market when yesterday
 'Micaela heard that Peter went to the market yesterday.'
- b. x- \emptyset -y-ab' ix Mikin tol \emptyset -y-ootaj
 PERF-B3-A3-hear NCL Micaela COMP B3-A3-know
 ix Xhuin chi- \emptyset -y-a'-ok paat
 NCL Juana IMPF-B3-A3-put-DIR tortillas
 'Micaela heard that Juana knows how to make tortillas.'

A difference between the presence and the absence of *tol* can be derived from its occurrence with the matrix predicate *oche* 'want' when the complement contains the existential predicate *ey* as can be seen in example (195). While in the absence of the complementizer the sentence expresses 'I want to have a lot of money' (195-a), the addition of *tol* renders the sentence more emphatic as shown in example (195-b).

- (195) a. chi- \emptyset -w-oche ey- \emptyset miman in-tumin an
 IMPF-B3-A1-want EX-B3 big A1-money CL1s
 ‘I want to have a lot of money.’
- b. chi- \emptyset -w-oche tol ey- \emptyset miman in-tumin
 IMPF-B3-A1-want COMP EX-B3 big A1-money
 an
 CL1s
 ‘I really want to have a lot of money.’

4.1.2. *Tzub’il*. The complementizer *tzub’il* ‘that’ occurs with the same verbs of perception, communication and cognition as *tol*. *Tzub’il* also introduces type1 complements. An example for a verb of communication with a type1 complement is provided in (196). The complement verb in (196) lacks overt aspect marking, but is not marked by the suffix *-on* like all transitive type2 complements. In this case, the absence of an aspect marker is interpreted as perfective (refer to chapter 4, section 1.3) and the complement is analyzed as a type1 construction.

- (196) x- \emptyset -y-il naj Luin tu’ tet wan anima tzub’il
 PERF-A3-say NCL Pedro DEM DAT3 PL people COMP
 \emptyset -s-ma’ naj Xhunik yab’ unin
 B3-A3-hit NCL Juan NCL child
 ‘Peter told the people that John hit the child.’
 ZAVALA (1992b), 189

Like *tol*, *tzub’il* cannot occur with a type2 complement (197-a) unless *tzub’il* functions as a nonverbal predicate embedding a type2 complement as in example (197-b). In the latter case, *tzub’il* means ‘how’.

- (197) a. * x- \emptyset -y-il ix Mikin tzub’il
 PERF-B3-A3-see NCL Micaela COMP
 a-ma’-on-in-an
 A2-hit-SUF-B1-CL1s
 ‘Micaela saw that you hit me.’
- b. x- \emptyset -y-il ix Mikin tzub’il- \emptyset
 PERF-B3-A3-see NCL Micaela how-B3
 a-ma’-on-in-an
 A2-hit-SUF-B1-CL1s
 ‘Micaela saw how you hit me.’

There is one more function of *tzub’il*. As a question word meaning ‘how’ *tzub’il* can act as a non-verbal predicate and embed type2

complements, see (198-a). In this construction, a type1 complement is ungrammatical as shown in (198-b).

- (198) a. tzub'il-∅ y-ok ko-lob'e
 how-B3 A3-enter A1p-food
 'How is the food doing/coming along?'
- b. * tzub'il-∅ chi-∅-ok ko-lob'e
 how-B3 IMPF-B3-enter A1p-food
 'How is the food doing/coming along?'

4.1.3. *Tzub'il and tol*. In Akatek, there is no meaning difference between a type1 PVC with *tol* as in (199) and a type1 PVC with *tzub'il* as in (200).

- (199) x-∅-y-il ix Mikin tol x-ach-in-ma'
 PERF-B3-A3-see NCL Micaela COMP PERF-B2-A1-hit
 an
 CL1s
 'Micaela saw that I hit you.'

- (200) x-∅-y-il ix Mikin tzub'il x-ach-in-ma'
 PERF-B3-A3-see NCL Micaela COMP PERF-B2-A1-hit
 an
 CL1s
 'Micaela saw that I hit you.'

Neither is there a meaning difference between *tol* and *tzubil* and the combination of *tzub'il tol* as can be seen in examples (201-a) to (201-b). The reverse combination of complementizers, i.e. *tol tzub'il* is ungrammatical (201-c).

- (201) a. x-∅-y-ab' ix Mikin tol/ tzub'il
 PERF-B3-A3-hear NCL Micaela COMP/ COMP
 chi-ach-s-q'an-le ey-∅-ek'-oj
 IMPF-B2-A3-ask-ITE EX-B3-DIR-IRR
 'Micaela heard that there was someone asking for you.'
- b. x-∅-y-ab' ix Mikin tzub'il tol
 PERF-B3-A3-hear NCL Micaela COMP COMP
 chi-ach-s-q'an-le ey-∅-ek'-oj
 IMPF-B2-A3-ask-ITE EX-B3-DIR-IRR
 'Micaela heard that there was someone asking for you.'

- c. * x- \emptyset -y-ab' ix Mikin tol tzub'il
 PERF-B3-A3-hear NCL Micaela COMP COMP
 chi-ach-s-q'an-le ey- \emptyset -ek'-oj
 IMPF-B2-A3-ask-ITE EX-B3-DIR-IRR
 'Micaela heard that there was someone asking for you.'

4.1.4. *Summary.* The behavior of the two characteristic complementizers of type1 PVCs has been illustrated in the above section. The two complementizers can be used interchangeably or in combination. Like in English *that*-PVCs, the complementizers *tol* and *tzub'il* in type1 PVCs are optional. Even though no clear semantic difference has been established and the complements with *tol* do not differ from the ones with *tzub'il*, for the typological analysis I consider type1 PVCs with *tol* as subjunctive complements (SUBs), and those with *tzub'il* as indicative complements (INDs). The reason for analyzing type1 PVCs with the complementizer *tol* as SUBs is that *tol* clearly is a subjunctive marker in other environments.

4.2. Structural characterization. Type1 complements have the structural properties of independent sentences, the only difference being that the former can take the complementizers *tol* and *tzub'il*. The complement as a whole can be topicalized. The marking of pronominal affixes and of tense, aspect, aktionsart and modality parallels that of independent sentences. The morphology of the verb does not undergo any changes. Example (202) illustrates that an independent clause like *xachinma'an* 'I hit you' is combined with the complementizer *tol* and then postposed to a matrix clause like *xyil ix Mikin* 'Micaela saw ...'.

- (202) a. x-ach-in-ma' an
 PERF-B2-A1-hit CL1s
 'I hit you.'
- b. x- \emptyset -y-il ix Mikin [tol
 PERF-B3-A3-see NCL Micaela COMP
 [x-ach-in-ma' an]]
 PERF-B2-A1-hit CL1s
 'Micaela saw that I hit you.'

In this section, I discuss the following structural properties of type1 PVCs: constituency (section 4.2.1), tense, aspect and aktionsart marking (section 4.2.2), passive and cleft (section 4.2.3), and non-PV matrix predicates for type1 complements (section 4.2.4).

4.2.1. *Constituency.* Type1 PVCs are clausal constituents. Except for the complementizers, they are like independent sentences. I have

already shown in the section on complementizers that type1 complements can be fronted. Example (203-a) shows a type1 complement with the complementizer combination *tzub'il tol*. The complement can be fronted with or without complementizers as demonstrated in (203-b) and (203-c). However, both examples with fronted type1 complements are only acceptable with the appropriate preceding context. Also, there is a restriction on the matrix verb carrying an explicit marker for perfective aspect as noted by ZAVALA (1992b) for the matrix verb *al* 'say'. Since absence of aspect marking is per default interpreted as perfective aspect, this does not make a semantic difference.

- (203) a. x- \emptyset -y-al ix [(tzub'il tol)
 PERF-B3-A3-say she (COMP COMP)
 chi-xa- \emptyset -s-chi' ich naj Xhunik]
 IMPF-already-B3-A3-eat chile NCL Juan
 'She said that John already eats chiles.'
- b. [tzub'il tol chi-xa-s-chi ich naj Xhunik] (*x)yal ix
- c. [chi-xa-s-chi ich naj Xhunik] (*x)yal ix

Type1 complements - with the exception of the occurrence of complementizers - show all the characteristics of independent sentences as is shown in detail further below. The independent status of type1 complements becomes apparent when looking at the location of the sentence final clitics. If a clitic like *an* for first person singular cooccurs with a first person pronominal affix in the matrix clause, *an* can only be placed at the end of the matrix clause and not at the end of the complex clause. Example (204-a) shows the matrix clause with a sentence final clitic, *xwil an*, followed by the embedded type1 complement, *tzub'il xkam no' chee*, which has no clitic. Moving the clitic of the matrix clause to the end of the complex construction results in ungrammaticality as evidenced in (204-b). Thus, as opposed to type2 PVCs that were enclosed by the clitic by placing the clitic at the end of the complex construction, type1 PVCs are separated from their embedding matrix PVs by the clitic.

- (204) a. x- \emptyset -w-il an [tzub'il x- \emptyset -kam no'
 PERF-B3-A1-see CL1s COMP PERF-B3-die NCL
 chee]
 horse
 'I saw that the horse died.'
- b. * xwil [tzub'il xkam no' chee] an

In section 3, I remarked that the matrix verb can either take the complete type2 complement as a third person argument as in (205-a), or alternatively take the subject of the complement clause as direct object with the complete type2 complement clause following as in (205-b). According to my informant, there is neither a preference nor a meaning difference between the two structures. The same holds true for type1 complements, as illustrated in example (206). More literally, (206) would be translated as ‘Micaela saw you, that you were sleeping’.

- (205) a. x- \emptyset -y-il ix Mikin a-vey-i
 PERF-B3-A3-see NCL Micaela A2-sleep-ITV
 ‘Micaela saw you sleeping.’
 b. x-ach-y-il ix Mikin a-vey-i
 PERF-B2-A3-see NCL Micaela A2-sleep-ITV
 ‘Micaela saw you sleeping.’
- (206) x-ach-y-il ix Mikin tol chi-ach-vey-i
 PERF-B2-A3-see NCL Micaela COMP IMPF-B2-sleep-ITV
 ‘Micaela saw that you were sleeping.’

Constructions with the progressive auxiliary *lalan* do allow the clitic to occur in either location, after the matrix predicate, or at the end of the complex construction as shown in examples (207-a) and (207-b). This parallels the behaviour of the clitic in type1 complements with the complementizer *tol*, as can be observed in examples (208-a) and (208-b).

- (207) a. x- \emptyset -w-il an [lalan- \emptyset a-lo'-w
 PERF-B3-A1-see CL1s [PROG-B3 A2-eat-AP
 a-tx'ojli]
 A2-alone]
 ‘I saw you eating alone.’
 b. x- \emptyset -w-il [lalan- \emptyset a-lo'-w a-tx'ojli]
 PERF-B3-A1-see [PROG-B3 A2-eat-AP A2-alone]
 an
 CL1s
 ‘I saw you eating alone.’
- (208) a. x- \emptyset -w-il an [tol chi-ach-lo'-w
 PERF-B3-A1-see CL1s [COMP IMPF-B2-eat-AP
 a-tx'ojli]
 A2-alone]
 ‘I saw that you were eating alone.’

- b. x- \emptyset -w-il [tol chi-ach-lo'-w a-tx'ojli]
 PERF-B3-A1-see [COMP IMPF-B2-eat-AP A2-alone]
 an
 CL1s
 'I saw that you were eating alone.'

4.2.2. *Tense, aspect and aktionsart marking.* Regarding tense, aspect and aktionsart marking, type1 complements have the structure of independent sentences, i.e. they usually are prefixed by an aspect marker for perfective, like (209-a), or imperfective, or by a future tense marker. If no aspect or tense prefix occurs, the complement is interpreted as perfective, as illustrated in (209-b).

- (209) a. x- \emptyset -y-ab' ix Mikin tzub'il
 PERF-B3-A3-hear NCL Micaela COMP
 x-ach-'el-toj
 PERF-B2-leave-DIR
 'Micaela heard that you left.'
- b. \emptyset -y-ab' ix Mikin tzub'il ach-'el-toj
 B3-A3-hear NCL Micaela COMP B2-leave-DIR
 'Micaela heard that you left.'

Example (210) shows a type1 PVC with the durative aktionsart marker *k'al* (DUR), which is also grammatical in combination with type2 PVCs. *K'al* modifies the negative existential *k'am* (NEGEX).

- (210) katu' \emptyset -y-il naj k'am- \emptyset k'al maj
 and.then B3-A3-see he NEGEX-B3 DUR anyone
 txekel- \emptyset ey- \emptyset -ek' b'ey naa
 visible-B3 EX-B3-DIR where house
 'And he saw there wasn't anyone at home.'
 PENALOSA & SAY (1992)

4.2.3. *Passive and cleft.* The description of passivization and cleft constructions involving type1 PVCs is far less elaborate than the description of passive and cleft for type2 PVCs. The main reason is that type1 PVCs do not markedly differ from independent sentences.

Type1 PVCs can undergo passivization. This is illustrated for a *le*-passive in example (211-a) with the complementizer *tol* 'that'. A contrastive example with a passivized type2 complement is provided in (211-b). Example (212) shows a perfective passive type1 PVC with the suffix *b'il*.

- (211) a. x- \emptyset -y-ab' ix Mikin tol
 PERF-B3-A3-hear NCL Micaela COMP
 chi- \emptyset -mitx'-le ix
 IMPF-B3-grab-PASS she
 'She felt that she was being grabbed.'
- b. x- \emptyset -y-ab' ix s-mi'tx'-le
 PERF-B3-A3-hear she A3-grab-PASS
 'She felt being touched.'
- (212) x- \emptyset -y-il ix Mikin tol tzok'-b'il- \emptyset
 PERF-B3-A3-see NCL Micaela COMP cut-PASS/PF-B3
 xa te' si'
 already NCL firewood
 'Micaela saw that the firewood had already been cut.'

An example for a passivized PV embedding a type1 complement is provided in (213).

- (213) x- \emptyset -'il-le naj Xhunik tol chi- \emptyset -wey
 PERF-B3-see-PASS NCL John COMP IMPF-B3-sleep
 naj
 he
 'It was managed to see John sleep.'

Examples of cleft constructions of type1 PVCs are provided in (214) and (215). The examples show the innovative complementizer *ketol* 'that'. Two types of cleft constructions are shown, agent (214) and patient (215) cleft. The cleft particle *ja'* functions like a non-verbal predicate for the clefted constituent. Clefting the agent changes the verb morphology: the suffix *-on* is added and the verb rendered intransitive, being marked only by set B pronominal affixes indicating the (former) direct object.

- (214) x- \emptyset -y-ab' ix Mikin ketol ja'- \emptyset ix
 PERF-B3-A3-hear NCL Micaela COMP CFT-B3 NCL
 unin x- \emptyset -i'-on-tej ub'al
 child PERF-B3-carry-SUF-DIR beans
 'Micaela heard that it was the child who brought the beans.'

- (215) x- \emptyset -y-il ix Mikin ketol ja'- \emptyset ub'al
 PERF-B3-A3-see NCL Micaela COMP CFT-B3 beans
 x- \emptyset -y-i'-tej ix unin txomb'al
 PERF-B3-A3-bring-DIR NCL child market
 'Micaela saw that it was beans what the child brought
 from the market.'

4.2.4. *Matrix predicates.* Type1 PVCs can occur with a number of matrix predicates other than the PVs *il* and *ab'*. In addition to *al* 'say' (example (216)), these are e.g. *na'* 'think' (example (217)), *ootaj* 'know' (example (218)) and nonverbal predicates like *watx'* 'it is good' (example (219)).

- (216) x- \emptyset -y-al ix Mikin tzub'il chi-ach-wey-i
 PERF-B3-A3-say NCL Micaela COMP IMPF-B2-sleep-ITV
 'Micaela said that you were sleeping.'
- (217) chi- \emptyset -s-na' ix tol ikis- \emptyset
 IMPF-B3-A3-think she COMP alive-B3
 'She thought (he) was alive.' PENALOSA & SAY (1992)
- (218) \emptyset -k-ootaj xa on tzub'il tol ey- \emptyset chaaw
 B3-A1p-know already CL1p COMP COMP EX-B3 crab
 \emptyset -el-tej y-uul-laj hol-an
 B3-leave-DIR A3-inside-COL dig-NMZR
 'We know that there are crabs in the holes.'
 FRANCO (1993)
- (219) watx'- \emptyset tol chi-ach-mulna-i
 good-B3 COMP IMPF-B2-work-ITV
 'It's good that you work.'

4.2.5. *Summary.* Type1 PVCs are marked by two different optional complementizers. These can be used alone or in combination. Complements with the complementizer *tzub'il* are analyzed as indicative complements (INDs), those with the complementizer *tol* as subjunctive complements (SUBs) in the typology of complementation adhered to in this study (refer to chapter 2, section 4.2). Furthermore, type1 PVCs are characterized by tense and aspect marking, they can be passivized as well as antipassivized and their arguments can undergo clefting. For an overview refer to Table 13. As non-PV matrix predicates I identified verbs of communication and cognition as well as nonverbal predicates. The observation that type1 PVCs can alternatively be embedded by the matrix verb *ootaj* 'know', which is not the case for

TABLE 13. Structural characterization of type1 PVCs

Criterion	Type1 PVC
Complement type (COMP <i>tzub'il</i>)	IND
Complement type (COMP <i>tol</i>)	SUB
Complementizer	+
Constituency	clausal
Tense/ aspect/ aktionsart	+
Passive/ cleft	+

type2 PVCs,¹⁶ confirms Hypothesis IV. The ability to be embedded by the matrix predicate *'know'* distinguishes EVENT denoting PVC types from PROPOSITION denoting ones.

4.3. Semantic characterization. In this section I present a number of semantic properties of type1 PVCs. First, I illustrate that this complement type is not restricted regarding temporal simultaneity (section 4.3.1). Then, I investigate whether there are any constraints on the kind of PVC predicate (section 4.3.2). Next, I demonstrate that negation of type1 PVCs is grammatical (section 4.3.3). Finally, I investigate the role modality plays for this complement type (section 4.3.4).

4.3.1. *Temporal simultaneity.* There are no tense or aspect marking restrictions for type1 PVCs as was shown in 4.2.2. Temporal simultaneity between type1 PVCs and their matrix PVs is completely optional. Thus, there are type1 complements taking future tense as shown in (220). Example (221) illustrates how a type1 complement marked for perfective aspect, *xiitej ub'al ix unin* 'the child brought beans', can be embedded by *il* 'see'.

- (220) tol huj-eb' aab'il oj-Ø-kam anima y-uu
 COMP seven-PL year FUT-B3-die Sp:person A3-by
 wail
 hunger
 '... that for seven years people will die from hunger.'
 PENALOSA & SAY (1992)

¹⁶In case *ootaj* occurs with type2 PVCs it is not used as a verb of cognition but to express ability, refer to section 3.4.5.

- (221) x- \emptyset -y-il ix Mikin tol
 PERF-B3-A3-see NCL Micaela COMP
 x- \emptyset -y-i'-tej ub'al ix unin txomb'al
 PERF-B3-A3-carry-DIR beans NCL child market
 'Micaela saw that the child brought beans from the market.'

In narrative texts, type1 PVCs are often marked for imperfective aspect indicating that the action expressed in the complement either takes place simultaneously to the perception or habitually. Thus, example (222) illustrates that the EVENT denoted in the complement *chikam no* 'the flies are dying' is continuing at the moment when it is noticed. Example (223) is interpreted as denoting a PROPOSITION, i.e. Micaela heard about the fact that he sells wood, but the possibility that this type1 PVC also denotes an EVENT, i.e. Micaela hears him sell his wood, cannot be excluded. In other words, even though type1 PVCs are primarily PROPOSITION denoting, provided that the context is adequate and the structural and semantic prerequisites for EVENTS are met, e.g. temporal simultaneity but no negation, it cannot be excluded that type1 PVCs can additionally denote EVENTS.

- (222) haxa max \emptyset -y-il naj xin chi- \emptyset -kam no'
 then PERF B3-A3-see he then IMPF-B3-die PRO:animal
 'Then he noticed that they (the flies) were dying.'
 PENALOSA & SAY (1992)
- (223) x- \emptyset -y-ab' ix Mikin tol chi- \emptyset -s-txon
 PERF-B3-A3-hear NCL Micaela COMP IMPF-B3-A3-sell
 si' naj winaj
 firewood NCL man
 'Micaela heard that he sells wood.'

4.3.2. *Type of complement predicate.* In section 3.3.2, I have shown that restrictions apply to the nature of the type2 PVC predicate. Essentially, since the type2 PVC is purely EVENT denoting, the predicate needs to express perceptible processes. In specific, the processes expressed by the PVC predicate must be perceivable to the respective sense modality, e.g. it must be audible when the matrix PV expresses HEARING. For the PROPOSITION denoting type1 PVCs no restrictions regarding the type of predicate exist. Predicates of type1 PVCs can either denote perceivable EVENTS, as in example (222) or imperceptible states as in (224).

- (224) x- \emptyset -y-il ix Mikin (tol) ey- \emptyset s-naa
 PERF-B3-A3-see NCL Micaela (COMP) EX-B3 A3-house
 naj Luin
 NCL Peter

‘Micaela saw that Peter has a house.’

Example (225) shows a type1 PVC with a predicate expressing an imperceptible state.

- (225) x- \emptyset -y-il ix Mikin ey- \emptyset s-mul naj Xhunik
 PERF-B3-A3-see NCL Micaela EX-B3 A3-sin NCL John

‘Micaela saw that John was guilty.’

Sentence (226-a) illustrates another PVC with the existential. The *ey* is used here to introduce the subject argument NP of the embedded verb *chimitx'on*. The verb is marked for imperfective aspect and it is ungrammatical to use a type2 complement as evidenced in example (226-b).

- (226) a. x- \emptyset -y-ab' ix Mikin ey- \emptyset maj
 PERF-B3-A3-hear NCL Micaela EX-B3 someone
 chi- \emptyset -s-mitx'-on ix
 IMPF-B3-A3-touch-SUF she
 ‘She felt there was someone touching her.’
 b. * x- \emptyset -y-ab' ix Mikin ey- \emptyset maj
 PERF-B3-A3-hear NCL Micaela EX-B3 someone
 \emptyset -s-mitx'-on ix
 B3-A3-touch-SUF she
 ‘She felt there was someone touching her.’

4.3.3. *Negation*. Type1 PVCs can be negated (ZAVALA, 1992b). There are different negative morphemes for the different aspect markers as has been shown in Chapter 4, section 1.3. Imperfective aspect is negated with *k'am* (227-a), future is negated with *man oj* (227-b), and perfective with *ma* (227-c).

- (227) a. watx'- \emptyset tzub'il k'am chi-ach-mulna-i
 good-B3 COMP NEG IMPF-B2-work-ITV
 ‘It's good that you don't work.’
 b. watx'- \emptyset tzub'il man oj-ach-mulna-i
 good-B3 COMP NEG FUT-B2-work-ITV
 ‘It's good that you will not work.’

- c. watx'- \emptyset tzub'il ma ach-mulna-i
 good-B3 COMP NEG B2-work-ITV
 'It's good that you didn't work.'

Sentences with *tol* or *tzub'il tol* can be negated in the same way. An example for a negated type1 complement with the complementizer *tzub'il tol* is provided in (228).

- (228) tzub'il tol k'am chi- \emptyset -kam no' tx'i' tu'
 COMP COMP NEG IMPF-B3-die NCL dog DEM
 '... so that the dog wouldn't die.'
 PENALOSA & SAY (1992)

4.3.4. *Modality*. In this section I demonstrate that type1 PVCs can be modified by the modal auxiliary *ske'* 'be able', the iterative marker *-le* (ITE), by *xa* 'already', and with the sentential adverb *yel* 'be true'. In addition, type1 PVCs of *ab'* 'hear' can be modified by the hearsay evidential clitic *ab'*. The auxiliary *ske'* 'be able' can modify type1 PVCs as in example (229).

- (229) x- \emptyset -y-ab' ix Mikin tol chi- \emptyset -ske'
 PERF-B3-A3-hear NCL Micaela COMP IMPF-B3-be.able
 s-b'itni ix unin
 A3-sing NCL child
 'Micaela heard that the child can sing.'

Type1 PVCs can be modified with *xa* 'already' (example (230)). Also, the sentential adverb *yel* 'true' functioning as a non-verbal predicate can be added to a type1 PVC as in example (231).

- (230) x- \emptyset -y-il-on-tej ix tol \emptyset -kam naj xa
 PERF-B3-A3-see-SUF-DIR she COMP B3-die he already
 naj yalixh
 NCL little
 'She realized that he was already dead, the small one.'
 PENALOSA & SAY (1992)
- (231) x- \emptyset -y-il ix Mikin tol yel- \emptyset ja'- \emptyset
 PERF-B3-A3-see NCL Micaela COMP true-B3 CFT-B3
 no' tz'ikin
 NCL bird
 'Micaela saw that it was true that it was a bird.'

The morphological evidential marker *ab'* can cliticize to the complementizer *tol* as can be observed in example (232). ZAVALA (1992b) calls this evidential marker a reportative. This is reflected in the translation of the example with 'it is said...'.¹⁷

- (232) *tol-ab'* *chi-∅-y-awte-toj* *ach'e tu'* *ix*
 COMP-EV IMPF-B3-A3-call-DIR boy DEM she
y-iin-taj
 A3-in-DISTR
 'It is said that she calls the young men after her.'
 FRANCO (1993)

In type1 PVCs, the above evidential cannot occur with the PV *il* 'see' as can be gathered from the ungrammaticality of the constructions shown in example (233). With the PV *ab'* 'hear', on the other hand, type1 PVCs with either complementizer, i.e. with *tzub'il* or with *tol*, can take the evidential *ab'* as demonstrated in example (234). The addition of the evidential indicates that the information originates from hearsay.¹⁷

- (233) * *x-∅-y-il* *naj in-mam an* *tzub'il-ab'*/
 PERF-B3-A3-see NCL A1-father CL1s COMP-EV/
tol-ab' *x-∅-kam* *no' chee*
 COMP-EV PERF-B3-die NCL horse
 'My father saw that the horse died.'
- (234) *x-∅-y-ab'* *naj in-mam an* *tol-ab'*/
 PERF-B3-A3-hear NCL A1-father CL1s COMP-EV/
tzub'il-ab' *x-∅-kam* *no' chee*
 COMP-EV PERF-B3-die NCL horse
 'My father heard that the horse died.'

In sum, type1 PVCs can be modified by modal auxiliaries and clitics, some of which can and some of which cannot modify type2 complements. The sentential adverb *yel* 'be true' can also modify type1 PVCs, which is a defining property of PROPOSITION denoting complements. Furthermore, type1 PVCs of *ab'* hear can obtain a hearsay evidential marker, which makes their interpretation as PROPOSITIONS unambiguous.

4.3.5. *Summary.* Table 14 shows the semantic characteristics of type1 PVCs that have been investigated in this section. Temporal

¹⁷The restriction that the reportative *ab'* cannot cooccur with *il* 'see' in Akatek is paralleled by a restriction in Japanese, that the hearsay evidential *rashii* cannot modify complements of *miru* 'see' as is shown in chapter 6.

TABLE 14. Semantic characterization of type1 PVCs

Criterion	Type1 PVC
Temporal simultaneity	+/-
Perceptible predicates	+/-
Process predicates	+/-
Negation	+
Modality	+

simultaneity with the matrix PV is not required for type1 PVCs. Also, the PVC predicate can express perceptible or imperceptible states or processes. Negation and modality are also grammatical for these complement types. I have shown that type1 PVCs are primarily PROPOSITION denoting, but that they have the potential to conform to the requirements for EVENT denoting complement types and that therefore it cannot be excluded that type1 PVCs sometimes also denote EVENTS. In other words, if the type1 PVC is marked for durative aktionsart or it is cotemporal with the matrix PV, the PVC conveys a perceptible process, no negation and only EVENT conforming modality occurs, then a type1 PVC can be interpreted as an EVENT.

4.4. Summary. A comparison of the Akatek type1 PVC with the English *that*-PVC shows an almost complete overlap of the structural and the semantic characteristics as shown in Table 15. Both PVC types

TABLE 15. Structural and semantic characteristics of Akatek type1 PVCs compared to English *that*-PVCs

	Type1 PVC	<i>that</i> -PVC
Complement type	IND/ SUB	IND
COMP	<i>tzub'il/ tol</i>	<i>that</i>
Tense/ Aspect	+	+
DET/ PL	-	-
PROPOSITION	+	+
EVENT	+	+
Temporal simultaneity	+/-	+/-
Perceptible predicates	+/-	+/-
Process predicates	+/-	+/-
Negation	+	+
Modality	+	+

are indicative complements (IND) regarding the typology of complementation presented in chapter 2. In addition, the type1 PVCs with

the complementizer *tol* have been analyzed as subjunctive complements (SUBs). The case or agreement marking of these complement types does not differ from the marking of independent sentences. Both take optional complementizers and allow tense-aspect marking. This clausal complement type allows neither pluralization nor modification with determiners. Semantically, type1 PVCs in Akatek as well as *that*-PVCs in English are PROPOSITION denoting. They permit negation and modality and are unrestricted regarding temporal simultaneity, the perceptibility of the complement predicate and whether it has to be a state or a process predicate. Both PVC types can alternatively be embedded by cognitive verbs like Akatek *ootaj* ‘know’ or English *know* and by verbs of communication like Akatek *al* ‘say’ or English *mention* as well as by non-verbal predicates like Akatek *watx* ‘be good’ or English *be a fact*.

5. Conclusion

In this chapter, I have presented a description of PVC types in Akatek. As a prerequisite, I investigated the lexicalization of PVs. Akatek has two basic PVs, *il* ‘see’ and *ab* ‘hear’, which have active as well as passive interpretations. In conformity with the lexicalization hierarchy for verbs of perception (see chapter 2), *ab* ‘hear’ is also used to cover the lower sense modalities of TOUCH, TASTE, and SMELL. Both *il* ‘see’ and *ab* ‘hear’ extend their meaning into the cognitive domain. This is a precondition for the occurrence of PROPOSITION denoting PVC types in a language.

Akatek has two different types of PVC, referred to as type1 and type2. This confirms part of Hypothesis I: languages with a complementation system use at least two different types of PVC. Type1 PVCs occur in two varieties, as INDs or as SUBs, which only differ in the complementizers they take. The structural and semantic description of type1 and type2 PVCs in Akatek according to the criteria established for the analysis of English PVC types in chapter 3 confirmed Hypothesis II: at least one PVC type is exclusively EVENT denoting, as well as Hypothesis III: PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting. These results confirm the second part of Hypothesis I: one of the two PVC types is used to express EVENTS and one to denote PROPOSITIONS. I was also able to confirm Hypothesis IV: the ability to be embedded by the matrix predicate ‘*know*’ distinguishes the exclusively EVENT denoting PVCs from the primarily PROPOSITION denoting ones. As illustrated in Table 16, the PROPOSITION denoting type1 PVCs can be embedded

by the matrix predicate *ootaj* ‘know’, which the EVENT denoting type2 PVCs cannot.

The comparison of type1 PVCs in Akatek with *that*-PVCs in English on the one hand (section 4.4) and of type2 PVCs in Akatek with PNOMs in English on the other (section 3.5) showed a high degree of similarity regarding the structural and the semantic characterization of EVENT denoting and PROPOSITION denoting PVC types in these two languages. In Table 16, the distribution of English and Akatek PVC types over the typology of complementation (see chapter 2) is presented. Since paratactic PVC types do not occur in English or in Akatek, I left them out here, but they are included in the considerations regarding a typology of PVCs in chapter 6. The Akatek PVC types fit perfectly into the typological picture developed for English PVC types in chapter 3. The proposition denoting type1 PVC is an indicative (IND) complement, which can alternatively be embedded by the matrix predicate *ootaj* ‘know’, just like the *that*-PVC in English. In addition, type1 PVCs can also function as SUB complements when taking the subjunctive complementizer *tol*. The EVENT denoting type2 PVC does not accept *ootaj* ‘know’ as a matrix predicate. Type2 PVCs are nominalized complements just like PNOMs in English. In Table 16, the possibility of a hierarchy for PVC types ranking from IND over INF to NMLZ, is apparent. Certain complement types may be skipped as in Akatek, or more than one variety of a complement type, e.g. the three INFs in English, can be used. The evidence provided by the anal-

TABLE 16. English and Akatek PVC types and the typology of complementation

	English PVCs	Akatek PVCs	Semantic types	Matrix predicate <i>know/ ootaj</i>
IND	<i>that</i> -PVC	type1 (<i>tzub'il</i>)	PROPOSITION (EVENT)	+
SUB	—	type1 (<i>tol</i>)	PROPOSITION (EVENT)	+
INF	<i>to</i> -PVC	—	PROPOSITION	+
INF	<i>NI</i> -PVC	—	EVENT	—
INF	<i>ing</i> -PVC	—	EVENT	—
NMLZ	PNOM	type2	EVENT	—

yses of English and Akatek PVCs as illustrated in Table 16 suggests the following hierarchy of PVC types:

(235) IND > SUB > INF > NMLZ

Obviously, the order of the PVC types along the hierarchy is motivated by their semantics. Since INF PVCs can denote propositions as well as

events, these must rank in the middle of the hierarchy. The hierarchy in (235) is to be interpreted as formulated in Hypothesis V.

- (236) Hypothesis V
 PVC types higher up in the hierarchy, e.g. the IND types, are more likely to denote PROPOSITIONS, while PVC types lower in the hierarchy, e.g. the NMLZ types, are more likely to denote EVENTS.

Hypothesis V is based solely on the evidence from English and Akatek. In these languages, no paratactic (PARA) PVC types have been attested. However, in chapter 2, I have shown an example of a PARA PVC type from Hausa. Whether Hypothesis V is valid in a broader typological perspective and how PARAs rank on the PVC hierarchy is investigated in chapter 6. I have shown in chapter 3 that in English, there are more PVC types than the ones investigated. For example, I explicitly excluded *wh*-clauses, adverbial clauses and small clause constructions as well as participial adjunct clauses from the investigation of PVCs in chapter 3. Excluding participial adjunct clauses, i.e. Noonan's PART complement type, from the investigation reduces the prospective typology of PVC systems to five complement types: IND, SUB, PARA, INF, and NMLZ. Regarding the variation of PVC types in a typological framework, I suggest the following hypothesis based on the typology of complementation presented in chapter 2:

- (237) Hypothesis VI
 The following five complement types of the typology of complementation, i.e. INDs, SUBs, PARAs, INFs, and NMLZs can function as PVCs, but PVC types are not restricted to these five types.

The final considerations to be made here refer to the general typological characteristics of Akatek established and compared to English in chapter 4. The typological dissimilarities regarding basic word order, case and agreement marking, possessor marking and case marking patterns are not connected to the similarities that I demonstrated for the typology of PVCs in these two languages. However, the observation that English lacks passive morphology, while Akatek employs a variety of passive morphemes, supports the hypothesis put forward by BENNIS & HOEKSTRA (1989) that passivization of PVC constructions in English is restricted because passive is realized via auxiliaries instead of via morphology. I have shown in great detail that Akatek, which has three different morphological passives, does not have any restrictions

on passive constructions involving PVCs. In Akatek, there are even additional APs, which can also be applied to PVCs.

CHAPTER 6

Typology of perception verb complements

In this chapter, I present research pursued with the goal of establishing a typology of PVCs. The investigation of the different patterns of PVC systems in different languages includes the question by what means languages distinguish *EVENT* denoting from *PROPOSITION* denoting PVCs. It is beyond the scope of this dissertation to take all the criteria into consideration that were discussed for English and for Akatek in chapters 3 and 5, respectively. However, the results of the analyses of PVC types in English and Akatek from chapters 3 and 5, respectively, are the basis for the typological overview presented in this chapter.

The problems I faced regarding published material as data sources for PVC types in different languages are familiar to most typologists:

1. If complementation is described at all, there is generally a degree of uncertainty regarding the completeness of the description of the complementation system of that language, so that considerations regarding the role of the PVC system within the complementation system of a specific language can rarely be established.
2. If specifically PVCs are described, rarely the whole PVC system is described, but often only one or two salient construction types. In other words, the PVC system of a language might have more PVC types than those described.
3. Descriptions of the structural and semantic characteristics of a PVC type are usually not very detailed, so that the semantic interpretation of PVC types as *EVENTS* or *PROPOSITIONS* is highly problematic.
4. Due to the sparsity of available information regarding PVCs, the languages I was able to take into consideration are not representative for the languages of the world.

In order to distinguish between PVCs expressing *PROPOSITIONS* and PVCs denoting *EVENTS* I presuppose that the cognitive extension of at least one PV in every language into the cognitive domain is

a universal. This cognitive extension is a prerequisite for the occurrence of PROPOSITION denoting PVC types. Furthermore, I took into consideration clues provided by the PVC predicate (e.g. whether it expresses something perceptible or not, or whether it describes a process as opposed to a state) and from the translation. Finally, the results regarding PVC types and their semantic interpretations in English and Akatek (see Table 1), along with Correlations 1 and 2, which are repeated here for ease of reference from chapter 2, constituted a means to distinguish EVENT denoting from PROPOSITION denoting PVC types.

TABLE 1. English and Akatek PVC systems

Complement types	English PVCs	Akatek PVCs	Semantic types
IND	<i>that</i> -PVC	type1 (<i>tzub'il</i>)	PROPOSITION (EVENT)
SUB	—	type1 (<i>tol</i>)	PROPOSITION (EVENT)
INF	<i>to</i> -PVC	—	PROPOSITION
INF	<i>NI</i> -PVC	—	EVENT
INF	<i>ing</i> -PVC	—	EVENT
NMLZ	PNOM	type2	EVENT

- (1) Correlation 1
If the EVENT denoting PVC has a complementizer, then the PROPOSITION denoting PVC also has a complementizer.
- (2) Correlation 2
 - a. If a finite/ independent PVC denotes EVENTS, then a finite/ independent PVC also denotes PROPOSITIONS.
 - b. If a non-finite/ dependent PVC denotes PROPOSITIONS, then a non-finite/ dependent PVC also denotes EVENTS.

The investigation of different complement types for EVENT denoting and PROPOSITION denoting PVCs in sections 2 and 3 is based on the typology of complementation presented in chapter 2. The complement types of this typology are reviewed in section 1. Languages investigated in this chapter are Cayuga, Mohawk, Nez Perce, Japanese, Cambodian, Fijian, Malagasy, Russian, Modern Greek, the Albanian dialect Arbëresh, Romance languages (French, Italian and Spanish), and German.

1. PVC types

The typology of complementation presented in chapter 2, section 4, distinguishes six complement types: indicative complements (INDs),

subjunctive complements (SUBs), paratactic complements (PARAs), infinitives (INFs), nominalizations (NMLZs) and participles (PARTs).

INDs and SUBs are both sentence-like, SUBs differ from INDs in mood. In PARAs, the notional subject of the complement is retrieved from the preceding clause. PARAs can be used as independent sentences. As opposed to INDs and SUBs they cannot take complementizers. INFs are defined as verb-like entities that lack syntactic relations to their notional subject. NMLZs have the internal structure of noun phrases. NMLZs can occur with articles, case markers, and sometimes even a plural marker. PARTs have been excluded from the investigation of PVCs in chapter 3. This chapter deals with Hypotheses I, V, and VI, which were developed in chapters 1 and 5:

1. Hypothesis I

Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS.

2. Hypothesis V

PVC types higher up in the hierarchy, e.g. the IND types, are more likely to denote PROPOSITIONS, while PVC types lower in the hierarchy, e.g. the NMLZ types, are more likely to denote EVENTS.

3. Hypothesis VI

The following five complement types of the typology of complementation, i.e. INDs, SUBs, PARAs, INFs, and NMLZs can function as PVCs, but PVC types are not restricted to these five types.

The cognitive extension of passive PVs is assumed to be a tentative universal, so that the focus of investigation for Hypothesis I lies on the existence of at least two different PVC types. The hierarchy of PVC types referred to in Hypothesis V is repeated here from chapter 5 with the addition of the PARA type, which did not occur in English or Akatek:

(3) IND > SUB > PARA > INF > NMLZ

Hypothesis VI is based on evidence from English (chapter 3) and Akatek (chapter 5), and an example from Hausa presented in chapter 2. Unfortunately, the available sources on Hausa did not provide me with sufficient information on PVC types to be included in this chapter.

In the next section, EVENT denoting PVC types in the languages under investigation, i.e. in Mohawk, Nez Perce, Japanese, Cambodian, Fijian, Malagasy, Russian, Modern Greek, the Albanian dialect Arbëresh, Romance languages, and German, are presented.

2. Event denoting PVC types

In the small number of languages under investigation, there are EVENT denoting PVCs of all five complement types: INDs, SUBs, PARAs, INFs, and NMLZs. In addition, at least some Romance languages use a pseudo-relative PVC to express EVENTS. After the presentation of EVENT denoting PVCs I show that the tensed PVC types, e.g. in Russian or in Malagasy, all adhere to specific tense-aspect restrictions that are dictated by the matrix clause.

2.1. Indicative PVCs. IND PVCs can be EVENT denoting, either without a complementizer as illustrated below for Mohawk and Cambodian, or with a complementizer as is the case in Russian.

2.1.1. *Indicative, - COMP.* Mohawk is a Northern Iroquoian language with a highly reduced system of complementation. There are no complementizers and no dependent verb forms. Instead, formally independent clauses are simply juxtaposed (MITHUN, 1984). Example (4) shows such a simple string of independent predications. There are no pauses or pitch drops. All this suggests a close link between the two clauses in (4).

- (4) Oñhka'k wahshakó:ken taiakawenonhátie.
 someone PT.he/her.see this.way.she.go.along
 'He saw someone coming.' MITHUN (1984), 495

In Cambodian the EVENT denoting interpretation of a PVC as in example (5) is simply realized by juxtaposition of two sentences:

- (5) kñom kha:ñ mnùs(s) mnæek dae(r) ta:m phlo:v
 I see person alone walk along road
 'I see someone walking along the road.' JACOB (1968), 146

2.1.2. *Indicative, + COMP.* In Russian, the complementizer *kak* is used in EVENT denoting PVCs (6).

- (6) Ja videl, [kak Anna čitaet knigu].
 I saw [COMP Anna read book]
 'I saw Anna reading the book.' BRECHT (1974), 210

2.2. Pseudo-relative PVCs. In the Romance languages, there is a tensed complement denoting EVENTS, the so called pseudo-relative construction, which is equivalent in meaning to the *ing*-PVC in English (GUSTI, 1993).¹ As wh-complements, pseudo-relative PVCs are excluded from the typology of complementation. However, they are presented here in order to illustrate that more than the five complement types selected for the typological considerations in section 4 can function as PVCs. Pseudo-relative constructions after perception verbs in Italian, French, and Spanish, are provided in examples (7-a), (7-b), and (7-c), respectively.

- (7) a. Gianni ha visto [Maria che mangiava la mela].
 b. Jean a vu [Maria qui mangeait la pomme].
 c. Juan ha visto [a Maria que comía la manzana].
 ‘Gianni saw Maria eating the apple.’ GUSTI (1993), 141

The evidence from Romance pseudo-relative PVCs supports Hypothesis VI, namely that PVCs are generally but not exclusively recruited from among the five complement types included in the investigation of PVC systems.

2.3. Subjunctive PVCs. In Modern Greek and in Arbëresh, an Albanian dialect spoken in Southern Italy, a subjunctive particle, *na* ‘SP’ or *të* ‘SP’, respectively, modifies the PVC verb while the subject of the PVC carries accusative case (DIK & HENGEVELD, 1991; GUSTI, 1993). Example (8-a) shows an EVENT denoting subjunctive complement in Greek and (8-b) provides the Arbëresh counterpart.

- (8) a. O Yiannis ide [tin Maria na troi to milo].
 the Yiannis saw [the-ACC Maria SP eats the apple]
 b. Xhiuvani ka parë [Marien të haj moghin].
 Xhiuvani has seen [Marien-ACC SP ate apple]
 ‘John saw Maria eat the apple.’ GUSTI (1993), 143

2.4. Paratactic PVCs. The only PARA PVC type among the languages investigated is Malagasy. PVs in Malagasy are so called root passives. The basic form of a PV is a passive. To obtain an active PV, active morphology must be prefixed to such a root passive. An EVENT denoting PVC in Malagasy is obtained by embedding an active clause in the subject or object position of the matrix clause. Depending

¹That these pseudo-relatives differ from both restrictive and non-restrictive relative clauses has been demonstrated in GUSTI (1993).

on whether the matrix PV in Malagasy is a root passive or an active PV, two alternative constructions result:

- (9) a. $PV_{passive}$ [VOS]
 b. $PV_{passive}$ [VO] S
- (10) PV_{active} O [VO] S

The passive construction either takes the whole PVC as subject as in (9-a), which makes the PVC look like an IND, or the logical subject of the PVC functions as the subject of the passive PV as in (9-b), so that the PVC is a PARA complement type, which retrieves its subject from the matrix clause. The alternative active construction in (10) must be classified as a PARA complement because the PVC retrieves its subject from the matrix clause, but is otherwise an independent clause and cannot take any complementizers. Since there is a separate IND PVC type in Malagasy that is juxtaposed to the matrix clause (instead of in the object position, see section proptypes) and takes a complementizer, I classify the PVC type presented here as a PARA complement.

A tensed active clause is given in example (11). This active clause is embedded in the object position of a main clause with the root passive perception verb *hita* ‘seen’ in example (12). The perceiver takes the form of a genitive pronominal affix *-ko* ‘by me’ and is suffixed to the root passive PV *hita* ‘seen’. The final constituent *Rabe* is in the subject position of both the complement clause and of the main clause. In other words, (12) could alternatively be translated as ‘Rabe get out of the car was seen by me.’ (12) illustrates the constructions shown in (9-a) and (9-b).

- (11) n-i-ala ny fiara Rabe
 PT-ACT-exit the car Rabe
 ‘Rabe got out of the car.’ KEENAN (1996)
- (12) hita-ko niala ny fiara Rabe
 seen-by.me got.out the car Rabe
 ‘Rabe was seen by me get out of the car.’ KEENAN (1996)

In the active counterpart provided in example (13), which illustrates the construction shown in (10), the former subject *Rabe* is raised to the object position in the active main clause and marked with accusative case. Now the perceiver, *aho* ‘NOM1’ is the final constituent.

- (13) n-a-hita an-dRabe [n-iala ny fiara] aho
 PT-ACT-seen ACC-Rabe [PT-ACT.exit the car] NOM1
 ‘I saw Rabe get out of the car.’ KEENAN (1996)

2.5. Infinitive PVCs. Romance and German have naked infinitive PVCs with accusative subjects as shown for French in (14) and for German in (15).

- (14) J’ai vu [le chat traverser la rue].
 I.have seen [the cat cross the street]
 ‘I saw the cat cross the street.’
- (15) Er sah [die Katze springen].
 he saw [the cat jump]
 ‘He saw the cat jump.’

In Spanish, animate objects of perception are encoded as indirect objects (16-a). Consequently, NI-PVCs with animate PVC subjects do not encode them in the accusative case but as indirect objects with the preposition *a* ‘to’ as shown in (16-b).

- (16) a. Carlos vió al gato.
 Carlos 3s.see.PT PREP.ART cat
 ‘Carlos saw the cat.’
- b. Carlos vió [al gato subir-se
 Carlos 3s.see.PT [PREP.ART cat climb-REFL
 al árbol].
 PREP.ART tree]
 ‘Carlos saw the cat climb up the tree.’

English has an EVENT denoting INF PVC type, NI-PVC, which even has a progressive counterpart, the *ing*-PVC (see chapter 3).

2.6. Nominalized PVCs. Regarding the languages under scrutiny here, NMLZ PVCs are the most frequently employed constructions for EVENT denoting PVCs. I separated NMLZ that receive case marking from the matrix clause as in Japanese from NMLZ with genitive subjects as in Fiji, Malagasy, or German, and those with accusative subjects as in Nez Perce.

2.6.1. *Case marked nominalization.* Japanese PVCs with the nominalizer *no* function as direct object complements and are therefore marked with accusative case. *No*-PVCs are used for representing EVENTS (17). The verb of the nominalized *no*-PVC is in the nonpast form, but

these PVCs can also contain a durative verb form as shown in example (18).

- (17) Watakusi wa [John ga piano o hiku no]-o
 I TP [John SB piano ACC play:NPT NMZR]-ACC
 kiita.
 hear:PT

‘I heard John play(ing) the piano.’

KUNO (1973) quoted from DIK & HENGEVELD (1991), 244

- (18) Noda-wa [Takako-ga piano-o hii-teiru no]-o
 Noda-TP [Takako-SB piano-ACC play-DUR NMZR]-ACC
 kiita.
 hear:PT

‘Noda heard Takako playing the piano.’ HORIE (1993), 89

There is a second nominalizer for EVENT denoting PVCs in Japanese, *tokoro*. *Tokoro* is also a noun meaning ‘place’, which explains why as a nominalizer *tokoro* cannot occur in combination with the perception verbs *kiku* ‘hear’ and *kanziru* ‘feel’, because one cannot hear or feel places (HORIE, 1993). In other words, even though *tokoro* expresses ‘at that moment, just now’ when it functions as a nominalizer, its origin as a locational noun restricts it to combine only with verbs referring to the visual sense modality. *Tokoro* occurs with the perception verb for ‘see’ like in (19) or the expression for ‘witness’, see example (20).

- (19) Noda-wa [Takako-ga gake-kara ochiru tokoro]-o
 Noda-TP [Takako-SB cliff-from fall:NPT NMZR]-ACC
 mita
 see:PT

‘Noda saw the moment when Takako fell off the cliff.’

KYOKO FUKUDA (p.c.)

- (20) Taroo-wa [Hanako-ga kuruma-ni hane-rareru tokoro]-o
 Taroo-TP [Hanako-SB car-by hit-PASS NMZR]-ACC
 mokugekisi-ta
 witness-PT

‘Taro witnessed the moment Hanako was hit by a car.’

HORIE (1993), 87

2.6.2. *Genitive subject*. NMLZ which mark their logical subjects with the genitive case are found in Fiji, Malagasy, and German, but also in English (chapter 3) and Akatek (chapter 5).

Nominalizations in Fiji refer to an EVENT as extended in time (DIXON, 1988). Example (21-a) shows an active independent clause. The way this independent clause is nominalized and used as a PVC can be observed in example (21-b). The article *a* is added to the nominalization and the pronominal subject marker *o* 'you' in (21-a) is replaced by the pronominal possessor *o-mu* 'yours' in (21-b).

- (21) a. *o lesu mai*
 2s return here
 'You return here.' DIXON (1988), 37
 b. *au aa raica [a o-mu lesu mai]*
 1s PT see [ART Class-2sGEN return DEM]
 'I saw your returning here.' DIXON (1988), 37

In the transformation of the independent transitive clause in (22-a) to the nominal PVC in (22-b), likewise, the article *a* is added and the pronominal subject marker *e* 'she/he' changes to the pronominal possessor form *o-na* 'hers/his'.

- (22) a. *e samu-ti i'o a cauravou yai*
 3s beat-TR 2sDO ART youth DEM
 'This youth beat you.' DIXON (1988), 38
 b. *au aa raica [a o-na samu-ti i'o a*
 1s PT see [ART Class-3sGEN beat-TR 2sDO ART
cauravou yai]
youth DEM]
 'I saw this youth's beating you.' DIXON (1988), 38

In Malagasy, a tensed circumstantial nominalization with a determiner is also EVENT denoting as a PVC. In (23) the formation of active voice and in (24) the formation of circumstantial voice constructions is presented. The structure of a circumstantial nominalization is given in (25). The circumstantial construction simply obtains an article or demonstrative in order to qualify as a nominalization, which can then fill either the final subject or the object position of a complex construction as is illustrated in the following.

- (23) ACTIVE
 tense-ACT-V O S(agent)
 (24) CIRCUMSTANTIAL CONSTRUCTION
 tense-ACT-V-*ana*-GEN(agent) O S(circumstance)

- (25) CIRCUMSTANTIAL NOMINALIZATION
 ART/DEM tense-ACT-V-*ana*-GEN(agent) O S(circumstance)

An example for an active construction is given in (26). The respective circumstantial nominalization is provided in (27). The active subject *Rabe* has genitivized to the circumstantial verb as *-dRabe* and the article *ny* 'the' has been added.²

- (26) n-aN-sólo(nanólo) kodiacarana Rabe
 PT-ACT-change tire Rabe
 'Rabe changed the tire.' KEENAN (1996)
- (27) ny nanoló-ana-Rabe(=nanolóan-dRabe) kodiacarana
 the PT.ACT.change-CIRC-Rabe tire
 'the past reason/place/instrument/./action of Rabe's changing the tire' KEENAN (1996)

With root passive perception verbs like *hita* 'be seen' the circumstantial nominalization can fill two slots in the sentence. Either it fills the (final) subject position in the passive construction shown in (28), while the perceiver is encoded by the genitive *-nao* 'you (GEN)' on the verb. The other possibility is that it fills the object slot in the active construction in (29) where the perceiver, here *ianaο* 'you (NOM)', is in the final subject position.

- (28) hita-naο [ny nanoloan-dRabe kodiacarana]
 seen-GEN2 [the changing-by.Rabe tire]
 'Rabe changing the tire was seen by you.' KEENAN (1996)
- (29) n-a-hita [ny nanoloan-dRabe kodiacarana] ianaο
 PT-ACT-seen [the changing-by.Rabe tire] NOM2
 'You saw Rabe change the tire (Rabe's changing of the tire).' KEENAN (1996)

²Instead of the article *ny* other determiners are possible as well:

- (i) tsy nahita [ilay/izany/izay nanoloan-dRabe kodiacarana izany/izay]
 not saw [that/that/that changing-by-Rabe tire that/that]
 aho
 NOM1
 'I didn't see that changing of the tire by Rabe.' KEENAN (1996)

German has a nominalized PVC as shown in (30). The PVC subject is in the genitive, which is marked on the article. The nominalization consists of the infinitive form of the verb and an article.

- (30) Er sah [das Spielen der Katze].
 he saw [ART playing ART(GEN) cat]
 ‘He saw the playing of the cat.’

2.6.3. *Accusative subject.* The EVENT denoting PVC in Nez Perce is a nominalization characterized by lack of tense-aspect marking and person agreement. Instead, the complement type carries the nominalizing suffix *-t/-n* and the allative NP suffix *-px/-x* ‘to’. As can be seen in (31), the logical subject of the complement clause is marked for case with the direct object marker *-ne/-na*.

- (31) kaa wéet ‘u’ [‘isii-ne c’i’iqi-t-x] ‘ée
 and not [anyone-DO talk-NMZR-ALL] you
 ‘a-mc’i-yo’
 1/2.3-hear-ASP
 ‘And you will not hear anyone talking.’
 PHINNEY (1934), 274

2.7. Tense-aspect restrictions. Event denoting PVC types that are marked by tense or aspect follow certain tense-aspect restrictions. PVC types that lack tense-aspect marking like the naked infinitives and most of the nominalizations are automatically interpreted as simultaneous with their matrix clause. The purpose of the tense-aspect restrictions for tensed PVCs is to assure temporal simultaneity of the EVENT and its perception. As has been mentioned above, PVCs denoting PROPOSITIONS do not have any tense restrictions.

Tense or aspect marked EVENT denoting PVC types are generally restricted in that they do not admit perfective aspect. Regarding tense, the EVENT denoting PVC is required to have the same tense marking as the matrix PV in the following languages: Malagasy (PARA and NMLZ PVCs), Romance (pseudo-relative PVCs), and Arbëresh (SUB PVCs). Greek requires the SUB PVCs to be always in the present tense. In the Russian IND PVCs and in the Japanese NMLZ PVCs, present or non-past tense PVs require present or non-past PVCs, whereas past PVs accept both present/non-past and past PVCs. Due to the few available data on Mohawk and Cambodian I could not verify whether their IND PVCs are subject to tense or aspect restrictions if they are EVENT denoting. Examples for Russian and Malagasy are provided below.

In Russian, *kak*-PVCs have to conform to the restriction that ‘the temporal relationship of the complement and matrix sentence actions is obligatorily understood as simultaneous’ BRECHT (1974), 211, i.e. for a matrix verb in past tense, either present or past, but no future tense is possible in the PVC (32), and for a matrix verb in present tense, only present tense is allowed, compare the examples in (33).

- (32) a. Ja videl, kak Anna čitaet knigu.
 ‘I saw Anna reading a book.’
 b. Ja videl, kak Anna čitala knigu.
 ‘I saw Anna reading a book.’
 c. *Ja videl, kak Anna budet čitat’ knigu.
 BRECHT (1974), 211
- (33) a. Ja vižu, kak Anna čitaet knigu.
 ‘I see Anna reading a book.’
 b. *Ja vižu, kak Anna čitala knigu.
 c. *Ja vižu, kak Anna budet čitat’ knigu.
 BRECHT (1974), 211

The PARA PVC in Malagasy must have the same tense marking as the matrix clause as illustrated in (34-a)–(34-c), whereas tense marking different from the matrix clause is ungrammatical as is shown in (35).

- (34) a. **N**ahita azy **n**andalo aho. ‘Je l’ai vu passer.’
 b. **M**ahita azy **m**andalo aho. ‘Je le vois qui passe.’
 c. **H**ahita azy **h**andalo hianao. ‘Vous la verrez passer.’
 MALZAC (1960), 136
- (35) N-a-hita an-dRabe [n-/ *h-/ *m- iala
 PT-ACT-seen ACC-Rabe [PT-/ *FUT-/ *PRES- ACT.exit
 ny fiara] aho.
 the car] NOM1
 ‘I saw Rabe get out of the car.’ KEENAN (1996)

2.8. Summary. All five complement types are attested as EVENT denoting PVCs as summarized in Table 2. IND EVENT denoting PVCs can occur without a complementizer as in Mohawk or Cambodian, or with a complementizer as in Russian. SUB PVCs are used in Greek and Arbëresh. A PARA PVC is used in Malagasy. NMLZ PVC are the most frequent strategy in my sample for EVENT denoting PVCs. I distinguished case marked NMLZs from those with a subject in the genitive and those with accusative subjects. Finally, INF PVCs occur in Romance, German, and English. Tense-aspect restrictions (indicated

TABLE 2. Event denoting PVC types

PVC type	Language
IND, - COMP	Mohawk, Cambodian
IND, + COMP	Russian (+TAR)
SUB, + COMP	Modern Greek (+TAR), Arbëresh (+TAR)
PARA	Malagasy (+TAR)
INF	Romance, German, English
NMLZ, case marked	Japanese (+TAR)
NMLZ, ACC S	Nez Perce
NMLZ, GEN S	Malagasy (+TAR), Fiji, Akatek, German, English

as (+TAR) in Table 2) were observed for EVENT denoting PVC types that allow tense or aspect marking.

In the next section I present the PVC types that can be used to denote PROPOSITIONS. According to Hypothesis I, there should be at least one for every language under investigation.

3. Proposition denoting PVC types

There are PROPOSITION denoting PVC types in all the languages that were investigated. However, no PARA types occurred. Therefore, further studies of PVC systems in languages with PARA complements are necessary. The IND type PVC is the most frequently used complement type to express PROPOSITIONS. Proposition denoting SUB, INF and NMLZ PVCs have so far only been attested for Akatek, English and Japanese, respectively. The PROPOSITION denoting PVC types may in many languages also be employed to convey EVENTS, except when evidentials are added, which unambiguously indicates that the complement denotes a PROPOSITION.

3.1. Indicative PVCs. Proposition denoting IND PVCs occur either with or without a complementizer. The use of evidentials with IND PVCs is illustrated for Cayuga. Other languages which do not use a complementizer are Nez Perce and Mohawk. In some languages, e.g. English and Akatek, the complementizer is optional. The strategy IND + COMP to express PROPOSITIONS is the most frequent strategy in the sample.

3.1.1. *Indicative, + Evidential.* In Cayuga, the addition of an evidential, which by itself is a clause, in a given string of clauses indicates that what follows has the status of a PROPOSITION (36). Since EVENTS cannot be more or less certain, adding the evidential marker *a:yé:* ‘it

seems' to a PVC produces a conceptual reading and thereby excludes a possible EVENT interpretation.

- (36) Tekekahné:’ a:yé:’ onahtokehekyé’ kayéthwahsho’
 I.am.looking **it.seems** they.are.growing they.are.planted
 ‘I see your plants are growing.’ MITHUN (1986a), 98

3.1.2. *Indicative, - COMP.* Lacking a complementizer, Nez Perce uses indicative complements not only with verbs of speaking (37), but also with verbs of cognition (38) and perception (39) (RUDE, 1985).

- (37) hi-hí-ne [Ø-ki-yú’]
 3NOM-say/tell-ASP [1/2NOM-go-FUT]
 ‘He said, “I will go.”’ RUDE (1985), 366
- (38) kaa wáaqo’ hi-cúuxwe-ne [pée-’wi-ye píilepti-ne
 and now 3NOM-know-ASP [3.3-shoot-ASP four-DO
 tu’yée-ne]
 grouse-DO]
 ‘And now she knew, “He had shot four grouse.”’
 PHINNEY (1934), 34
- (39) kíimet hi-nées-tewyek-e [’óykaloo-m
 when 3NOM-PL.DO-feel-ASP [all-ERG
 hi-welée-x-c-ix]
 3NOM-go.along-see-ASP-PL.NOM]
 ‘...when she sensed them “Everybody is watching me.”’
 PHINNEY (1934), 432
 (‘...when she sensed that everybody was watching her.’
 RUDE (1985), 368

In Mohawk, the only indicators of the type of relationship between two sentences are differences in tense or aspect, intonation patterns, or demonstrative and deictic particles (MITHUN, 1984). Unfortunately, no examples of PROPOSITION denoting PVCs in Mohawk are available to me at the moment. In examples (40) and (41) the comma indicates a pause. In (40) the demonstrative *kí:* ‘this’ refers to the second clause, which is separated by a pause. The demonstrative *thóh* ‘there’ in example (41), on the other hand, occurs after the pause, indicating the location of the second clause.³

³Not all occurrences of demonstratives are combined with pauses, they are also used when two clauses are juxtaposed without a pause like in example (i).

- (40) Ó:nen kwah ken' náhe' kiotáhsawen **kí:** ,
 now just bit ago it.has.begun **this PAUSE**
 onkwehón:we ronhténkie's.
 real.person they.are.leaving
 'Not too long ago people began to leave (the reserve).'
 MITHUN (1984), 498
- (41) Iahshakoia'ténhawe tsi iontatenhotónhkhwa'
 there.he.took.them to one.door.closes.with.it
 wahonwatinhó:ton , **thóh** kí'
 they.door.closed.on.them **PAUSE there** just
 iehonanón:werehkwe.
 there.they.slept
 'He took them all to jail where they spent the night.'
 MITHUN (1984), 500

3.1.3. *Indicative, + COMP.* IND PVCs with a (sometimes optional) complementizer are attested for Russian, Modern Greek, Arbëresh, Romance, German and English, Malagasy, Fijian, Akatek and Cambodian.

In Russian, the PROPOSITION denoting interpretation of a PVC is achieved by using the complementizer *čto* as in (42) (BRECHT, 1974; NOONAN, 1985).

- (42) Ja videl, [čto Anna čitaet knigu].
 I saw [COMP Anna read book]
 'I saw that Anna was reading the book.'
 BRECHT (1974), 211

In Modern Greek and in Arbëresh PROPOSITION denoting PVCs are marked by the complementizers *oti* in Greek and *se* in Arbëresh as can be seen in (43-a) and (43-b), respectively (DIK & HENGEVELD, 1991; GUASTI, 1993).⁴

-
- (i) Wá:rehre' ne rón:kwe óksa'k ki'ná:'a ne ienhará'then
 he.thought the man quickly supposedly that he.will.climb.up.there
 'Soon after, the man decided to go on up.' MITHUN (1984), 500

The article *ne* 'the/that' occurs twice in example (i). In the first case, it precedes a noun *rón:kwe* 'man' and in the second it precedes a clause that functions as a complement, i.e. as a sentential object (MITHUN, 1984).

⁴In Greek there are two more complementizers that can occur with PVCs: *pós* and *pu*. The latter seems to be acceptable in environments where the subjunctive particle for EVENT denoting PVCs, *na*, is possible whereas the former is closer in

- (43) a. O Yiannis ide [oti i Maria ehi fai to milo].
 the Yiannis saw [COMP the Maria has eaten the apple]
 b. Xhiuvani ka parë [se Maria ka ngronë moghin].
 Xhiuvani has seen [COMP Maria has eaten apple]
 ‘John saw that Maria has eaten the apple.’
 GUASTI (1993), 143

In Romance languages and in German, an indicative complement with a complementizer encodes PROPOSITION denoting PVCs. Example (44) is from French and (45) from German.

- (44) J’ai senti [que quelqu’un a touché mon bras].
 I.have felt [that somebody has touched my arm]
 ‘I felt someone touch my arm.’ HORIE (1993), 190
- (45) Er sah, [daß sie allein über die Strasse gegangen war].
 he saw [COMP she alone over ART street walked was]
 ‘He saw that she had crossed the street all by herself.’

In Malagasy, the complementizer *fa* is equivalent to the English complementizer ‘that’ (MALZAC, 1960). It serves to combine two clauses, if the first contains a verb like ‘tell’, ‘say’, ‘see’, ‘know’, ‘believe’, ‘hope’, etc. Examples (46) and (47) demonstrate constructions with the root passive perception verb *tsapa* ‘felt’, the former in a passive construction and the latter in an active construction with the abilitative/causative active prefix *aha*.

- (46) tsapa-ko [fa mahalala fomba ry zareo]
 felt-GEN1 [COMP know ways ART they]
 ‘I think that they are polite.’ KEENAN (1996)
- (47) m-aha-tsapa aho [fa mazoto miasa izy]
 PRES-cause-felt NOM1 [COMP energetic works NOM3]
 ‘I feel that he is energetic in working.’ KEENAN (1996)

In Fijian, PROPOSITION denoting PVCs have the structure of main clauses, they also show normal pronominal person marking, in example (48) third person plural *ra*. In addition, they are introduced by the complementizer *ni*.

meaning to the factive *óti*. Future research has to explore the specific role of these additional complementizers in Greek PVCs.

- (48) au aa rogoa [ni+ra qaaqaa a cauravou yai]
 1sg PT hear [COMP+3p win ART youth DEM]
 ‘I heard that these youths had won. (i.e. I just heard the result.)’ DIXON (1988), 38

In Cambodian, the verb *thaa* ‘say’ can function as a complementizer after verbs of communication, thinking and perception (BISANG, 1992). An example of a PVC with the complementizer *thaa* ‘that’ is given in (49).

- (49) kñom baan lu [thaa nuw srok-kmae mien
 I have hear [COMP be.situated Cambodia have
 robam-roëm-kbac lqaa nah]
 ballet pretty very]
 ‘I’ve heard that Cambodia has beautiful ballet.’
 HUFFMAN (1970), 247

According to DIK & HENGEVELD (1991) (quoted from KUNO (1973)), some Japanese PVCs occur with the complementizer *to*.

- (50) Watashi wa [John ga piano o hiku to] kiita.
 I TP [John SB piano ACC play COMP] heard
 ‘I heard “John plays the piano.”’ KYOKO FUKUDA (p.c.)

3.2. Subjunctive PVCs. A proposition denoting SUB type PVC up to now has only been attested for Akatek (refer to chapter 5)

3.3. Infinitive PVCs. The only INF type that has been shown to be PROPOSITION denoting is the English *to*-PVC (refer to chapter 3).

3.4. Nominalized PVCs. Only one NMLZ PVC in the sample is used to express PROPOSITIONS: the *koto*-PVC in Japanese is a nominalization that functions as sentential object complement and therefore carries accusative case marking as shown in example (51).

- (51) Noda-wa [Takako-ga piano-o hii-teiru koto]-o
 Noda-TP [Takako-SB piano-ACC play-DUR NMZR]-ACC
 kiita.
 hear:PT
 ‘Noda heard about the fact that Takako has been practicing the piano.’ HORIE (1993), 93

The usage of *koto* can sometimes be restricted by context. In the PVC in (52) the EVENT denoting *no* is grammatical, but *koto* as an indicator of a PROPOSITION is ungrammatical.

- (52) Noda-wa [Takako-ga gake-kara ochiru no/ *koto
 Noda-TP [Takako-SB cliff-from fall:NPT NMZR/ NMZR
]-o mita.
]-ACC see:PT
 ‘Noda saw Takako fall off the cliff.’ HORIE (1993), 93

Apparently, speakers of Japanese have greater difficulties accepting *miru* ‘see’ as a matrix predicate for a *koto*-PVC than as a matrix predicate for a *no*-PVC, whereas with the matrix predicate *kiku* ‘hear’ this restriction does not exist (HOLZAPFEL, 1996). This might be the case because *miru* ‘see’ can also be used as an active perception verb, and active perception verbs are unlikely to occur with PROPOSITION denoting PVCs. In any case, there are contexts that allow the combination of *miru* ‘see’ with *koto*-PVCs, see example (53).

- (53) Tarô wa [Jirô ga heya ni hairu koto
 Tarô TP [Jirô SB Zimmer PREP betreten:NPT NMZR
]-o miru.
]-ACC sehen:NPT
 ‘Tarô sieht, daß Jirô das Zimmer betritt.’
 HOLZAPFEL (1996), 71

3.5. Summary. The distribution of PROPOSITION denoting PVC types over the typology of PVCs is illustrated in Table 3. So far, no PARA PVC types that can be PROPOSITION denoting have been attested. IND PVC are the most frequently used complement types,

TABLE 3. Proposition denoting PVC types

PVC type	Language
IND, - COMP (+ EV)	Nez Perce, Mohawk, Cayuga
IND, + COMP	Russian, Modern Greek, Arbëresh, French, German, Malagasy, English Fijian, Cambodian, Japanese, Akatek
SUB, + COMP	Akatek
PARA	?
INF	English
NMLZ	Japanese

especially in light of the fact that the only attested PROPOSITION denoting SUB, INF and NMLZ PVCs are found in languages that also have PROPOSITION denoting IND complements. More specifically, Akatek has an IND PVC and a SUB PVC variant, both expressing PROPOSITIONS. English has an IND and an INF PROPOSITION denoting PVC type and Japanese has an IND and a NMLZ PROPOSITION denoting PVC type. That the INF *to*-PVC in English is of more restricted applicability than the IND *that*-PVC was shown in chapter 3. The PROPOSITION denoting NMLZ PVC in Japanese is restricted in a similar way as has been shown in section 3.4.

4. Typological correlations

I pose a number of questions as a guideline for discovering typological correlations of PVCs based on the data presented in sections 2 and 3:

1. Question 1
What is the cross-linguistic variation for EVENT denoting PVC types?
2. Question 2
What is the cross-linguistic variation for PROPOSITION denoting PVC types?
3. Question 3
How do PROPOSITION denoting and EVENT denoting PVC types combine within a single language?
4. Question 4
Comparing the patterns of PVC types in languages, do any cross-linguistic correlations arise?
5. Question 5
How does the PVC system of a language interact with the system of complementation of that language?

I try to answer the above questions based on the (preliminary) evidence from the few languages investigated. Those were next to the detailed analyses of English and Akatek (see chapters 3 and 5, respectively), Fiji, Nez Perce, Japanese, German, the Romance languages French, Italian and Spanish, Malagasy, Greek, Arbëresh, Russian, Cambodian, Cayuga and Mohawk. Table 4 summarizes the distribution of PVC types denoting PROPOSITIONS (P) and PVC types expressing EVENTS (E) in these languages.

Question 1: What is the cross-linguistic variation for EVENT denoting PVC types? – The answer to Question 1 was already provided in section 2, but it can also be seen in Table 4. All five PVC types,

TABLE 4. PVC systems across languages

	IND	SUB	PARA	INF	NMLZ
Fiji, Nez Perce	P	-	-	-	E
Japanese	P	-	-	-	PEE
German	P	-	-	E	E
Romance	P	-	-	E	-
English	P	-	-	PEE	E
Malagasy	P	-	E	-	E
Akatek	P	P	-	-	E
Greek, Arbëresh	P	E	-	-	-
Russian, Cambodian, Cayuga/ Mohawk	PE	-	-	-	-

i.e. INDs, SUBs, PARAs, INFs and NMLZs, can be EVENT denoting (there is an E in each column).

Question 2: What is the cross-linguistic variation for PROPOSITION denoting PVC types? – Question 2 was the topic of section 3, the results of which are illustrated in Table 4: PARAs are not attested as PROPOSITION denoting PVCs (there is no P in the respective column). Due to the few languages investigated, more research is called for before an adequate answer to question 2 can be provided. However, I posit a tentative correlation regarding the primary choice of complement type for PROPOSITION denoting PVCs.

(54) Correlation 3 (tentative)

Every language that has PVs with cognitive meanings uses at least an IND PVC to express PROPOSITIONS.

Question 3: How do PROPOSITION denoting and EVENT denoting PVC types combine within a single language? – The combinations of PROPOSITION (P) and EVENT (E) denoting PVC types in the languages investigated are summarized in Table 4. There are nine different patterns for the 13 languages (counting Romance as one as well as Cayuga/ Mohawk). Except for Japanese, Akatek and English, which have two, all languages have only one PROPOSITION denoting PVC type. The number of EVENT denoting PVC types within a language ranges from three in English over two in Japanese, German and Malagasy to only one for the remaining languages. However, these results are highly speculative since I cannot be sure that many of these languages have additional PVC types that were not described in the sources I consulted.⁵

⁵For example, in Greek there are at least two more complementizers with PVCs as has been noted before.

Question 4: Comparing the patterns of PVC types in languages, do any cross-linguistic correlations arise? – Table 4 indicates a hierarchical ordering of PVC types along the following hierarchy, with the ranking of PARA so far completely undecided.

- (55) PVC Hierarchy
IND > SUB > ?PARA > INF > NMLZ

The hierarchy must be interpreted in the following way:

- (56) Correlation 4
EVENT denoting PVCs can take the form of any complement on the same level or lower on the complementation hierarchy than a PROPOSITION denoting PVC in a given language.

For example, if a language has an EVENT denoting IND PVC, then it cannot have a non-IND PROPOSITION denoting PVC. Or if - as is the case in Japanese - a NMLZ PVC is used to denote PROPOSITIONS, then no INF PVC can be used to express EVENTS.

Complementizers (COMP) can only cooccur with INDs and SUBs. Correlation 1, which was stated in chapter 2, makes predictions regarding the distribution of complementizers. Correlation 1 is repeated below for convenience:

- (57) Correlation 1
If the EVENT denoting PVC has a complementizer, then the PROPOSITION denoting PVC also has a complementizer.

Table 5 illustrates the distribution of complementizers used in the PVC types of the investigated languages. The results depicted in the Table

TABLE 5. Complementizer-taking PVC types

Language	IND	IND	SUB	SUB
	PROPOSITION	EVENT	PROPOSITION	EVENT
Akatek	+ COMP		+ COMP	
Greek, Arbëresh	+ COMP			+ COMP
Russian	+ COMP	+ COMP		
Cambodian	+ COMP	- COMP		
Cayuga, Chinese	- COMP	- COMP		

confirm the validity of Correlation 1. None of the languages uses an EVENT denoting PVC with a complementizer and a PROPOSITION denoting PVC without one. The only EVENT denoting PVCs with a complementizer are the IND PVC in Russian and the SUB PVC in Greek and Arbëresh.

Question 5: How does the PVC system of a language interact with the system of complementation of that language? – Since the information necessary to answer this question is not available to me at this point, Question 5 is a suggestion for future research.

Finally, let me reconsider the results of the typological considerations regarding Hypotheses I, V, and VI, repeated here for ease of reference.

Hypothesis I: Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS. – Hypothesis I does not apply to Russian, which was shown to use IND PVCs to denote both EVENTS and PROPOSITIONS. However, the complementizer *kak* used for event denoting PVCs in Russian means ‘how’, and wh-complements were excluded from the investigation. Together with the pseudo-relative PVC in Romance languages, this indicates that the typology suggested by NOONAN (1985) does not sufficiently provide for a description of EVENT vs. PROPOSITION denoting PVCs across languages. A number of the researched languages does - to my knowledge - not have a complementation system in the sense of the established typology of complementation, so that Hypothesis I does not apply to them. These languages are Cambodian, Mohawk, Cayuga, and Chinese. Languages of this type require further research.

Hypothesis V: PVC types higher up in the hierarchy, e.g. the IND types, are more likely to denote PROPOSITIONS, while PVC types lower in the hierarchy, e.g. the NMLZ types, are more likely to denote EVENTS. – Hypothesis V is supported by Correlation 4: EVENT denoting PVCs can take the form of any complement on the same level or lower on the complementation hierarchy than PROPOSITION denoting PVCs in a given language. As can be seen in Table 4, IND types can also express EVENTS, e.g. Russian, and NMLZ types can also express PROPOSITIONS, e.g. Japanese. In other words, all complement types considered have the potential to express either EVENTS or PROPOSITIONS.

Hypothesis VI: The following five complement types of the typology of complementation, i.e. INDs, SUBs, PARAs, INFs, and NMLZs can function as PVCs, but PVC types are not restricted to these five types. – PVC types are attested for all five complement types, but e.g. in the Romance languages, there is a pseudo-relative construction denoting EVENTS. Also, there is a large variety of complement types, e.g. wh-complements that were excluded from the investigation in the beginning.

CHAPTER 7

Conclusion

In this thesis, I discussed the lexicalization of perception verbs, their meaning extensions, the complements they can take, and the semantic types that are attributed to the latter ones. I presented detailed descriptions of the PVC systems of English and Akatek. The investigation of English PVCs was mainly based on earlier research and served as a starting point for the investigation of PVCs in Akatek. The investigation of Akatek PVCs resulted mainly from field work concentrating on the structural and semantic characteristics of PVC types. The results of the analyses of English and Akatek were compared and then used as the basis of a typology of PVC systems that was complemented with data from the following languages: Fiji, Nez Perce, Japanese, German, the Romance languages French, Italian and Spanish, Malagasy, Greek, Arbëresh, Russian, Cambodian, Cayuga and Mohawk.

1. PVs as matrix predicates

Among the many PVs that languages use, this study focused on basic passive PVs like for example, *see* or *hear*, as opposed to non-basic PVs like *eye*, active PVs like *watch* or copulative PVs like *sound*. The investigation of PV matrix predicates was a prerequisite to the description of the PVC systems in English and Akatek. In English, the basic passive PVs are *see*, *hear*, *feel*, *smell*, and *taste*. Cross-linguistically, not all languages lexicalize a separate passive PV for all five sense modalities. Akatek, for example, has two basic PVs, *il* ‘see’ and *ab* ‘hear’, which have both active PV and passive PV interpretations. Cross-linguistically, perception verbs lexicalize along a sense modality hierarchy, which starts with - if a passive PV is lexicalized at all - the sense of VISION or alternatively with general sense perception, followed by HEARING, and TOUCH, SMELL and TASTE.

\emptyset > PERCEIVE/ VISION > HEARING > TOUCH
SMELL
TASTE

The sense modality hierarchy does not only reflect the lexicalization sequence passive PVs follow, but also, which additional meanings along the sense modality hierarchy a passive PV can cover. For example in Akatek, *ab* ‘hear’ is also used to cover the lower sense modalities of TOUCH, TASTE, and SMELL, which have no distinct lexical realizations as is the case for example in English.

The hierarchy also predicts that PVs higher up in the hierarchy are more likely to extend their meaning into the cognitive domain than those on the lower end. In Akatek both *il* ‘see’ and *ab* ‘hear’ extend their meaning into the cognitive domain. Passive PVs that have acquired an additional cognitive meaning are special matrix predicates. In languages with a complementation system, passive PVs can take at least two different complement types provided that the cognitive extension of passive PVs is universal (Hypothesis I).

2. PVC types

The different PVC types were described according to their semantic and their structural characteristics and identified as one of six different complement types (NOONAN, 1985): indicative complements (INDs), subjunctive complements (SUBs), paratactic complements (PARAs), infinitives (INFs), nominalizations (NMLZs) and participles (PARTs). I have shown in chapter 3 that in English, there are more PVC types than the ones investigated. For example, I explicitly excluded *wh*-clauses, adverbial clauses and small clause constructions as well as participial adjunct clauses from the investigation. Excluding participial adjunct clauses from the investigation, i.e. Noonan’s PART complement type, reduces the prospective typology of PVCs to five complement types: IND, SUB, PARA, INF, and NMLZ.

I described five PVC types in English: NI-PVCs (INFs), *ing*-PVCs (INFs), PNOMs (NMLZs), *to*-PVCs (INFs) and *that*-PVCs (INDs). The non-PVC complement type INOM was added to the investigation because on the one hand INOMs contrast well with PNOMs and on the other they share a number of structural and semantic characteristics with *to*-PVCs and *that*-PVCs. Akatek has two different types of PVC, referred to as type1 and type2. Type2 PVCs are NMLZs comparable to the NMLZ PNOMs in English. Type1 PVCs occur in two varieties, as INDs or as SUBs. They only differ in the complementizers they take.

3. Interpretation of PVC types

The goal of this study was to establish correlations between structural PVC types and two semantic types: EVENTS and PROPOSITIONS.

I hypothesized that all languages with a complementation system use at least two different types of PVCs (Hypothesis I). These different complement types are assigned either an EVENT interpretation or a PROPOSITIONAL reading. One PVC type is exclusively EVENT denoting (Hypothesis II) and at least one PVC type is PROPOSITION denoting. In certain contexts it cannot be excluded that PROPOSITION denoting PVC types can also be EVENT denoting (Hypothesis III).

- (1) Hypothesis I
 Provided that at least one PV in a language has a cognitive meaning, all languages with a complementation system use at least two different types of PVC, one to express EVENTS and one to denote PROPOSITIONS.
- (2) Hypothesis II
 At least one PVC type is exclusively EVENT denoting.
- (3) Hypothesis III
 PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting.

The results showed that in English, NI-PVCs, *ing*-PVCs, and PNOMs are exclusively EVENT denoting, *to*-PVCs are exclusively PROPOSITION denoting, and *that*-PVCs are primarily PROPOSITION denoting and under special conditions additionally EVENT denoting. English *that*-PVCs are basically PROPOSITION denoting and are listed as such in the typological considerations below. Their structural and semantic flexibility, however, enables *that*-PVCs to also encode EVENTS provided that the restrictions put on EVENT denoting complement types are all met. These special conditions are mainly semantic in nature: temporal simultaneity, perceptible process predicates, no negation, no modal modification. The structural and semantic description of type1 and type2 PVCs in Akatek according to the criteria established for the analysis of English PVC types in chapter 3 confirmed Hypothesis II: at least one PVC type is exclusively EVENT denoting, as well as Hypothesis III: PVC types that are primarily PROPOSITION denoting can under special conditions also be EVENT denoting. The results also confirm Hypothesis I: all languages with complementation systems have two different PVC types, one of which is used to express EVENTS and the other to denote PROPOSITIONS.

The comparison of type1 PVCs in Akatek with *that*-PVCs in English on the one hand and of type2 PVCs in Akatek with PNOMs in English on the other showed a high degree of similarity regarding their structural and the semantic characteristics. In Table 1, the distribution

of English and Akatek PVC types over the typology of complementation is presented. The Akatek PVC types fit perfectly into the typological picture that was developed for English PVC types in chapter 3. The proposition denoting type1 PVC is an indicative (IND) complement. In addition, type1 PVCs can also function as SUB complements when taking the subjunctive complementizer *tol*. The EVENT denoting type2 PVCs are NMLZ complements just like PNOMs in English. In Table 1, the possibility of a hierarchy for PVC types ranking from IND over INF to NMLZ, is apparent. Certain complement types may be skipped as in Akatek, or more than one variety of a complement type, e.g. the three INFs in English, can be used.

TABLE 1. English and Akatek PVC types and the typology of complementation

Complement types	English PVCs	Akatek PVCs	Semantic types
IND	<i>that</i> -PVC	type1 (<i>tzub'il</i>)	PROPOSITION (EVENT)
SUB	—	type1 (<i>tol</i>)	PROPOSITION (EVENT)
INF	<i>to</i> -PVC	—	PROPOSITION
INF	<i>NI</i> -PVC	—	EVENT
INF	<i>ing</i> -PVC	—	EVENT
NMLZ	PNOM	type2	EVENT

4. Typology of PVC systems

The results of the typological investigation of PVC types denoting EVENTS and those expressing PROPOSITIONS indicate the following:

1. All five PVC types, i.e. INDs, SUBs, PARAs, INFs and NMLZs, can be EVENT denoting (there is an E in each column in Table 2). PARAs are not attested as PROPOSITION denoting PVCs (there is no P in the respective column in Table 2). Due to the few languages investigated, more research is called for before an adequate answer can be provided. Still, I posited a tentative correlation regarding the primary choice of complement type for PROPOSITION denoting PVCs:

- (4) Correlation 3 (tentative)
Every language that has PVs with cognitive meanings uses at least an IND PVC to express PROPOSITIONS.

2. PVC types are attested for all five complement types, but e.g. in the Romance languages, there is a pseudo-relative construction

denoting EVENTS. A considerable number of complement types, e.g. relative clauses and wh-complements, was excluded from the investigation in the beginning. These observations confirm Hypothesis VI:

(5) Hypothesis VI

The following five complement types of the typology of complementation, i.e. INDs, SUBs, PARAs, INFs, and NMLZs can function as PVCs, but PVC types are not restricted to these five types.

3. There are nine different patterns of PROPOSITION (P) and EVENT (E) denoting PVC types for the 13 languages under investigation (counting Romance as one as well as Cayuga/ Mohawk). Except for Japanese, Akatek and English, which have two, all languages have only one PROPOSITION denoting PVC type. The number of EVENT denoting PVC types within a language ranges from three in English over two in Japanese, German and Malagasy to only one for the remaining languages. However, these results are highly speculative since I cannot be sure that many of these languages have additional PVC types that were not described in the sources I consulted.¹
4. Hypothesis I does not apply to Russian, which was shown to use IND PVCs to denote both EVENTS and PROPOSITIONS. I have not been able to investigate the role that the complementizer *kak* of the EVENT denoting PVC type plays in Russian, but in other contexts *kak* means 'how'. This would qualify *kak*-PVCs not as IND but as wh-complements, which were excluded from the investigation. However, the complementizer *tzub'il* of the proposition denoting PVC type in Akatek also means 'how' when used in other contexts. These observations call for detailed investigation of the complementizers. Moreover, a number of the researched languages does - to my knowledge - not have a complementation system in the sense of the established typology of complementation, so that Hypothesis I does not apply to them. These languages are Cambodian, Mohawk, Cayuga, and Chinese. Languages of this type require further research.
5. Table 2 indicates a hierarchical ordering of PVC types along the following hierarchy, with the ranking of PARA PVCs so far undecided.

¹For example, in Greek there are at least two more complementizers with PVCs as was noted in chapter 6.

- (6) PVC Hierarchy
 IND > SUB > ?PARA > INF > NMLZ

TABLE 2. PVC systems across languages

	IND	SUB	PARA	INF	NMLZ
Fiji, Nez Perce	P	-	-	-	E
Japanese	P	-	-	-	PEE
German	P	-	-	E	E
Romance	P	-	-	E	-
English	P	-	-	PEE	E
Malagasy	P	-	E	-	E
Akatek	P	P	-	-	E
Greek, Arbëresh	P	E	-	-	-
Russian, Cambodian, Cayuga/ Mohawk	PE	-	-	-	-

6. Hypothesis V is supported by Correlation 4: EVENT denoting PVCs can take the form of any complement on the same level or lower in the complementation hierarchy than PROPOSITION denoting PVCs in a given language. As can be seen in Table 2, IND types can also express EVENTS, e.g. in Russian, and NMLZ types can also express PROPOSITIONS, e.g. in Japanese. In other words, all complement types considered have the potential to express either EVENTS or PROPOSITIONS.

- (7) Hypothesis V
 PVC types higher up in the hierarchy are more likely to denote PROPOSITIONS, while PVC types lower in the hierarchy are more likely to denote EVENTS.

7. Complementizers (COMPs) can only cooccur with INDs and SUBs. Correlation 1 was shown to hold for all languages under investigation:

- (8) If the EVENT denoting PVC has a complementizer, then the PROPOSITION denoting PVC also has a complementizer.

In sum, I suggest a three-layered hierarchy for PVC systems as shown in (9).

- (9) a. IND > SUB > ?PARA > INF > NMLZ
 b. PROPOSITIONS > EVENTS (Correlations 3 and 4)
 c. + COMP > - COMP (Correlation 1)

The PVC hierarchy from IND over SUB and PARA to INF and NMLZ denotes PROPOSITIONS from left to right. At least one IND type always denotes a PROPOSITION. Any PVC type can be used more than once, e.g. there are three different NMLZ types in Japanese, one expressing PROPOSITIONS and two encoding EVENTS. The lowest ranking PROPOSITION denoting type is at the same time the highest possible EVENT denoting type. Complementizers only occur with IND or SUB complements and occur from IND to SUB (if at all).

5. Non-PV matrix predicates

As an additional characteristic of PVC types, I investigated a possible correlation with non-PV matrix predicates for English and Akatek. Especially the ability of a PVC type to be embedded by a knowledge predicate, e.g. *know* in English, is hypothesized to be a defining characteristic of PROPOSITION denoting PVC types (Hypothesis IV).

- (10) Hypothesis IV
The ability to be embedded by the matrix predicate ‘*know*’ distinguishes the exclusively EVENT denoting PVCs from the primarily PROPOSITION denoting ones.

I confirmed Hypothesis IV for English and Akatek. As illustrated in Table 3, the PROPOSITION denoting PVCs can be embedded by the matrix predicates *know/ootaj*, which the EVENT denoting PVCs cannot.

TABLE 3. Ability of English and Akatek PVC types to be embedded by *know/ootaj*

English PVCs	Akatek PVCs	Semantic types	Matrix predicate <i>know/ootaj</i>
<i>that</i> -PVC	type1	PROPOSITION	+
<i>to</i> -PVC	—	PROPOSITION	+
<i>NI</i> -PVC	—	EVENT	–
<i>ing</i> -PVC	—	EVENT	–
PNOM	type2	EVENT	–

In addition, for the event denoting PNOM in English and for the type2 PVC in Akatek, I observed shared matrix predicates. Besides PVs those were causative verbs (CVs), aspectual auxiliaries and certain non-verbal predicates as shown in Table 4.

TABLE 4. Matrix predicates of Akatek type2 complements and English PNOMs

Matrix predicate type	for Akatek type2 e.g.	for English PNOM e.g.
PVs	<i>il</i> 'see'	<i>see</i>
CVs	<i>chej</i> 'force'	<i>cause</i>
Aspectual auxiliaries	<i>laa</i> 'end'	<i>begin</i>
Non-verbal predicates	<i>watr</i> 'be good'	<i>be slow</i>

6. Outlook

The final considerations to be made here refer to the general typological characteristics of Akatek that were established and compared to English in chapter 4. The typological dissimilarities regarding basic word order, case and agreement marking, possessor marking and case marking patterns are not connected to the similarities that I demonstrated for the typology of PVCs in these two languages. However, the observation that English lacks passive morphology, while Akatek employs a variety of passive morphemes, supports the hypothesis put forward by BENNIS & HOEKSTRA (1989) that passivization of PVC constructions in English is restricted because passive is realized via auxiliaries instead of via morphology. I have shown in great detail that Akatek, which has three different morphological passives, does not have any restrictions on passive constructions involving PVCs. In Akatek, there are even additional antipassive constructions, which can also be applied to PVCs.

A number of questions for future research have emerged from this study. First of all, it is desirable to consider the whole variety of PVCs including e.g. nominal adjuncts, relative clauses and wh-clauses. Also, it would be interesting to investigate how PVC systems interact with the complementation systems cross-linguistically. For instance, even though Russian does have infinitival complements, those are not used as PVCs - as opposed to other Slavic languages (see BRECHT (1974)). As was already mentioned above, the role of complementizers, subjunctive particles, and nominalizers needs further investigation. I have also avoided to subclassify types of NMLZ PVCs even though they were listed separately in the presentation in chapter 6 (refer to KOPTJEVSKAJA-TAMM (1993) for a typological study on nominalization). Of special interest are furthermore detailed investigations of languages that lack a complementation system such as Chinese and Mohawk. In addition, languages like Hausa, that do use PARA type PVCs must be investigated to verify the position of this PVC type in the hierarchy.

Abbreviations

∅	zero, unrealized
*	ungrammatical
*PM	proto-Mayan
—	none
1,2,3	first, second, third person
?	grammaticality questionable
A	set A: ergative and possessive
ABS	absolutive
ACC	accusative
ACT	active prefix
ACTU	actual
ADJ	adjective
ADM	admirative
ADV	adverb
AGR	agreement
AGT	agent
AH	accessibility hierarchy
ALL	allative
AOR	aorist
AP	antipassive
ART	article
ASP	aspect
AdjP	adjective phrase
B	set B: absolutive
BEN	benefactive
CAUS	causative
CFT	cleft particle
CIRC	circumstantial voice
CL	clitic
COL	collective
COMP	complementizer
COND	conditional
CONJ	conjunction
COP	copula
CV	causative verb
CVC	causative verb complement
CoV	Co-verb
D	dependent verb form
DAT	dative
DEM	demonstrative
DET	determiner

continued next page

DIR	directional
DISJ	disjunction
DISTR	distributive
DO	direct object
DUR	durative
E	event
ERG	ergative
EV	evidential
EX	existential
EXH	exhortative
FUT	future
GEN	genitive
I	independent verb form
IE	Indo-European
IMPF	imperfective
IMFPF	imperfective past
IND	indicative complement
INF	infinitive
INOM	imperfect nominal
INSTR	instrumental
IO	indirect object
IRR	irrealis
ITE	iterative
ITV	intransitive thematic vowel
LOC	locative
M	marked
N	noun
NCL	noun classifier
NEG	negation
NEGEX	negative existential
NI	naked infinitive
NMLZ	nominalized complement
NMZR	nominalizer
NOM	nominative/absolutive
NP	noun phrase
NPT	non-past
NUM	numeral
NUMCL	numeral classifier
NVP	nonverbal predicate
O	direct object
OBL	oblique object
P	proposition
PARA	paratactic complement

continued next page

PART	participle
PASS	passive
PASS/PF	perfective passive
PAT	patient
PERF	perfective
PL	plural
PNOM	perfect nominal
POSIT	positional
POSS	possessor
PP	prepositional phrase
PREP	preposition
PRES	present tense
PRO	pronoun
PROG	progressive
PT	past tense
PV	perception verb
PVC	perception verb complement
REFL	reflexive
S	subject
SB	subject marker
SBJ	subject
SC	small clause
SP	subjunctive particle
SUB	subjunctive complement
SUF	suffix
Sp	Spanish loan word
TAR	tense-aspect restrictions
TNF	transitive non-finite suffix
TP	topic marker
TR	transitive
TRANS	transitive marker
TTV	transitive thematic vowel
U	unmarked
V_{intr}	intransitive verb
V_{tr}	transitive verb
V	verb
VL	vowel+'l'-suffix
VOS	verb object subject argument ordering
VP	verb phrase
VSO	verb subject object argument ordering
VXY	VSO or VOS argument ordering
X	variable
·C	preconsonantal

continued next page

_ <i>V</i>	prevocalic
f	feminin
intr A	S or AGT of V_{intr}
intr P	S or PAT of V_{intr}
n.a.	not attested
p	plural
p.c.	personal communication
s	singular
s.o.	someone
s.th.	something
trans A	S or AGT of V_{tr}
trans P	O or PAT of V_{tr}

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