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Glossed used

1	First person	ITER	Iterative
2	Second person	LOC	Location
3	Third person	M	Masculine
ABL	Ablative	N.ASS	Non-assertive
ACC	Accusative	NEG	Negation
ADH	Adhortative	NOM	Nominative
AND	Andative	OTH	Other (verb agreement)
ASS	Assertive	PERF	Perfective
CAUS	Causative	PL	Plural
CLS	Classifier	PLACT	Pluractional
CNTEXP	Counterexpectational	PRO	Pronoun
COP	Copula	PROX	Proximal
DEM	Demonstrative	PRS	Present
DIM	Diminutive	PST	Past
DIST	Distal	Q	Question
DS	Different subject	REP	Reportative
F	Feminine	SG	Singular
FUT	Future	SP	Spanish (indicates a loanword)
GEN	General	SS	Same subject
IMP	Imperative	TOP	Topic
INTENS	Intensifier		

Chapter 1 – Introduction

Verbal aspect (also: 'grammatical aspect') is a grammatical category that many languages feature (Comrie 1976, Ö. Dahl 1985). It indicates the way events happen in time. In other words, it indicates the temporal development of events. As such, verbal aspect is a temporal category (Klein 2014). Prototypical examples of grammatical aspect include the difference between Modern Italian *dormivano* 'they were sleeping' and *dormirono* 'they slept'. The former is called imperfective aspect, whereas the latter is called perfective aspect.

But as Croft (2012:127) writes: "Like all grammatical categories, grammatical aspect categories tend to be polysemous within a language and differ in their uses across languages." For example, Fleischman (1985, 1990) shows that in Medieval French, verbal aspect does not only describe the temporal development of events, but can *inter alia* also signal whether an event is part of the background or foreground of discourse. Such semantic extensions of verbal aspect she calls "non-referential meanings" (1990:16), because these meanings do not pertain to the truth-conditional ('referential') content of the utterance containing the aspectual form.

Other examples of such non-referential semantic extensions in other languages abound. Faller (2004) and Cleary-Kemp (2013) show how aspectual suffixes acquired evidential meanings in Cuzco Quechua and Imbabura Quichua respectively. In a similar vein, tense-aspect forms in Turkish, Bulgarian, Macedonian and Albanian can be used to express evidential meanings too (Izvorski 1997; Friedman 1997, 2003). In Modern Russian, the use of verbal aspect in the imperative depends on the interaction with the hearer: perfective aspect is used for actions that the hearer is not yet going to carry out, whereas imperfective aspect is used when the hearer already intends to carry out the action (Dickey 2020). And in Classical Greek, verbal aspect can be used to present information as either new (perfective) or as given (imperfective) to the audience (Sicking 1996).

These examples illustrate that the polysemous nature of verbal aspect is a given. However, general theories of verbal aspect do not take these into account. Influential scholars like Reichenbach (1947), Comrie (1976), or recent generations of neo-Reichenbachians (e.g. Klein 1994, 2000; Bohnemeyer 1998, 2013) explain aspectual systems along one dimension, usually in terms of the temporal development of the event. They pay little to no heed to such semantic extensions as exemplified above. This is unfortunate, because these semantic extensions are not just occasional fringe phenomena. Instead, they are quintessential part of how verbal aspect manifests itself in different languages. They are particular to the language they occur in, and thus

contribute to the uniqueness of languages. As a result, polysemy is at the very heart of linguistic inquiry, and this should be reflected in our theories.

This study addresses this very issue. How can we use aspectual theories to explain such semantic extensions of aspectual systems? And which aspectual theory is best suited to do so? With these questions in mind, this study aims to analyse the aspectual system of Ecuadorian Siona, and to account for both their temporal functions, as well as their semantic extensions.

1.1 Aspect in Ecuadorian Siona

Ecuadorian Siona (from now on: 'Siona') is a West-Tukanoan language spoken in the north-eastern Sucumbíos province of Ecuador. There are two reasons to investigate verbal aspect (from now on: 'aspect') in Siona. The first is that aspect is obligatorily encoded through fusional sets of suffixes. The second is that evidence strongly suggests that Siona features non-referential semantic extensions of aspect, which current descriptions of Siona have not yet taken into account. In fact, Siona appears to feature a type of non-referential semantic extension that has not yet been described in the broader linguistic literature at all.

First, aspect in Siona is obligatorily encoded in so-called "dependent verbs" (Bruil 2014). Two types of aspect can be expressed: perfective and imperfective. Each has its own set of fusional suffixes associated, which also encode gender and number. This can be illustrated with the verb *saye* 'to bring'. The imperfective form *sacona* [saakonã] has the feminine singular suffix *-co* from the imperfective paradigm. When used in a past context, the form roughly means 'she was bringing (it) and then…'. The perfective equivalent is *saona* [saaonã] with the feminine singular suffix *-o* from the perfective paradigm. When used in a past context, this form roughly means 'she had brought (it) and then…'. The point is that these dependent verbs *have to be* inflected using suffixes from either the imperfective or the perfective paradigm. In other words, a speaker of Siona *always makes a choice* between imperfective or perfective aspect when using a dependent verb.

Second, there is good evidence to suggest that Siona aspect features non-referential semantic extensions, which cannot be accounted for using received theories of aspect. Let us consider the imperfective form *cacona* [kaakonã] in example 1 below, drawn from a traditional Siona narrative.

(1) [His wife told him: "You are eating raw fish!".]
Cacona, "Tsoe cua'cosicoa," caëña.

kaa-ko-nã	so̱e	kʷa?ko-sih-kʷ-a	kaa-i-ɲã
say-IMPF:F.SG-DS	already	cook-PST-CLS:F-COP	say-2/3SG.M.PST.N.ASS-REP

'When she had said that, he said: "It is already cooked".'
(Batman story, 20101123slicr001, line 018).

This sentence is from a conversation between a wife and a husband. The wife has just warned her husband that he is consuming fish that has not yet been fully cooked. Her husband replies that (he thinks) that the fish is sufficiently cooked. The wife's warning is described by the imperfective verb form *cacona*, a form of the verb *caye* 'to say'.

Received interpretations of imperfective aspect do not work here. For example, it is not the case that the wife's warning is "in progress" (Bybee *et al.* 1994:125) at this moment in the story. It is also untrue that the wife's warning has not yet been fully uttered at this moment in the story (Klein 1994). In fact, it *has.* The point is that she has finished speaking, and the audience is going to hear what her husband has to say in response. For the same reason, it is equally untenable to claim that the wife's warning is "looked at from inside" or that the imperfective form makes "reference to an internal portion" of the warning (Comrie 1976). As a result, the category of imperfective aspect in Siona seems to feature at least one non-referential semantic extension which presents a serious challenge to existing theories about aspect.

1.2 Aims of this study

This study aims to give a semantic analysis of the aspectual system of Siona. This aim is in fact twofold: first, to account for the temporal, 'referential' function of the aspectual forms. Second, to explain the non-referential semantic extensions that we find. Both will be done using Klein's (1994) neo-Reichenbachian approach to tense and aspect. The two research questions this study aims to answer are the following:

(1) How can Klein's (1994) neo-Reichenbachian approach be used to account for the referential uses of aspect in Ecuadorian Siona?
(2) How can Klein's (1994) neo-Reichenbachian approach be used to account for the non-referential uses of aspect in Ecuadorian Siona?

I depart from the position that Klein's (1994) neo-Reichenbachian approach is best suited to account for all uses of aspect in Ecuadorian Siona. He represents one of the most recently developed theoretical approach to tense and aspect, and his approach has gained considerable traction in the linguistic literature (e.g. Bohnemeyer 1998, Hollenbaugh 2021a). His approach presents a considerable number of analytical advantages over earlier approaches, notably Reichenbach (1947). These analytical advantages allow us to analyse both the referential and non-referential uses of aspect in Ecuadorian Siona. Chapter nine will discuss these advantages in-depth.

The structure of this study is as follows. Chapter two gives a brief introduction to the language, its speakers, the orthography, and describes some of the key features of the verbal system. Chapter three introduces Klein's (1994) approach to analysing tense and aspect. Chapter four comments on the data that will be used as well as the methodology applied. Chapters five through

eight constitute the analysis and aim to tackle the empirical issue: what are the referential uses of Siona aspect? And what is more puzzling: what are the non-referential uses of Siona aspect? Chapter nine then deals with the (more theoretical) research questions: how should we understand these uses? It contains the discussion that seeks to answer the two research questions above. Chapter ten concludes this study by summarising the key points.

Chapter 2 – Ecuadorian Siona

Ecuadorian Siona is spoken by a dwindling number of speakers in the north-eastern Sucumbíos province of Ecuador, currently estimated at 300 speakers. Most speakers live in one of seven towns: Puerto Bolívar, San Victoriano, Tarapuya, Orahuëaya, Soto Tsiaya, Bi'aña, and Aboquëhuira. A speaker community is also found in the province capital Lago Agrio. Speakers refer to the language as *bąicoca* [bą̃ĩ̃kohka] or [bą̃ĩ̃ŋkohka], which means 'language/words of the people'.

Genetically speaking, Ecuadorian Siona is part of the West-Tukanoan branch. This branch also includes Colombian Siona, the Secoya varieties, the Máíhɨ̀kì varieties (also called Orejón), Koreguaje (also spelled Koreguahe), and the now extinct Tama and Kueretú languages. This small branch represents an early offshoot within the Tukanoan language family, which also contains the more sizeable East-Tukanoan branch (Chacón 2014).

Ecuadorian Siona is distinct from Colombian Siona, which is the variety studied under the label 'Siona' by Wheeler (1967, 1970, 2000). Ecuadorian Siona appears to be the product of close language contact with Ecuadorian Secoya, which is spoken in the same area. Ecuadorian Secoya again seems different from Peruvian Secoya, probably due to contact with Ecuadorian Siona speakers. As a result, a convergence process between the two Ecuadorian varieties appears to have taken place. The result is a language continuum between these four varieties identified (Bruil 2014:11-2).

Some typological characteristics of Ecuadorian Siona include the following: the presence of phonologically nasal vowels, rightward nasal spread (Bruil & Stewart 2022), preaspiration of voiceless stops after short vowels, no syllable codas, the presence of nominal classifiers, nominative-accusative alignment, the absence of an unequivocal 'passive' morpheme, and a clause-typing system that signals epistemic authority (Bruil 2015). Siona affixes are almost always suffixes, which are generally fusional in nature. Word order on the noun phrase level is relatively fixed as determiners generally precede head. Word order on the clause level is relatively free as subjects and objects can both precede and follow the verb. There are likely considerations of information structure at play here which warrant further research.

The remainder of this chapter provides some background information about the orthography and the transcription used (section 2.1), as well as about the verbal system (section 2.2). I refer the reader to Bruil (2014) for detailed information about other parts of Ecuadorian Siona grammar, including the phonology (2014:83-128), nominal classifiers (2014:134-48) and case marking (2014:156-72). From now on, I will refer to Ecuadorian Siona using the term 'Siona'.

2.1 Orthography and transcription

Table 1 below contains most of the symbols used in the Siona orthography together with their (approximate) IPA value.[1]

Table 1. Vowels and consonants.

a	[a]	ą	[ã]	p	[p]	j	[ɦ]
i	[i]	į	[ĩ]	t	[t]	hu	[w]
o	[o]	ǫ	[õ]	’	[ʔ]	r	[ɾ]
e	[e]	ę	[ẽ]	m	[m]	s	[s]
u	[u]	ų	[ũ]	n	[n]	ch	[t͡ʃ]
ë	[ɨ]	ę̈	[ɨ̃]	ñ	[ɲ]	y	[d͡ʒ]

The table shows that nasal vowels are written with a dash below the vowel. The mid and low vowels [e o a] are likely more accurately [ę ǫ ä], but I have omitted these diacritics to prevent cluttering. Detailed phonetic research on the precise quality of these vowels is also necessary. Spanish influence on the orthography is clear from e.g. the symbol <ñ> for the palatal nasal [ɲ].

Word-initial <b d g> indicate a voiced stop with creaky phonation on the following vowel, as shown in 2a-c below.[2] The digraph <ts> is most often pronounced as [s] with creaky phonation on the following vowel. This is shown in 2d.[3]

(2) a. *ba’iji* [bą̰ʔiɦi] ‘he is’
b. *de’oji* [dę̰ʔoɦi] ‘thank you’
c. *guyaji* [gų̰d͡ʒaɦi] ‘he is bathing’
d. *tsoe* [so̰e] ‘already’

Between vowels, <b> represents the voiced fricative [β]. The graphemes <d g ts> do not occur between vowels within roots.[4]

The voiceless velar stop [k] is written as <qu> before a front vowel [e ɨ] or [ẽ ɨ̃], and it is written as <c> before [a o u] or [ã õ ũ]. The sequence *[ki] is not attested.

(3) a. *cą̨iñe* [kãĩɲẽ] ‘to sleep’
b. *ja’co* [ɦiaʔko] ‘mom’
c. *cura* [kuɾa] ‘chicken’
d. *queibi* [keiβi] ‘who?’
e. *ja’quë* [ɦiaʔkɨ] ‘dad’

[1] Throughout this study, I use a “systematic” narrow transcription (Abercrombie 1964:17, 1967:128).

[2] These may also be realised as voiceless, but this is less common in my experience. For details, see Bruil (2014:92-5).

[3] The consonant may also be pronounced [t͡s], e.g. *tsoe* [t͡so̰e] ‘already’. It is unclear if this is a spelling pronunciation.

[4] Historically, intervocalic [g] was lost and intervocalic [d] became a tap [ɾ] written as <r>. The fate and origins of the phone(me) written as <ts> deserves further research. For intervocalic <d> across morpheme boundaries with e.g. classifiers see Bruil (2014:94, 150).

The labialised velar [kʷ] is written <cu> or <co>. The labialised velar [gʷ] is written <go> or <gu>. This is illustrated in the examples under 4 below.

(4) a. *cua'coye* [kʷaʔkod͡ʒe] 'to cook'
b. *daija̱'coa* [da̱i̱ĩãʔkʷa] 'she will come'
c. *guiye* [gʷi̱i̱d͡ʒe] 'to scream'
d. *goa* [gʷa̱] 'just, for nothing'

It is not always clear why one or the other orthography is chosen. In 4b specifically, <co> is chosen because it represents the feminine singular nominal classifier, which is [ko] word-finally (Bruil 2014:146).

Some final notes about the orthography are in order. Long vowels are not written, hence e.g. *caye* [kaad͡ʒe] 'to say', and *guiye* [gʷi̱i̱d͡ʒe] 'to scream' in 4c above. Long vowels almost exclusively occur in the roots of monosyllabic class I verbs.

Nasality is not written on vowels that directly follow a nasal stop, hence e.g. *ma'a̱* [mãʔã] 'path'. This is because nasal stops are always followed by a nasal vowel, and nasal marking on this vowel is felt to be redundant. Nasality on the consonants [ñ w̃] is also not written, and these consonants are written as <j hu>. Examples include *a̱iji̱* [ãĩñĩ] 'he is eating' and *ñahuë̱* [ɲããw̃ɪ̃] 'I/you/we/y'all/they saw'.

Root-internally, the voiceless stops [p t k] and the voiceless fricative [s] are preaspirated [hp ht hk hs] when preceded by a short vowel (Bruil 2014:103). This preaspiration is not written, hence e.g. *susi* [suhsi] 'nettle, mosquito'.

2.2 Outline of the verb system

Before analysing the semantics of the Siona verbal system, it is important to give a brief outline of the morphological architecture. The Siona verb system has two important categories: main verbs (section 2.2.1) and dependent verbs (section 2.2.2). Main verbs occur at the end of a sentence and syntactically form a main clause on their own. Dependent verbs generally occur before the main verb and are syntactically dependent on main verbs. It is the dependent verbs that mark aspect.[1]

Like in all West-Tukanoan languages (Johnson, Levinsohn & Wheeler 1990:22, Cook & Criswell 1993:53, Wheeler 2000:189, Farmer 2015:27, Vallejos & Brown 2021:256), almost all verbs in Ecuadorian Siona fall into one of two verb classes.[2] These two verb classes sometimes have different sets of suffixes, which is why it is important to distinguish them. Synchronically, no systematic semantic distinction can be found. However, some semantics patterns can be found that point to semantic origin diachronically (Bruil 2014:220-2, 2018).

[1] In Haspelmath's (2020) typological overview of converbs and related concepts, Siona dependent verbs are most similar to what he calls "medial verbs" (2020:20), a term borrowed from Papuan linguistics. (The term has nothing to do with any notion of 'middle voice'.)

[2] This excludes the bound copula *-a* and bound future tense suffix *-si*, for which see Bruil (2014:193-7).

Class I verbs are high in number and do not show any stem alternations. They have a bimoraic verb root. Often, this means that the root has a long vowel, such as [kaa] ‘to say’. The root can also be disyllabic or contain a vowel sequence, e.g. [ũhku] ‘to drink’ and [kɨa] ‘to tell’.

The root of class II verbs is always monomoraic: it consists of one syllable with a short vowel, such as [bạ] ‘to be, to live’ and [ɲũ] ‘to sit’. Class II verbs are relatively low in number. Bruil (2014) calls these verbs “*i*–verbs”, because they feature an additional [i ĩ] in many forms.[1] Most notably, they often do so in citation forms, e.g. *ba’ïye* ‘to be, to live’, *saiye* ‘to go’, *oiye* ‘to cry’ or *ñu’ı̈ñe* ‘to sit’. This verb class also includes verbs derived with the benefactive suffix *-ca* [ka] and those with the directional suffix *-ja* [ɦa].

In the sections below, I will concisely present the verbal morphology associated with main verbs and dependent verbs. I refer the reader to Bruil (2014, 2018) for details.

2.2.1 Main verbs

Main verbs are almost invariably found as the final verb of a sentence. They are inflected for tense (past, present) and gender/number using sets of fusional suffixes.[2]

Main verbs also inflected for epistemic authority (Bruil 2015). They have separate assertive and non-assertive paradigms. Assertive forms (gloss: ASS) are used for declarative sentences when the speaker vouches for the truth of the statement. Non-assertive forms (gloss: N.ASS) are mainly used for questions and reports. Reports are declarative sentences where the speaker does not vouch for the truth of the statement, but presents the claim as having heard so from someone else. Reportative forms are made by adding the reportative suffix *-ña* [ɲã] (gloss: REP) to the non-assertive verb form. This is illustrated in the examples under 5 below, all from Bruil (2015:387).

(5) a. *Guyaji.* — Assertive form
gu̯d͡ʒa-ɦi
bathe-3SG.M.PRS.ASS
‘He is bathing (I vouch for this information).’

b. *Guyaquë.* — Non-assertive form: question
gu̯d͡ʒa-kɨ
bathe-2/3SG.M.PRS.N.ASS
‘Are you (M SG) / is he bathing?’

c. *Guyaquëña* — Non-assertive form: report
gu̯d͡ʒa-kɨ-ɲã
bathe-2/3SG.M.PRS.N.ASS-REP
‘You (M SG) are / he is bathing (so I have heard).’

[1] For details on stem alternations in class II verbs, I refer the reader to appendix B.

[2] Future reference is encoded through separate, non-fusional suffixes, viz. *-si* [si] and *-ja’* [ɦãʔ].

These examples show that for past and present tense, the fusional suffixes may encode up to five different things at once. For example, the suffix *-ji* [ɦi] in 5a signals third person, singular number, masculine gender, present tense, and an assertive declarative sentence.

In traditional stories, reportative forms are almost invariably found for the narration of the main storyline, because the narrator does not have first-hand experience the events of the story.[1] As a result, the narrator cannot vouch for the information in the story and uses reportative verb forms to reflect this. I refer the reader to Bruil (2015) for a detailed discussion on the semantics of the different forms and the role of epistemic authority and evidentiality.

We will now turn to the morphology of main verbs. Table 2 below shows the suffixes for assertive present tense in main verbs. They are the same for class I and class II verbs.

Table 2. Assertive forms: present tense.

		Non-nasal roots		*Nasal roots*	
	Masc. 3rd person sg.	*-ji*	[ɦi]	*-ji̱*	[ɦ̃ĩ]
Class I and II	Fem. 3rd person sg.	*-co*	[ko]	*-co*	[ko]
	Other persons	*-yë*	[d͡ʒɨ]	*-ñë*	[ɲɨ̃]

This table also shows the nasal variants of these suffixes. Some suffixes are found as nasalised after nasal roots due to rightward nasal spread (Bruil & Stewart 2022). For this reason, the table has a separate column 'nasal' for suffixes that follow nasal roots (as will all tables following). Some suffixes lack nasal counterparts if they start with an obstruent that blocks nasal spread. For instance, *-co* [ko] always has an oral vowel even after nasal roots, because [k] blocks nasal spread.

Table 3 below shows the fusional suffixes for non-assertive present tense in main verbs. Again, they are the same for class I and class II verbs.

Table 3. Non-assertive forms: present tense.

		Non-nasal roots		*Nasal roots*	
	Masc. 2nd/3rd person sg.	*-quë*	[kɨ]	*-quë*	[kɨ]
Class I and II	Fem. 2nd/3rd person sg.	*-co*	[ko]	*-co*	[ko]
	Other persons	*-ye*	[d͡ʒe]	*-ñe*	[ɲẽ]
Reportative forms take the additional suffix *-ña* [ɲã].					

Note that non-assertive forms conflate the second person singular and third personal singular. For example, *saiquë* can mean both 'does he go?' and 'do you (M SG) go?'.

[1] Of course, direct speech quoted by the narrator often contains different types of epistemic authority.

Table 4 below shows the suffixes for assertive past tense in main verbs.

Table 4. Assertive forms: past tense.

		Non-nasal roots		*Nasal roots*	
	Masc. 3rd person sg.	*-bi*	[βi]	*-bi*	[βi]
Class I	Fem. 3rd person sg.	*-o*	[o]	*-o̰*	[õ]
	Other persons	*-huë*	[wɨ]	*-huḛ̈*	[w̃ɨ̃]
	Masc. 3rd person sg.	*-jV'i*		*-jV'ḭ*	
Class II	Fem. 3rd person sg.	*-co'ë*	[koʔɨ]	*-co'ë*	[koʔɨ]
	Other persons	*-ë'ë*	[ɨʔɨ]	*-ḛ̈'ḛ̈*	[ɨ̃ʔɨ̃]

The class II assertive past tense masculine suffix is given as *-jV'i / -jV'ḭ* because this suffix is variable. The first vowel in the suffix is copied from the preceding vowel in the verb root (Bruil 2014:188). This is illustrated in table 5 below.

Table 5. Class II assertive past tense masc. 3rd person.

Verb	Past tense		Gloss
ba'iye	*baja'i*	[ba̰ɦaʔi]	'to be, to live'
choiye	*chojo'i*	[t͡ʃoɦoʔi]	'to call, to invite'
huëiye	*huëjë'i*	[wɨɦɨʔi]	'to fly'
ñu'ḭñe	*ñuju'ḭ*	[ɲũɦ̃ũʔḭ̃]	'to sit'
sḛñe	*sḛjḛ'ḭ*	[sẽɦ̃ẽʔḭ̃]	'to ask'
jṵḭñe	*jṵjṵ'ḭ*	[ɦũɦ̃ũʔḭ̃]	'to die'

Note that nasality is also copied from the root vowel, and that in such cases rightward nasal spread results in the final vowel also being nasal [ĩ].

Table 6 below shows the suffixes for assertive past tense in main verbs.

Table 6. Non-assertive forms: past tense.

		Non-nasal		*Nasal*	
	Masc. 2nd/3rd person	*-ë*	[ɨ]	*-ḛ̈*	[ɨ̃]
Class I	Fem. 2nd/3rd person	*-o*	[o]	*-o̰*	[õ]
	Other persons	*-re*	[ɾe]	*-re*	[ɾe]
	Masc. 2nd/3rd person		*-quë*	[kɨ]	
Class II	Fem. 2nd/3rd person		*-co*	[ko]	
	Other persons		*-te*	[te]	
Reportative forms take the additional suffix *-ña* [ɲã].					

The class II suffixes all start with a voiceless stop [t k], which all block nasal spread. As a result, these suffixes do not have nasal variants.

The class I non-assertive past tense feminine suffix *-o/-o̧* [o õ] is not present when the verb stem ends in *-o/-o̧* [o õ]. For the class I verb *cua'coye* 'to cook' for instance, compare the feminine form *cua'co* [kʷaʔko] to the 'other persons' form *cua'core* [kʷaʔkoɾe]. This is because adding the feminine suffix to this verb would result in a long vowel, which is not allowed. For this type of vowel reduction, see Bruil (2014:115).

The class I non-assertive past tense masculine suffix is here given as *-ë/-e̱* [ɨ ɨ̃]. This suffix shows some variation: it occurs as *-i/-i̱* [i ĩ] when the verb ends in *-e/-e̱* [e ẽ]. It is not found if the verb ends in *-i/-i̱* [i ĩ] or *-ë/-e̱* [ɨ ɨ̃]. If the verb ends in *u/-u̱* [u ũ] this vowel is lengthened. It sometimes occurs as *-u/-u̱* roughly [ɯ ɯ̃] if the verb ends in *-o/-o̧* [o õ]. See Bruil (2014:117-9) for more about this assimilation behaviour of /ɨ/.

2.2.2 Dependent verbs

Dependent verbs are generally found before main verbs. They are inflected for gender and number: masculine singular, feminine singular, and plural (neutral for gender). Like main verbs, they use fusional suffixes.

Dependent verbs are also inflected for person, and distinguish between 'same subject' and 'different subject' forms. 'Different subject' forms are always marked with the suffix *-na* [nã]. 'Same subject' forms are used when the subject of the dependent verb is the same as the subject of the next verb. 'Different subject' forms are used when the subject of the dependent verb is different from the subject of the next verb.

Siona dependent verbs are also inflected for what Bruil (2014:206) calls "relative tense", viz. 'relative present tense' and 'relative past tense'. This study analyses this opposition as an *aspectual* one. Thus, 'relative tense present' constitutes imperfective aspect, and 'relative past tense' constitutes perfective aspect. For the rest of the study, I will use the aspectual labels "Imperfective" and "Perfective". I write these with a capital letter to indicate their status as language-particular categories (e.g. Comrie 1976; see Haspelmath 2010, 2018).

Table 7 on the next page contains the suffixes for Imperfective forms of dependent verbs. The 'different subject' suffix *-na* [nã] can be added to these forms to make a 'different subject' form. If this suffix is not added, the form is a 'same subject' form. As such, 'same subject' forms are morphologically unmarked.

Table 7. Imperfective forms.

		Non-nasal roots		*Nasal roots*	
Class I	Masc. sg.	*-quë*	[kɨ]	*-quë*	[kɨ]
	Fem. sg.	*-co*	[ko]	*-co*	[ko]
	Plural	*-jë*	[ɦɨ]	*-jẽ*	[ɦ̃ɨ̃]
Class II	Masc. sg.	*-∅*		*-∅*	
	Fem. sg.	*-o*	[o]	*-o̰*	[õ]
	Plural	*-jë*	[ɦɨ]	*-jẽ*	[ɦ̃ɨ̃]

'Different subject' forms take the additional suffix *-na* [nã].

This table also shows the zero suffix -∅ for the class II masculine singular. For example, the masculine singular Imperfective 'same subject' form of *a̰ĩñe* 'to eat' is *a̰ĩ* [ãĩ̃]. The corresponding 'different subject' form is *a̰ĩna* [ãĩ̃nã].

An exception is class II verbs in *-e/-ḛ* [e ẽ], which take the suffix *-i/-ĩ* [i ĩ]. Compare masculine *sḛĩ* [sẽẽĩ̃] with feminine *sḛo̰* [sẽẽõ] from *sḛñe* 'to ask'. Diachronically, this class II masculine suffix most probably used to be [ɨ ɨ̃] at some point.[1] See appendix B for details.

The plural Imperfective form of class II verbs can also be marked by an older suffix *-bë* [βɨ] in some varieties of Ecuadorian Siona (Bruil 2014:209-10), but these are not attested in my data.

Table 8 below contains the perfective suffixes, i.e. Bruil's (2014) 'relative past tense' forms. Note that 'same subject' forms have a special suffix *-ni* [nĩ] that is not specified for gender or number. It is used for both class I and class II verbs, and has the same form after both nasal and non-nasal roots. All 'different subject' forms have the 'different subject' suffix *-na* [nã].

Table 8. Perfective forms.

		Non-nasal		*Nasal*	
'Different subject' class I	Masc. sg.	*-ënа*	[ɨnã]	*-ẽna*	[ɨ̃nã]
	Fem. sg.	*-ona*	[onã]	*-o̰na*	[õnã]
	Plural	*-rena*	[ɾenã]	*-rena*	[ɾenã]
'Different subject' class II	Masc. sg.		*-quënа*	[kɨnã]	
	Fem. sg.		*-cona*	[konã]	
	Plural		*-tena*	[tenã]	
'Same subject' class I and II			*-ni*	[nĩ]	

For the first vowel in class I masculine and feminine forms, the same rules apply as for the non-assertive past tense in main verbs, see table 6.

[1] See Bruil (2014:118, 2018) for details. Bruil retains an underlying suffix /ɨ/ for this ending, in fact.

2.3 Wrapping up

This chapter provided an overview of the orthography, transcription, as well as the essential facts and paradigms of the verbal system. This gives the reader sufficient knowledge to follow the analysis to come in chapters five through eight. I refer the reader to Bruil (2014) for more detailed information about Siona grammar including the verbal system, and to Bruil (2018) for more detailed information about the architecture and diachronic origins of the verbal system.

Chapter 3 – Theoretical background

This chapter describes the main tenets of Klein's (1994) approach to tense and aspect, which will form the basis of the analysis to come in chapters five through eight. The choice for Klein's (1994) framework rests on two considerations. First, his work constitutes one of the most recent approaches to tense and aspect proposed. He is considered part of a generation of "neo-Reichenbachians" (e.g. Bohnemeyer 2013:922, Hollenbaugh 2021b:75). These scholars analyse tense and aspect systems by taking Reichenbach's (1947) approach as a starting point, but they modify his original tools in order to arrive at more accurate descriptions as linguistic research furthers our understanding of tense and aspect.[1] Being part of this generation of neo-Reichenbachian's, Klein's (1994) approach comprises, to put it informally, one of the "latest versions" that are available in terms of theoretical approaches.

Second, his particular framework has gained significant traction in work on other languages (e.g. Bohnemeyer 1998, Cleary-Kemp 2013, Hollenbaugh 2021a, Patard 2019). This is not true for work by other neo-Reichenbachians. This further suggests that Klein's (1994) approach is a particularly fruitful one.

The role of this chapter in relation to the remainder of this study is as follows. This chapter will explain the main tenets Klein's (1994) approach to tense and aspect and illustrate it with mostly English examples. To not overcomplicate matters at this point, I will refrain from diving into a theoretical comparison between Klein (1994) and Reichenbach (1947) (and other neo-Reichenbachian approaches) for now. The chapters following describe the methodology (chapter 4), and contain the analysis applying Klein's (1994) approach to Ecuadorian Siona (chapters 5–8).

This analysis prepares the ground for answering the first research question in chapter nine: how can Klein's (1994) neo-Reichenbachian approach be used to account for the referential uses of aspect in Ecuadorian Siona? In other words, what theoretical properties of Klein's (1994) approach make it so suitable to analyse aspect in Ecuadorian Siona?

Such a theoretical discussion on the comparative advantages between different approaches is preferably not conducted *in vacuo*, but best done with reference to a specific aspectual system in a specific language (Ecuadorian Siona in this case). This, again, can only be done once we

[1] Other neo-Reichenbachian scholars include Comrie (1985), Hornstein (1990), Declerck (1991), and Ogihara (1996). The term "neo-Reichenbachian" perhaps (incorrectly) suggests that Reichenbach invented his approach from thin air, but he himself strongly builds upon earlier work by Jespersen (1914, 1924) who is in turn indebted to many before him.

understand this particular aspectual system. For this reason, the theoretical discussion (chapter 9) will follow the analysis (chapters 5–8).

As for this chapter, section 3.1 treats the temporal development of events as they occur in our world. Section 3.2 introduces the notion of 'topic time' and its function in relation to tense. Section 3.3 then discusses the function of aspect. Finally, section 3.4 examines the way these notions can be used to analyse aspectual systems, and section 3.5 wraps up this chapter.

3.1 The temporal development of events

Tense and aspect are verbal categories, and verbs generally describe events. So before discussing tense and aspect, we first have to think about the way events *happen*. More specifically, the way they happen *in time*. I here use the term 'event' as an umbrella term for both static situations ('states') as well as dynamic events (other *Aktionsarten*). Other scholars sometimes use 'state of affairs' (also 'SoA') as an umbrella term.

At the most general level, we can say that when an event occurs, there is a state before the event when it was not yet happening, and a state after the event once the event has happened. We can a shower of rain as an example. Before it rains, there are usually signs that rain is imminent, such as dark clouds gathering or wind picking up. This state is called the **pre-state**: the state before the event happens. Next, the **initial point** is when the first drop of water falls and the rain shower begins. Then, the shower of rain actually occurs. I call this the **situational time** of an event. At some point, the final drop of rain falls when the end of the rain shower is reached. This I call the **transitional point**. Finally, there is the state when the event has occurred, but there are still signs (e.g. wet streets) or the event is still relevant (e.g. you are now drenched and unhappy). This is called the **post-state**: the state after the event has occurred. These phases are visually represented in figure 1 below (cf. Bohnemeyer 2013:949 for a similar approach).

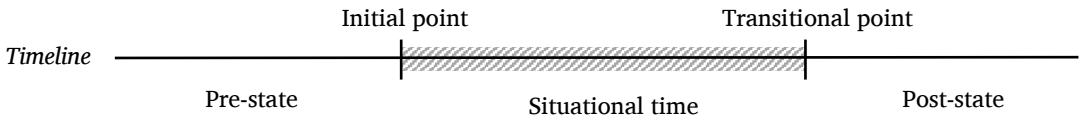


Figure 1. *The temporal development of events*.

An important characteristic of this approach is the explicit, formal acknowledgement that (very many) events in the world *take time* and thus *have duration* (Comrie 1985:112, Klein 1992:627). For example, a rain shower does not happen instantly: its situational time takes a couple minutes,

or even up to multiple hours. In other words, the situational time of events in the world is most frequently a time *span*.

To gain a better understanding of the general representation in figure 1, I will briefly sketch how the temporal development of different types of events can be described using this general structure. I will do this by considering different types of lexical aspect (or: 'Aktionsarten'). I here take lexical aspect to be a property of verbs and their non-subject arguments rather than of verbs alone (Verkuyl 1972).

I will here cover the now canonical typology proposed by Vendler (1957), which includes states, activities, achievements, and accomplishments. At the same time, I am aware that one can make an almost infinite number of taxonomies of types of states of affairs based on any semantic property or co-occurrence patterns with TAM categories in any given language, as has indeed been done (see Pang 2016:66-115 for an excellent discussion). The discussion below serves to illustrate the concept of the 'temporal development of events' in as much detail as is required for this study, keeping in mind that it could be expanded to include other classifications too.[1]

Accomplishments are events of which the situational time takes some time. In addition, they are geared towards a particular end-goal. As such, they are telic. This end-goal is the transitional point. Examples include *to write a thesis*, *to bake a cake*, or *to make a cup of tea*. In the third case, we may imagine that the pre-state is a state where someone plans to make a cup of tea, but is not yet engaged in the process. The initial point then is the moment when this person undertakes the first action required to make a cup of tea, say filling a kettle or pan with cold water. The situational time then encompasses all the steps required, such as pouring the hot water into a mug, adding a tea bag and perhaps some other ingredients, and stirring the liquid. The transitional point is when the tea bag is removed from the mug, at which point the post-state starts: the cup of tea is ready to drink.

Achievements are events of which the initial point and the transitional point (virtually) coincide. They probably do not have a situational time. Like accomplishments, they are telic because they are geared towards a particular end-goal. Examples include *to turn on the light, to enter the room* or *to reach the top of the mountain*. In the third case, we can imagine that the pre-state includes someone hiking the path or stairs towards the top of the mountain. The initial and transitional point are the moment when this person puts their feet on the highest point of the mountain. The post-state is when this person is on top the mountain.

States have a homogenous situational time: nothing *happens*, but something simply *is*, hence the name 'state'. Because they do not work towards a particular end-goal, they are said to be atelic. However, this is not to say that they do not have a "natural end-point". Virtually all

[1] In fact, Klein (1994:81-95) uses his own typology, distinguishing between what he calls 0-state lexical contents, 1-state lexical contents, and 2-state lexical contents. This division is not wrong or correct, but simply different from the one above and suited for different purposes, including the behaviour of temporal adverbs in English. Because temporal adverbs do not play a central role in this study, I have chosen to not adopt Klein's (1994) typology.

events and states arguably meet this criterion, even atelic ones: a state such as being queen ends naturally when she dies, and a state such having the flu naturally ends when the immune system has defeated the virus. Even the state of the earth revolving around the sun will eventually come to a natural end when the sun expands and swallows nearby planets including earth. These end-points all qualify as the **transitional point** in figure 1, even though states are not geared towards this transitional point in particular (the goal of being queen is not to die being one). The third example shows that although a post-state is always logically possible, it is not always relevant in human life (we will not live to the moment of the sun's expansion). This is also true for states such as *to be dead*, which usually do not transition into a post-state where someone is alive again—unless someone is resuscitated, or we are dealing with the plot of a science-fiction book of course.

Activities do not have a homogeneous situational time, because they are processes that consist of various phases following each other. Like states, they are atelic and do not work towards a particular end-goal. However, they do have a natural end-point that serves as the transitional point. Examples of activities include *to walk around in Paris*, *to do jumping-jacks*, or *to swim in the river*. In all of these cases, a natural end-point would be when the person doing them grows tired or is otherwise done with the activity and quits (to sit down at a café on Montmartre for instance). However, they are all atelic because they are not geared towards their end-points. After all, one does not 'walk around in Paris' with the goal of growing tired and stopping, nor does one 'swim in the river' with the goal of getting out again—unless of course one talks about *to swim to the other side of the river*, which is indeed telic.

The temporal development of different types of events (with different lexical aspects) will help us understand the function of aspect later on (section 3.3). This is because we will see that aspect makes reference to different parts of the temporal development of an event.

3.2 Topic time and tense

This section introduces Klein's (1994) notion of the **topic time**. This is the time span that a language user makes an assertion about. In other words, it is the time span that a language user talks about. It can be made explicit through the use of temporal adverbs or subordinate clauses. It is also inferred from previous discourse material (see Klein 1994:40-8 and Partee 1984 for discussion). Importantly for our purposes, it is crucial in defining tense and aspect. To illustrate it, let us consider example 6 below from Klein (1994:4, see 1994:22-4 for more examples and discussion).

(6) Judge: What did you see when you entered the room?
Defendant: There was a book on the table. It was in Russian.

This is natural exchange in English; yet traditional theories of tense cannot explain why the past tense is used in *It was in Russian*. These claim that tense indicates the temporal relationship between the moment of speaking and the event (Reichenbach 1947:290, Lyons 1977:678, Comrie 1985:41, Bybee 1986:21, De Swart 2012:752, Velupillai 2016:94; see Uusikoski 2016:113-9 for discussion). In this case, this would mean that the past tense signals that event itself (!) is located before the moment of speaking. But this is not the case for the past tense in example 6: the book's being in Russian cannot be located before the moment of speaking, because it is something that is always true so long as the book exists (at least in our world of mortals).[1]

We may imagine that if Sheldon Cooper had been a linguist and subscribed to these traditional theories of tense, he may have interrupted the defendant from sentence 6 to ask how it can be that the book *was* in Russian: did someone put a spell on it so that it suddenly changed into English? Obviously, this is not what the defendant intends to say, as the book is still in Russian in all likelihood.

So what do we tell Sheldon? Why the past tense? This is because the judge asked the defendant to *make a statement* about a moment in time that lies before the conversation using the temporal subordinate clause 'when you entered the room'. This clause determines the **topic time** of the defendant's answer. This topic time is the time span that the language user makes an assertion about.

In this case, the defendant is going make a claim about the world as it was during the time (the 'topic time') when they entered the room. Because this topic time is one that lies before the moment of speaking, the past tense is appropriate. In other words, the past tense indicates that the defendant is *talking* about the past.

The conclusion to draw is that for the usage of tense, it does not matter whether the event still holds true at the moment of speaking. After all, it does not matter if the book is still on the table (it may or may not), or if the book is still in Russian (it most probably still is). Instead, tense indicates which time span a language user is *talking about*.

It should be noted that for Klein (1994), the topic time is only the time span that a language user makes an assertion about. It can, of course, also be the time span that a language user is asking about, conjecturing about, or reporting about for example. This is illustrated by the judge's question in our court dialogue above. The topic time given by the subordinate clauses is the time span about which the judge is *asking* (and not asserting).

Now we can put the function of tense in a very precise way, using the notion of the topic time. Tense indicates the relative position of the topic time with respect to the moment of speaking

[1] See Declerck (1991:227) for the same point.

(Klein 1994:120; see also Johnson 1981, Hornstein 1990).[1] For past tense, the topic time precedes the moment of speaking; future tense signals that the topic time follows the moment of speaking; present tense signals that the topic time includes the moment of speaking.

As a result, tense is a time-relational category, because it relates two time spans to each other: the topic time and the moment of speaking.

3.3 The notion of aspect

Now that tense signals the temporal relationship between the moment of speaking and the topic time, another temporal relationship is automatically given: that between the topic time and the event itself. This is the domain of verbal aspect (henceforth: 'aspect'). Thus we have a division of labour between tense and aspect as visualised below in figure 2.

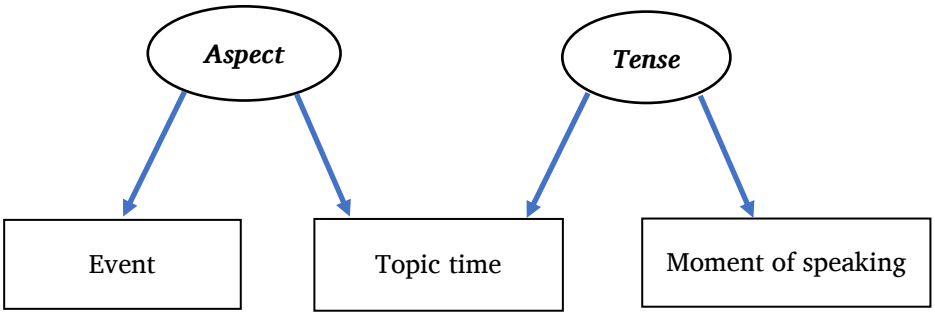


Figure 2. *The functions of tense and aspect.*

So aspect relates the event to the topic time. More precisely, the function of aspect is *to assert which part of the temporal development of an event occurs at the topic time* (Klein 1994; Bohnemeyer 1998, 2013). This temporal development of an event was visualised in figure 1 in section 3.1 above. Just like tense, aspect is a time-relational category (Klein 2014), because it relates two time spans to each other: the topic time, and some part of the temporal development of an event.

How does this help us define different types of aspect? Each type of aspect corresponds to a different part of the temporal development of an event that is asserted to occur at the topic time (Bohnemeyer 2013).[2] For the purposes of the analysis in the chapters following however, I will for

[1] To be precise, this moment of speaking is the default for what is sometimes called the "local evaluation time" or "orientation time" of an utterance (or similar terms). This may be shifted into the past or the future in sentences expressing more complex temporal relationships than the ones discussed in this study, especially irrealis/counterfactual situations. See e.g. Hamann (1987:46-50), Declerck (1991:252-3), Boogaart (2007), Hollenbaugh (2018:67, 115n42) and Patard (2019:185) for discussion.

[2] More specifically, I here mean types of aspect as comparative concepts (Haspelmath 2010, 2018).

now only consider perfective and imperfective aspect. Let us consider an example of **perfective aspect** in English below.

(7) Yesterday after lunch, I crossed the street and I walked into the shop.

In this sentence, the phrase 'Yesterday after lunch' fixes the topic time to a time span briefly after the speaker had lunch the day before. This sentence is in the past tense ('crossed'), because the speaker is making a statement about a topic time that lies before the moment of speaking ("in the past"). The Past Simple 'crossed' here expresses perfective aspect: the speaker asserts that during the time span of the topic time, they set their first step onto the street (**initial point**), made their way to the other side of the street (**situational time**), and actually set foot on the pavement on the other side (**transitional point**). As a result, perfective aspect signals that at the topic time, the initial point, the situational time and the transitional point are all three included in the topic time. This is shown in figure 3 below. As such, we can say that perfective aspect signals that an event is completed at the topic time.

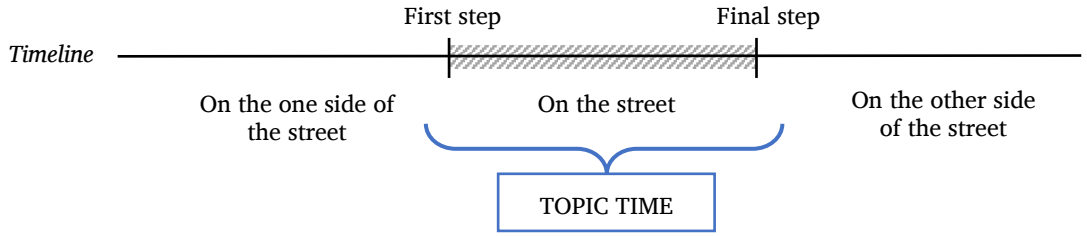


Figure 3. *Perfective aspect.*

Now what happens to the topic time after the main verb 'crossed'? When the subject stays the same as in this case, the topic time moves forward on the timeline of the narrative. For 'crossed', it was a time span briefly after the speaker had lunch the day before. But after 'crossed', the topic time moves to a time span briefly after the speaker had reached the other end of the street. The combination of perfective aspect and the topic time advancing allows the speaker to tell about events that occur *after* the speaker had crossed the street.[1]

Now let us consider an instance of **imperfective aspect** in English below.

(8) Yesterday after lunch, I was crossing the street and I got hit by a bike.

[1] For the advancement of the topic time, see Klein (1994:45-6). More extensive work about the advancement of a reference time within discourse is conducted within the field of Discourse Representation Theory ('DRT'), a subfield of theoretical semantics. Important contributions include Kamp (1979, 1981), Partee (1973, 1984), Hinrichs (1986), and Kamp and Reyle (1993). See Hamann (1987) and Bohnemeyer (1998:11-3) for critical discussion.

The topic time is the same as the (initial) topic time from example 7 above. Again, the sentence in 8 is in the past tense ('was crossing') because the speaker is making an assertion about a moment that lies before the moment of speaking ("in the past"). The Past Progressive 'was crossing' here expresses imperfective aspect: the speaker asserts that during the time span of the topic time, they were engaged in the activity of crossing the street (**situational time**). However, this activity did not yet reach its end-point. Both the initial point and the transitional point fall outside of the topic time. In other words, only a part of the situational time occurs at the topic time of the utterance. This is represented in figure 4 below. As such, imperfective aspect signals that an event is not yet completed at the topic time, because the transitional point is not yet reached.[1]

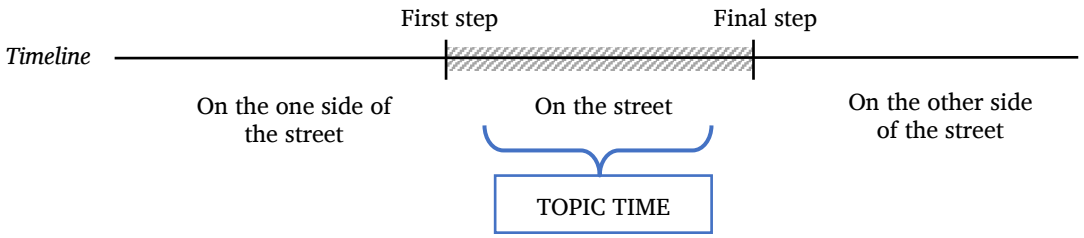


Figure 4. *Imperfective aspect.*

What happens to the topic time after the verbs 'was crossing'? In this case, it does not advance. At the topic time introduced by the phrase 'yesterday after lunch', some sub-time span of the situational time of 'crossing the street' occur. At this very same topic time, the event that is described next also occurs (the speaker is hit by a bike).

It is important to point out that imperfective aspect only signals that an event is not yet completed *at the topic time*. It does not state if the end-point of some event was reached at all or not: we can only infer from the rest of the story if this happened or not. In the case of example 8, only the rest of the story can clarify if the speaker got up and made it to the other end of the street, or if they had to be carried away in an ambulance and never touched the pavement on the other side of the street. Neither is implied by the use of imperfective aspect itself in 'was crossing'.

Now, it is perhaps useful for the reader to note that notion of 'topic time' can also be thought of as simply a technical way to refer to the moment or time span in the story where the narrator 'is at', as we say in informal English. It is essential to take such a reference time into account when talking about if events are "completed" or not: at the point of telling the story, virtually all events that occurred within the story will have been "completed". As a result,

[1] See Declerck (1991:276, n41) for a critical note on the use of the term 'incomplete' (which is here my 'not yet complete'). I do not yet see an alternative term, and Declerck (1991) does not offer one, so I will use it in this study.

"completeness" must always be evaluated with respect to some internal reference time in the story, which is here formalised as the topic time.

3.4 The expression of aspect in language

Now that we have seen the functions of perfective and imperfective aspect, an important question remains: how do languages encode these temporal relationships? (If they do this at all, that is.) In the case of English, we saw that English uses different so-called "tenses" such as the Past Simple or the Past Progressive to express these temporal relationships.[1]

However, it is not true that one tense-aspect category can only express one single kind of aspect (such as the Past Simple *only* expressing perfective aspect). This is because Klein's (1994) definitions of aspect are **comparative concepts** (Haspelmath 2010, 2018). This is to say that they are semantic notions that one can think about outside of language. For example, one can think of a situation of crossing a street, draw a schema of the temporal development of this event, and then think about which part of this temporal development occurs at which time span in a story with respect to other events, all *without* any example sentence from a particular language. One could do all this on the basis of a wordless comic book or video, for example.

As Haspelmath (2010, 2018) writes, linguists never expect comparative concepts to map one-to-one onto language-specific **descriptive categories**, such as the German Dative case or the Siona 'bag' nominal classifier *-tu'u* [tuʔu]. In the case of aspect specifically, we do not expect that Klein's (1994) definitions of aspect map perfectly onto language-particular aspectual categories such as the English Past Simple or the Siona Imperfective. In other words, we do not expect that the functionality of the English Past Simple is restricted to Klein's (1994) definition of perfective aspect. Neither do we expect that the functionality of the Siona Imperfective is restricted to Klein's (1994) definition of imperfective aspect. To make the distinction between these two clear, I write comparative concepts without capital letters (e.g. 'perfective aspect'), and descriptive categories with a capital letter (e.g. 'Perfective form') to express their status as unique linguistic entities.

An important question for linguists is how comparative concepts are expressed in linguistic systems, and how this expression is organised (Klein 2009). In the case of this study it is relevant to touch upon the question: how are the comparative concepts of different types of aspect expressed in language?

There are two ways in which the one-to-one mapping between comparative concepts and descriptive categories may not hold in the case of aspect.[2] Either a tense-aspect category can allow

[1] However "tenses" is a bit of misnomer here because as we have seen, they also express aspect. Instead, it is better to talk about "aspectual category", or "tense-aspect category" because these often express both tense and aspect. For example, the English Past Simple is one tense-aspect category.

[2] Haspelmath's (2010, 2018) distinction between comparative concepts (CCs) and descriptive categories (DCs) is not new, and similar distinctions can be found in the literature under different terminology. Bybee (1986) coined the term "gram" to refer to descriptive categories (it is short for "grammatical category"), and Desclés & Guentchéva (2011:123) speak of

the expression of multiple kinds of aspect (section 3.4.1), or a tense-aspect category can express other semantics in addition to aspect (section 3.4.2). I will discuss both of these in turn below.

3.4.1 Multiple kinds of aspect

A simple example of a tense-aspect category that expresses multiple kinds of aspect is the Past Simple in English. As we saw above, the Past Simple can express perfective aspect. However, it can also express imperfective aspect. The difference largely depends on a difference in *Aktionsart.* This is illustrated in the examples under 9 below.

(9) a. *This morning, Leslie interviewed two citizens about the new park…*
b. *…because she knew about the citizens' concerns.*

In sentence 9a, the verb 'interviewed' is a dynamic predicate (i.e. an accomplishment, achievement or activity) and triggers a perfective interpretation of the Past Simple. It asserts that at the topic time (some time span during the morning of the day of the utterance), Leslie started the interview, talked to the two citizens, and successfully rounded off the interview. In other words, she *completed* the interview at the topic time.

But the Past Simple in 9b is used with the individual-level state predicate 'to know' (Kratzer 1995) and expresses imperfective aspect: it asserts that Leslie was in the lasting state of possessing some type of knowledge at the topic time, and that she continued to possess this knowledge until after the morning of the interview. It does not assert that this state of knowledge somehow came to an end during the morning she conducted the interview with the two citizens (which would be perfective aspect).

As these examples show, the functionality Past Simple has to (at least) be expressed in terms of temporal completeness at the topic time (Klein 1994), as well as the *Aktionsart* of the predicate in question (cf. Boogaart 1999:173-5, Croft 2012:152-62). Thus, time-relational notions are a necessary, but not a sufficient ingredient for the description of the English Past Simple (or the whole English tense-aspect system for that matter).

3.4.2 Other semantics in addition to aspect

A language-particular aspectual category can also express *other* semantics. We now enter the domain of what Fleischman (1990:16) calls "non-referential meanings", which cannot be solely

"conceptual properties" (CCs). Bybee and Dahl (1989:52) distinguish between "notional categories" (CCs) and "grammatical categories" (DCs). Bertinetto (2020:312) makes a distinction between what he calls "semantic tense" (a CC of tense) and "morphosyntactic tense" (a DC). Matič & Wedgwood (2012) advocate Haspelmath's (2010) distinction within the study of 'focus' phenomena. Within the study of grammatical relations, Witzlack-Makarevich (2019) argues for a distinction between "generalised semantic roles" (CCs) and "language-specific grammatical relations" (DCs). I use Haspelmath's (2010, 2018) distinction because he has the clearest and most general explanation of the distinction.

expressed in terms of completeness at the topic time. In other words, these cannot be given a time-relational analysis exclusively. An example of this is given by Dutch. For the use of the Dutch Simple Past and Present Perfect, Boogaart (1999:220-3) points out that genre is an important parameter. He makes a distinction between their use in narrative and non-narrative discourse. Consider the two examples below (cf. Boogaart 1999:158 for the same analysis).

(10)	a.	*Dinsdag is Sara naar Palermo gevlogen.*	Present Perfect
		'Sara flew to Palermo on Tuesday.'	
	b.	*Dinsdag vloog Sara naar Palermo.*	Past Simple
		'Sara flew to Palermo on Tuesday.'	

In both of these cases, the verbs express perfective aspect: on a time span that is included on a Tuesday that precedes the moment of speaking (the 'topic time'), Sara is said to have boarded a plane to Palermo, have been in the air for some time, and then have landed in Palermo. The difference between these two is a matter of genre: sentence 10a would be more at home in a narrative, whereas 10b would fit better into a non-narrative discourse.

As a result, the functionality of neither tense-aspect category can be solely described in terms of completeness at a given topic time (Klein 1994), but has to (at least) make reference to the genre of the discourse that they occur in. As such, these Dutch tense-aspect categories encode *more* semantics (viz. genre) than merely the temporal relation between the topic time and the event (the comparative concept of aspect).

3.5 Wrapping up

This chapter outlined the main tenets of Klein's (1994) approach to tense and aspect. I conceive of tense and aspect as time-relational categories: they relate two time spans to each other. Aspect specifically has to do with the temporal development of an event.

A pivotal role is played by the notion of the topic time. This is the time span that a language user is talking about. More specifically, it is the time span that a language user is making an assertion about, asking about, or conjecturing about for example.

The function of tense is to locate this topic time with respect to the moment of speaking. If a language user is talking about a time span in the past, the topic time lies before the moment of speaking and the past tense is appropriate. For present tense, the topic time includes the moment of speaking. For future tense, the topic time follows the moment of speaking.

The function of aspect is to signal which part of the temporal development of an event occurs at the topic time. In other words, aspect signals the temporal relationship between the event and the topic time.

In the case of perfective and imperfective aspect specifically, perfective aspect signals that the whole situational time including initial point and transitional point occur at the topic time. In other words, the event is completed at the topic time. Imperfective aspect signals that only a part of the situational time of an event occurs at the topic time. In other words, the event is not yet completed at the topic time.

Importantly, I take Klein's (1994) definitions of perfective and imperfective aspect to be comparative concepts (Haspelmath 2010, 2018). As a result, I assume that *language-particular aspectual categories are not bound by the definitions given as comparative concepts.* In the case of Siona, I do not expect that the Siona Imperfective is restricted to the comparative concept of imperfective aspect as defined in this chapter—nor do I have the same expectation for the Siona Perfective *mutatis mutandis*.

Chapter 4 – Methodology

This chapter discusses the material that will analysed, as well as the methodological approach taken. Section 4.1 discusses the corpus selection and briefly touches upon the material that was collected during fieldwork. Section 4.2 outlines a couple methodological baselines for analysing the data, and discusses how these follow from the theoretical background from the previous chapter.

4.1 Data

The material for the present study mainly consists of three traditional narratives, supplied by a small amount of data from personal fieldwork conducted in June 2023. The three narratives are the product of a language documentation project by Bruil (2014:14), and they comprise the Hammock story (28 lines), the Two Brothers story (25 lines), and the Batman story (72 lines). These narratives can be found in the ELAR archive and include Spanish glosses and translations in Spanish and English, all made by Bruil in collaboration with native Siona speakers.[1] The Hammock story can also be found as an appendix to Bruil's (2014) dissertation, including glosses and English translation (2014:343-52). For two examples in this study, I adduce material from the Anaconda story, also available in the ELAR archive. The recordings of these four stories each have their own code within the archive, which is given below in table 9.

Table 9. Narrative material from Bruil's (2014) corpus.

Title	Recording code
Batman story	20101123slicr001
Hammock story	20100913slicr001
Two Brothers story	20100907slicr002
Anaconda story	20100913slicr003

The main reason for choosing these stories is that they have been fully glossed and translated. This means that the overall storyline, the narratological structure, as well as the meaning and structure of individual sentences are easy to establish. These are all key criteria for analysing the function of aspectual forms in a particular language.

I will briefly discuss the contents of each narrative to make the following chapters easier to understand. The Hammock story is about a young man who has made a hammock, but who is

[1] Available through http://elar.soas.ac.uk/deposit/siona-140954.

warned by the elders to not lie down in it, because it will indefinitely get stuck to his back. The young man does not heed the elders' words and goes to lie down in the hammock anyway, at which point it indeed sticks to his back. He flees into the forest, where the hammock suddenly turns into a beautiful woman who bosses him around. It is not until she gets entangled into a bunch of coconuts that she turns back into a hammock and the young man can escape from it. He returns to the village and repents his mistake in front of the elders.

The Two Brothers story is about an older and a younger brother who go hunting across a river. When they have caught some animals, they return back to their canoe, which has drifted away a little from the shore. The older brother goes into the water but is bitten by an anaconda snake and passes away. The younger brother survives and returns back to the village and tells his father what happened. His father is a shaman, and proceeds to drink 'yahe' (ayahuasca) one night, and then goes to the river the next morning to kill the anaconda. He brings back the dead anaconda to the village and all ends well—relatively at least, in light of the death of the older brother.

The Batman story centres around a cannibal man. In Siona, *oyo bạị* literally means 'Batman' (*oyo* is 'bat' and *bạị* is 'person'), but it refers to a human who eats other humans. At the outset of the story, the man exhibits very strange behaviour: he does not want to drink the *dụri* drink when his children are born (although this is custom for new parents), and he eats fish that has only been half-cooked. Next, he distracts his wife by tasking her with making cassava and takes their children to a creek. There, he kills his children, and roasts and eats their remains. Upon returning to his wife, he feigns ignorance and beckons her to join him in looking for their 'lost' children around the creek in a (failed) attempt to eat her as well. They both go to the creek, but due in an accidental course of events the wife manages to escape this fate and Batman ends up practising the even more gruesome act of auto-cannibalism (eating away at his own body).

Finally, in chapter five I adduce some data that I have collected myself during fieldwork in the Soto Tsiaya community in June of 2023. I conducted and recorded elicitation sessions with native speakers, discussing a variety of different sentences and asking for grammaticality judgments and usage contexts.

4.2 Methodological approach

The analysis is conducted through a close-reading of these stories, with particular attention to the aspectual forms and the function they have within the sentence or the larger stretch of discourse that they are part of. In doing so, it is important to take into account which events are happening in the story, but also the way these events are related to each other, and how they form larger narratological units.

One important component is comparing minimal pairs of verbs forms, in as much as this is possible in narratives. This will be done my systematically comparing verb forms that differ in their aspect (Perfective or Imperfective forms), and through juxtaposition get a precise picture of

the functional difference. This is especially important for the verb *caye* 'to say' in chapter eight. Of course, the drawbacks here is that one always deals with different contexts and different sentences at different points in the story, so that one does not truly have minimal pairs in the more traditional sense of the word (viz. discussing two minimally different *sentences* with a native speaker in a consultation session). However, this is the implementation of the idea of minimal pairs that best approximates the traditional idea of minimal pairs, and that retains more or less the same methodological functionality, namely isolating one factor (aspect) and seeing what the change in meaning is.

The space of this study does not allow to analyse every aspectual single form in my corpus. Therefore, the chapters following only contain a limited number of examples discussed to illustrate the analytical points. For the sake of scientific transparency, appendix D contains a list of all aspectual forms in the Hammock story, the Batman story, and the Two Brothers story, including an abridged analysis through a coding system.

The analysis is divided into multiple chapters (chapters five through eight). Chapter five touches upon main verbs and aims to show that they express tense *sensu* Klein (1994). Moreover, they do not express aspect. Understanding these properties of main verbs helps us understand Siona sentences and narratological progression better, which in turn allows us to more precisely describe the function of the dependent verbs.

In chapters six and seven, I will discuss the dependent verbs, which express aspect. I will use the theoretical tools from chapter three to give a detailed account of the referential uses of Perfective and Imperfective forms. Chapter six will cover the use of Perfective forms, and chapter seven the use of Imperfective forms. Here, "referential" is to say that these uses can be described using Klein's (1994) time-relational notions.

An important outcome of this is that the *limits* of what Klein's (1994) approach can explain will be clear. In other words, this detailed account will help us determine which exactly are the referential uses of the Siona Perfective and Imperfective form, and which are not. As a result, this helps us determine which uses are "non-referential" (Fleischman 1990:16). In other words, which uses of the Siona dependent verbs *cannot* explained in terms of completeness at a reference time. These have to be given a different interpretation. These non-referential uses will be the subject of analysis in chapter eight, focusing mainly on the verb *caye* 'to say'.

This methodological angle of chapter eight rests on the idea that the Siona Perfective and Imperfective (descriptive categories) do not have to instantiate the comparative concepts of perfective and imperfective aspect respectively (see section 3.4). That is, these descriptive categories are not necessarily limited in function by the definitions of perfective and imperfective aspect (comparative concepts) in terms of completeness at the topic time (Klein 1994). And in fact, they *are not* limited by those in Siona.

4.3 Wrapping up

This chapter discussed the data and methodological angle to be taken in the chapters following. Data will be taken from traditional Siona narratives, supplied with a couple findings from my personal fieldwork. Chapters five through seven will detail the referential uses of main verbs and aspectual forms (dependent verbs). Chapter eight will detail the non-referential uses of the aspectual forms.

Chapter 5 – Main verbs

This chapter briefly touches upon the use of tense in Siona main verbs, and the use of the past tense specifically. Understanding the way past tense functions in main verbs is important in determining how these main verbs carry the storyline in narratives. This, in turn, is important when analysing the function of the aspectual forms (dependent verbs) in their narrative context in chapters six through eight.

This chapter aims to show that Siona main verbs express tense *sensu* Klein (1994). That is, they signal the temporal relationship between the moment of speaking and the topic time (section 5.1). They do not express aspect (section 5.2), because they do not say anything about the event itself with respect to the moment of speaking.

5.1 Main verbs express tense

Main verbs can take fusional suffixes from two series: one series that expresses present tense, and one that expresses past tense (see section 2.2.1). Present tense signals that the utterance is about the present moment. More precisely, it signals that the speaker is asserting, asking, conjecturing or reporting about a topic time that includes the moment of speaking. By contrast, past tense signals that the speaker is asserting, asking, conjecturing or reporting about a time span that precedes the moment of speaking. This is illustrated in the two examples below.

(11) a. *Naso tsiaya hua'i a̱ija̱i̱.*

nãhso	si̱ad͡ʒa	waʔi	ãĩ-ñĩ
monkey	river	meat	eat-3SG.M.PRS.ASS

'The monkey is eating fish.'

b. *Naso tsiaya hua'i a̱ja̱'i̱.*

nãhso	si̱ad͡ʒa	waʔi	ã-ñãʔĩ
monkey	river	meat	eat-3SG.M.PST.ASS

'The monkey ate fish.'

(My own fieldnotes.)

The present tense in 11a signals that the monkey is eating at the time of the utterance. The topic time includes the moment of speaking. The past tense in 11b signals that the speaker is talking

about the past: at some moment before the moment of speaking, the monkey was engaged in eating fish. The topic time precedes the moment of speaking.

Now recall that tense does not say anything about the relationship between the event itself and the moment of speaking (cf. our famous sentence *The book was in Russian.*). Similar examples can be adduced for the usage of the past tense in main verbs in Ecuadorian Siona. One such example is given under 12 below. It is uttered in the situation where two people have just passed by the football stadium in the centre of the village. They are not at the stadium anymore, and they are talking about the people that they just saw there.

(12) *Jąę̱ toyaquë ñu'ɨ̱siquë cato J. bë'caquë* ***baja'i.***

ɦã-ɨ̃	tod͡ʒa-kɨ		ɲũʔĩ-sih-kɨ = kaato	J.
DEM.PROX-M.SG	write-IMPF:M.SG		sit-PST-CLS:M = TOP	NAME
	bɨ̱ʔka-kɨ	ba̱-ɦiaʔi		
	parent-CLS:M	be-3SG.M.PST.ASS		

'That person who was writing and sitting was J.'s dad.'

(My own fieldnotes.)

Here, the past tense form *baja'i* 'was' cannot be taken to mean that the person referred to was J.'s father five minutes before, but not anymore. As such, it cannot signal that this particular situation (this 'event') is located in the past.[1] Instead, past tense signals that the topic time of the statement lies before the moment of speaking: the speaker is talking about the person referred to as they encountered and saw him briefly before this conversation. World knowledge tells us that familial relations between people do not change, and that said person is still J.'s father. To sum up, main verbs express tense: they signal the relative position of the topic time to the moment of speaking.

5.2 Main verbs do not express aspect

Main verbs do not express aspect. Instead, any aspectual meaning appears to be the product of an implicature. For example, past tense main verbs that describe telic events often receive an interpretation with perfective aspect when used in isolation. This is shown in example 13 below.

(13) *Go'ye mo'se jai huë'ena* ***ą̱ę̱'ę̱*** *nocare.*

go̱ʔd͡ʒe	mõʔse	ɦiai	wɨʔe-nã	ã-ɨ̃ʔĩ	nõhka-ɾe
previous	day	big	house-LOC	eat-OTH.PST.ASS	banana-ACC

'Yesterday, I ate a banana at the stadium (lit.: 'big house').'

(My own fieldnotes.)

[1] The state of "being someone's dad" is not an event in the colloquial sense of the word, but I use the term 'event' in relation to both static and dynamic predicates (see section 3.1).

When uttered in isolation, this sentence and the verb *ɑ̰ë'ḛ̈* 'ate' in particular is interpreted as expressing perfective aspect: the speaker asserts that at a topic time that falls within the day that precedes the conversation ('yesterday'), they started consuming the banana (**initial point**), were in the process of consuming it (**situational time**), and swallowed the final bite (**transitional point**). In other words, the speaker fully consumed the banana at the topic time. However, this meaning of perfective aspect seems to be an implicature that can be cancelled. Let us consider the sentences under 14 below, which contains the sentence from 13 but followed by more material.

(14) a. *Go'ye mo'se jai huë'ena **ɑ̰ë'ḛ̈** nocare.*

gǫ̰ʔd͡ʒe	mõʔse	ɦai	wɨʔe-nã	ã-ɨ̃ʔɨ̃	nõhka-ɾe
previous	day	big	house-LOC	eat-OTH.PST.ASS	banana-ACC

'Yesterday, I was eating a banana at the stadium.'

b. *Goachama'ḛ̈ ñu'ɪ̰na nasobi dani sabi yë' nocare.*

gʷɑ̰ht͡ʃa-mãʔ-ɨ̃	ɲũʔĩ-∅-nã		nãhso-βi	dɑ̰-nĩ
pay.attention-NEG-IMPF:M.SG	sit-IMPF:M.SG-DS		monkey-NOM	come-PERF.SS
saa-βi	d͡ʒɨʔ	nõhka-ɾe		
grab-3SG.M.PST.ASS	1SG	banana-ACC		

'While I was sitting and not paying attention, a monkey came along and grabbed my banana.'

(My own fieldnotes.)

In this case, it is clear that the event of eating a banana did not come to an end: a monkey came along and interrupted the process before the speaker could finish the whole banana. The speaker did not reach the transitional point of eating the banana. The sentence pair is grammatical together, showing that the monkey interrupting the consumption process is not contradictory to the use of the past tense verb *ɑ̰ë'ḛ̈* 'I ate'. This shows that main verbs can only express perfective aspect by implicature as in 13 on the previous page, and that this is not part of the truth-conditional meaning of past tense in the main verb.

Tellingly, when consultants were asked to render the two sentences from 14a-b in Spanish, they translated Siona *ɑ̰ë'ḛ̈* with the Spanish Imperfect *comía*. Previously, they had used the Preterite *comí* 'ate' to translate Siona *ɑ̰ë'ḛ̈* in 13. They appeared to show little awareness about this.

5.3 Wrapping up

To wrap up this chapter, we conclude that Siona main verbs only express tense (section 5.1). They do not express aspect, i.e. the relationship between the topic time and the temporal development

of the event (section 5.2). The precise way in which a Perfective or Imperfective reading may arise through implicature and the contribution of context in this process is a topic for further research.

Chapter 6 – Perfective forms

This chapter covers the referential function of Perfective forms. They signal that the transitional point of an event is reached at the topic time. In other words, they signal that an event is completed at the topic time. For the reader's convenience, table 10 below contains the morphology of Perfective forms from chapter two. For details on vowel assimilation and reduction in the class I singular suffixes, see section 2.2.

Table 10. Morphology of Perfective forms.

	Same subject		Different subject					
			Class I				Class II	
			Non-nasal		Nasal			
Masc. sg.	*-ni*	[nĩ]	*-ënа*	[ɨnã]	*-ẽ̈na*	[ɪ̃nã]	*-quëna*	[hkɨnã]
Fem. sg.	*-ni*	[nĩ]	*-ona*	[onã]	*-o̤na*	[õnã]	*-cona*	[hkonã]
Plural	*-ni*	[nĩ]	*-rena*	[ɾenã]	*-rena*	[ɾenã]	*-tena*	[htenã]

This chapter discusses the referential use of Perfective forms in both past contexts (section 6.1) as well as future contexts (section 6.2). I will show that the function in both past and future contexts is in fact the same. This will be an important fact for our discussion in chapter nine.

6.1 Perfective forms in past contexts

This section discusses the use of Perfective forms in past contexts. Very often, Perfective forms are part of a so-called "head-tail construction" (Guillaume 2011). In such cases, a Perfective form occurs at the beginning of a sentence and is lexically identical to the final verb (main verb) of the previous sentence. As such, the Perfective form 'retakes' the final main verb of the previous sentence. This is illustrated in example 15 on the next page. The English text between square brackets is a translation of the previous sentence in the story. This has been added throughout this study whenever it improves the reader's understanding of the example sentence.

(15) [The woman had got entangled and was screaming, and he looked at her and saw that she'd returned into the shape of a hammock, and he climbed down quickly and ran away.]

Go'iña. Go'ini i̱ quëaëña yecua'ire.

gǫ̱ʔi-∅-ɲã	gǫ̱ʔi-nĩ	ĩ-ĩ	kɨa-ɨ-ɲã
return-2/3SG.M.PST.N.ASS-REP	return-PERF.SS	PRO-CLS:M	tell-2/3SG.M.PST.N.ASS-REP

d͡ʒehk-ʷaʔi-ɾe
other-PL-ACC

'He returned. When he had returned, he told the others.'

(Hammock story, 20100913slicr001, lines 26 & 27).[1]

In this case, the 'tail' consists of the main verb *go'iña* 'he returned' in line 26. (In fact, this sentence consists of only this word *go'iña*.) This main verb is then retaken by the 'head': this is the Perfective form *go'ini* 'when he had returned' in line 27 from which the narrator pivots off the rest of the new sentence.[2]

What is the function of the Perfective form *go'ini* here? The topic time of both *go'iña* and *go'ini* is some time span after the young man had climbed down out of the tree (line 25). The young man's running away and returning are first only described with main verbs (*huëhuëña* 'ran away' line 25 and *go'iña* 'returned' line 26). These do not signal any truth-conditional aspect (see section 5.2). It is not asserted and thus left open if he had actually made it home at this point in the story.

The Perfective form *go'ini* is the first signal in the context that the transitional point of getting home *is* reached, because it expresses perfective aspect: it signals that at the topic time, the young man not only started his journey back home (initial point) and was on his way (situational time), but also that he reached his home destination (transitional point). After *go'ini*, the topic time moves a little forward to after the young man's arrival, and the narrator can now start telling about what the young man did in the village upon his arrival: he confessed what had happened. This analysis more or less gives the same result as Bruil's (2014:207) "relative past tense", in the sense that the event of the Perfective form occurs before the event of the next verb.

Example 15 above contained a 'same subject' form *go'ini*. The same analysis obtains for Perfective forms that are marked with the 'different subject' suffix *-na* [nã]. This is illustrated with in example 16 on the next page.

[1] The stem of the class I verb *go'iye* 'to return' ends in [i]. For the morphology of *go'iña* [gǫ̱ʔiɲã] see ch. 2 p. 16.

[2] The highly frequent use of these head-tail constructions appears to be a peculiarity of Ecuadorian Siona within the language family. A quick glance at data from other West-Tukanoan languages teaches that these do not seem to exhibit the phenomenon (to the same degree), such as Máíhɨ̀kì (Farmer 2018), Koreguaje (Cook and Criswell 1993:101-5). More research is needed to understand the use and distribution of this phenomenon in these different languages.

(16) *Huani daëna ị̈ dëjọ soeni te'teni cua'coni mamajëre ạọña.*

waa-nĩ	dạ̰ạ̰-ɨ-nã	ĩ-ĩ	dị̰ñõ	soe-nĩ
kill-PERF.SS	bring-PERF:M.SG-DS	PRO-M.SG	wife	pluck-PERF.SS

teʔte-nĩ	kʷaʔko-nĩ	mãmã-ñĩ̵-ɾe
cut-PERF.SS	cook-PERF.SS	child-CLS:PL-ACC

ã-õ-∅-ɲã
eat-CAUS-2/3SG.F.PST.N.ASS-REP

'He killed (the game) and brought it (home), and his wife plucked it, cut it up, cooked it and gave it to the children to eat.'
(Anaconda story, 20100913slicr003, line 006).[1]

In this example, all Perfective forms express perfective aspect. The first Perfective form *huani* signals that the male protagonist completed his killing of animal game at the topic time. In other words, the transitional point of the event 'killing' is reached at the topic time. The 'same subject' form indicates that the subject will stay the same for the next verb. The topic time advances a little and the next step in the story is described: the Perfective form *daëna* signals that the protagonist brought home the animal game. Perfective aspect again signals that the transitional point was reached at the topic time: the game was successfully brought home at this point in the story.

The Perfective form *daëna* has the 'different subject' suffix *-na* [nã]. This suffix signals that the subject will be different from the male protagonist for the next verb. The new subject is given by the noun phrase *ị̈ dëjọ* 'his wife'. Her actions are also described with Perfective forms: *soeni te'teni cua'coni* 'plucked, cut up, cooked'. These each signal that each individual action was completed at the topic time. In other words, the transitional point was reached before the next event occurred.

This example shows that multiple Perfective forms can be serialised into a string of verbs that describe subsequently occurring events (Bruil 2014:201). The whole serialisation is syntactically dependent on the main verb *ạọña* 'she fed', which is marked for past tense and epistemic authority (reportative form).

To round off this subsection, it should be noted that the data contain what seems to be a lexicalised Perfective form *yo'ni* from the verb *yo'ye* 'to do, to work'. The form *yo'ni* seems a 'same-subject' Perfective form, but it is used in broader contexts. This is illustrated in example 17 on the next page.

[1] The stem of the class I verb *ạọñe* 'to feed' ends in [õ]. For the inflectional morphology of *ạọña* [ãõŋã] see ch. 2 p. 16.

(17) […and his wife watched him and climbed up a tree.]

Yo'ni i̱o̱te i̱ gua̱je̱tu' se'bo̱'nekë bouña i̱ ja̱je̱ ba'ita̱'a̱.

d͡ʒo?-nĩ	ĩ-õh-te	ĩ-ĩ	gʷã̱ɲ̃ẽ-tu?
do-PERF.SS	PRO-CLS:F-ACC	PRO-M.SG	male.genitals-CLS:BAG

se?-bõ̱?nẽ-kɨ		bo̱o̱-ɨ-ɲã	ĩ-ĩ
AND-turn.around:PLACT-IMPF:M.SG		roast-2/3SG.M.PST.N.ASS-REP	PRO-M.SG
ɲ̃ãɲ̃ẽ	ba̱?i-tã?ã		
like	be-CNTEXP		

'After that, he turned those male genitalia of his own around and roasted them while he was like that (i.e. in that state of mind).'

(Batman story, 20101123slicr001, line 062).

In this case, the subject of the verbs in the previous sentence is Batman's wife. The subject of the verbs in this sentence is Batman himself however, as indicated by the personal pronoun *i̱* 'he'. Thus, a 'different subject' form would be appropriate. However, we find the form *yo'ni* which looks like a 'same subject' Perfective form. This suggests that *yo'ni* is a lexicalised expression that is functionally similar to English 'next', or 'after that'. It occurs eleven times in my corpus (see appendix D).

To sum up, this section showed examples of Perfective forms in past contexts. These signal that the transitional point of the event is reached at the topic time. In other words, the event is completed at the topic time.

6.2 Perfective forms in future contexts

Perfective forms are not restricted to the past time reference. After all, Perfective forms signal perfective *aspect*, which only signals that the event is completed at the topic time. The relative position of the topic time with respect to the moment of speaking is left unspecified. (This is the function of tense, and not aspect). As a result, Perfective forms and the event serialisations that they are used in can also readily be used in future contexts. I will give two examples of a future context. The first example is from the Hammock story. The sentence under 18 on the next page is what the talking hammock says to the young man after it had got stuck to his back.

(18) *Airo sani ñocua neñu'ụ.*

ai-ɾo	sa-nĩ	ɲõhk^{w}a	nẽẽ-ɲũʔũ
big-CLS:LOC	go-PERF.SS	chambira	make-ADH

'Let's go to the forest and make chambira.'

(Hammock story, 20100913slicr001, line 013).

In the case, the topic time is a time span that lies after the moment of speaking ('in the future'). The hammock is encouraging the young man to do something after the moment of speaking, and the hammock is thus speaking about a time span that follows the moment of speaking.

At this topic time, the Perfective form *sani* signals that the event of going to the forest reaches (or: should reach) its transitional point at the topic time. In other words, it is completed at the topic time. The topic time moves forward: the next verb describes an event that will happen once the forest has been reached. In this case, this event is making chambira. The adhortative suffix *-ñu'ụ* [ɲũʔũ] scopes over both *saiye* 'to go' and *neñe* 'to make'.

The point here is that the Perfective form *sani* is readily available for future time reference. It only signals that the transitional point of the event of going into the forest is reached at the topic time. In other words, this event is completed at the topic time. The Perfective form leaves unspecified the relationship between the topic time and the moment of speaking. After all, this is the function of *tense*, and not of *aspect* (here: perfective aspect).

Another future context where Perfective forms occur is in combination with the future nominalising suffix *-jạ'* [ɦãʔ]. This suffix is used to express purpose. Example 19 below is from the episode in the Batman story where Batman is trying to coax his wife into joining him to look for their 'lost' children (ultimately a false pretext, because Batman ate his children the previous night). Batman tells his wife the following:

(19) *Ạọjẹ sajë'ë tsịdohuëre tị'ạni ạọjạ'ñe.*

ãõÑẽ	saa-ɦĩʔɪ̃	sɪ̰̃-ɾowɨ-ɾe	tĩʔã-nĩ	ãõ-Ñãʔ-ɲẽ
cassava	bring-IMP	boy-PL-ACC	meet-PERF.SS	feed-FUT-PL

'Bring cassava so that we can feed the boys that once we meet them.'

(Batman story, 20101123slicr001, line 033).

The syntactic structure of this sentence is as follows: the main verb is the imperative form *sajë'ë* 'bring!' that has a direct object *ạọjẹ* 'cassava'. The rest of the sentence consists of the phrase *tsịdohuëre tị'ạni ạọjạ'ñe* 'so that we can feed the boys once we meet them'. This is an adverbial phrase that expresses the goal of the action as expressed by the imperative *sajë'ë* 'bring!'. In this adverbial phrase, plural reference is used on *ạọjạ'ñe* to signal that both Batman's wife and Batman will feed their children.

Now, this adverbial phrase contains two verb phrases, viz. *tsi̱dohuërе ti̱'a̱ñe* 'to meet the boys' and *a̱o̱ñe* 'to feed'. These are serialised through the Perfective form *ti̱'a̱ni,* which asserts that the event of meeting the boys reaches (or: should reach) its transitional point at the topic time. After this, the cassava will be fed to their children. The nominalising future suffix *-ja̱'* [ɦãʔ] scopes over the serialised construction *tsi̱dohuërе ti̱'a̱ni a̱o̱ñe* 'to feed once (we) have met the boys' as a whole.

Again, the use of the Perfective form *ti̱'a̱ni* to signal perfective aspect is well compatible with future time reference, because perfective aspect says nothing about the relationship between the moment of speaking and the topic time. Here, the Perfective form *ti̱'a̱ni* expresses that the event of meeting the boys will be completed at the topic time.

6.3 Wrapping up

To sum up, Perfective forms signal that the transitional point is reached at the topic time. In other words, the event reaches completion at the topic time. The topic time moves a little forward so that the narrator can now say something about the time span after this event has happened. In other words, the time span once the event has reached completion. Perfective forms are compatible with both past and future contexts. This is because they only express *aspect* and leave the relationship between the topic time and the moment of speaking (*tense*) unspecified.[1]

[1] I have not yet come across the use of Perfective forms in present contexts. My hypothesis is that this is possible in habitual contexts.

Chapter 7 – Imperfective forms

Describing the referential uses of the Imperfective forms is a considerably more complicated story than describing those of the Perfective forms. In this chapter I will distinguish between three different uses of Imperfective forms (see below). However, they are all characterised by the definition of imperfective aspect: the transitional point of an event is not yet reached at the topic time, and only a part of the situational time occurs at the topic time (Klein 1994). For the reader's convenience, table 11 below contains the morphology of Imperfective forms (see section 2.2.2).

Table 11. Morphology of Imperfective forms.

	Class I				Class II			
	Non-nasal		Nasal		Non-nasal		Nasal	
Masc. sg.	*-quë*	[kɨ]	*-quë*	[kɨ]	-∅		-∅	
Fem. sg.	*-co*	[ko]	*-co*	[ko]	*-o*	[o]	*-o̧*	[õ]
Plural	*-jë*	[ɲɨ]	*-jȩ̈*	[ɲ̃ɨ̃]	*-jë*	[ɲɨ]	*-jȩ̈*	[ɲ̃ɨ̃]

This chapter divides the referential uses of Imperfective forms into three, which will each be discussed in the subsequent sections. These are:

(i) They can indicate 'temporal overlap': while a particular event is on-going at the topic time, another event occurs (section 7.1).

(ii) They can indicate an event that is on-going at the topic time, but comes to an end through the occurrence of another event (section 7.2).

(iii) They can be used to describe different facets of one and the same event (section 7.3).

Section 7.4 will wrap up this chapter.

7.1 Imperfective forms for temporal overlap

Most often, Imperfective forms are used to signal temporal overlap between two events (see appendix D). This is in line with the semantic characteristic of "simultaneity" (Whaley 1997:208, Bruil 2014:208). Let us first consider examples of 'same subject' forms. Example 20 on the next page is from the Batman story. Batman has just cut off his own genitals and put them into the fire to roast them. At this point, he has also started fainting.

(20) *Yo'ni ịọte ị guajẹtu' se'bọ'nekë bouña ị jajẹ ba'itạ'ạ.*

d͡ʒoʔ-nĩ	ĩ-õh-te	ĩ-ĩ	gʷą̃ɦẽ-tuʔ
do-PERF.SS	PRO-CLS:F-ACC	PRO-M.SG	male.genitals-CLS:BAG

seʔ-bọ̃ʔnẽ-kɨ	bọọ-ɯ-ɲã	ĩ-ĩ
AND-turn.around:PLACT-IMPF:M.SG	roast-2/3SG.M.PST.N.ASS-REP	PRO-M.SG

ɦãɦẽ	bą̃ʔi-tãʔã
like	be-CNTEXP

'After that, he turned those male genitalia of his own around and roasted them while he was like that (i.e. in that state of mind).'

(Batman story, 20101123slicr001, line 062).

The verb *bọ'neñe* is a pluractional verb, and it describes an activity of continuous turning around something. This is especially appropriate in the context of preparing a piece of meat above a fire, like here. This requires continuously turning around the piece of meat so that the parts are cooked equally.

Here, the topic time is the time span shortly after Batman had started fainting. The Imperfective form *se'bọ'nekë* signals that at this topic time, Batman is turning around his food. This repeated activity does not yet come an end at the topic time. The topic time stays the same and the narrator continues to tell what happens during this turning around of his food. The 'same subject' form indicates that the subject of the next action will also be Batman. In this case, the audience learns that Batman is also roasting his food. As such, the Imperfective form signals that the events of turning around and roasting are "simultaneous" (Bruil 2014:208).

Roughly the same analysis applies to Imperfective forms that are followed by an Imperative form, as in example 21 below from the Two Brothers story. This is an exhortation by the father of the two brothers to be careful on their hunt.

(21) *Ñajë daojẹ'ẹ̈!*

ɲãã-ɲ̃ĩ	dą̃ọ-ɦĩʔĩ
see-IMPF:PL	walk.around-IMP

'Walk around with caution!'

(Two Brothers story, 20100907slicr002, line 004).

Here, the (implicit) topic time is when the two brothers are on the hunt for food. Their father uses the Imperfective form *ñajë* to tell them to be in a state of caution at this topic time. The Imperfective form signals that this state of caution does (or: should) not yet come an end at the topic time. The topic time does not advance, but stays the same. So at the same topic time, the

two brothers are also to walk around. Again, these two events are presented as “simultaneous” (Bruil 2014:208).

Incidentally, this example shows that Imperfective forms are also compatible with future contexts. Just like Perfective forms (see chapter 6), this means that Imperfective forms are compatible with both past contexts (example 20) as well as future contexts (example 21).[1]

This “simultaneous” use of the Imperfective form also occurs when combined with the ‘different subject’ suffix *-na* [nã]. Let us consider two examples. The first is from the Batman story, and comes from the episode where Batman is roasting and eating food in the middle of night. At the same time, his wife is breastfeeding their baby inside of their tent. She wonders what her husband is doing.

(22) […and he was sat by the fire, roasting and eating something.]
A̱i̱na, dë̱jo̱ “Quere a̱i̱quë’ne?” goachaoña.
ãĩ-∅-nã dĩ̱ñõ ke-e-ɾe ãĩ-kɨ-ʔnẽ
eat-IMPF:M.SG-DS wife what-CLS:GEN-ACC eat-2/3SG.M.PRS.N.ASS-Q
g^{w}a̱htʃ͡a-o-ɲã
think-2/3SG.F.PST.N.ASS-REP
‘He was eating and his wife thought: “What is he eating?”’
(Batman story, 20101123slicr001, line 015).

Here, the narrator uses the Imperfective form *a̱i̱na* (the head) to retake the main verb *a̱quëña* ‘he ate/was eating’ (the tail) from the previous sentence (not printed here). The topic time is the time span shortly after Batman had started eating. The Imperfective form signals that at the topic time, Batman is still eating. The topic time does not move forward, and the narrator next tells about what happens while Batman is still eating. The ‘different subject’ suffix *-na* [nã] signals that the subject of the next verb is going to be different from Batman. This subject is given by the noun *dë̱jo̱* ‘(his) wife’, and the audience learns what she is thinking while she is watching her husband eat.

The second example comes from the Batman story. At this point in the story, Batman has ordered his wife to make cassava, and she obeys and goes to make cassava.

[1] Again, I have yet to come across an Imperfective form used in present contexts. My hypothesis is that this is possible in habitual contexts.

(23) […she grated the yuca and made cassava.]

Necona i̱ mamajë ja̱re, "Sani e'oeñu'u̱ a'ri tsiaya," mamajëre caëña.

nẽẽ-ko-nã	ĩ-ĩ	mãmã-ñĩ̃	ña̱re	sa-nĩ
make-IMPF:F.SG-DS	PRO-M.SG	child-CLS:PL	like.this	go-PERF:SS

eʔoe-ɲũʔũ	aʔɾi	si̱a͡ʒa	mãmã-ñĩ̃-ɾe		kaa-i̱-ɲã
fish-ADH	small	river	child-CLS:PL-ACC		say-2/3SG.M.PST.N.ASS-REP

'She was making that and then he said to the children: "Let's go and fish in the creek."'

(Batman story, 20101123slicr001, line 023).

Here, the Imperfective form *necona* (the head) retakes the main verb *neo̱ña* 'she made/was making' (the tail) from the previous line (not printed here). The topic time is the time span (briefly, presumably) after Batman's wife had started making cassava. The Imperfective form *necona* signals that at this topic time, she has not yet finished making cassava. The topic time stays the same, and the narrator proceeds to tell the audience what happens while she is still engaged in this activity. The 'different subject' suffix *-na* [nã] signals that the subject of the next verb will not be the wife. The next subject is given by the pronoun *i̱* 'he' referring to Batman, and the narrator says that Batman exhorted his children to join him fishing at the creek (ultimately a false pretext, as we know) while his wife is making cassava.

Iterative verbs can also be found in Imperfective forms. Iterative verbs are always class I verbs, but can only be derived from class II verbs through reduplication (Bruil 2014:226). This is the case for the verb *ta̱taye* 'to keep falling' in example 24 below, derived from the class II verb *ta̱i̱ñe* 'to fall'.[1] When used with iterative verbs, the Imperfective form asserts that the *series* of events is not yet completed at the topic time.

(24) *Yureta̱'a̱ ja̱maca yure aireba ta̱taquëna i̱o̱ dëjo̱ gajeoña.*

d͡ʒuɾe-tãʔã	ña̱mãhka	d͡ʒuɾe	ai-ɾeβa	tãh~ta-ki̱-nã
now-CNTEXP	next	now	big-INTENS	fall.down~ITER-IMPF:M.SG-DS

ĩ-õ	di̱ñõ	ga̱ña-o-ɲã	
PRO-F.SG	wife	descend-2/3SG.F.PST.N.ASS-REP	

'And then next, he kept falling down a lot and she, the wife, she came down.'

(Batman story, 20101123slicr001, line 063)

In this case, the topic time is explicitly given by the temporal adverb *ja̱maca* 'next', which fixes the topic time to a time span briefly after Batman had started roasting and turning around his own genitals above his fire. The Imperfective form *ta̱taquëna* signals that at this topic time, Batman is continuously falling to the ground (and getting himself up again too, presumably), and that this

[1] Interestingly, nasality is not copied onto the reduplicated syllable.

process does not yet come to an end. The topic time does not advance and the narrator is going to tell what happens while Batman is continuously falling. The 'different subject' suffix *-na* [nã] signals that the subject of the next verb is going to be different from Batman. This next subject is given by the nominal forms *i̱o̱ dëjo̱* 'she, the wife', who descends (*gajeoña*) from the tree that she had hidden herself in.

In all of the examples above, the events described by the Imperfective ultimately do reach their end-point, or we assume so with knowledge of the world, like for *necona* 'making (cassava)' in example 23 above. However, this is not always the case: sometimes the event does not reach the transitional point at all. This is illustrated in example 25 below. At this point in the Batman story, Batman has just had a child and his community members offer him the medicinal drink *du̱ri*, which is customarily given to parents of a new-born baby or a girl who has had her first menstruation cycle. However, Batman refuses this drink.

(25) *Du̱ri neni o̱cuajëna goeiña.*

dũ̱ri	nẽẽ-nĩ	õhk^{w}a-fiɨ-nã	go̱e-i-ɲã
du̱ri	make-PERF.SS	give.to.drink-IMPF:PL-DS	refuse-2/3SG.M.PST.N.ASS-REP

'They made *du̱ri* and offered him this to drink, but he refused.'

(Batman story, 20101123slicr001, line 006).

Here, the Perfective form *neni* 'made' asserts that the elders made the drink and completed making the drink at the topic time. The topic time advances to a moment after the drink was completed and the narrator now proceeds to tell what happens with the drink. The elders want to give this drink to Batman so that he can drink it. Their offer is expressed with the Imperfective form *o̱cuajëna*, which signals that at the topic time this event does not yet reach its transitional point (i.e. Batman accepting the drink and drinking it).

The topic time does not advance, and the narrator tells what happens before the transitional point is reached. The 'different subject' suffix *-na* [nã] signals that the subject of the next verb is going to be different from the elders. In this case, Batman is the subject of the next verb. He refuses the drink, as expressed by *goeiña* 'he refused'. This verb informs the audience that the transitional point of *o̱cuajëna* 'to give to drink' is in fact not reached at all in the story. Because of this, I have rendered the Imperfective form 'they offered' in the English translation.

This usage of imperfective aspect is also called "conative" in the literature (Vincent 2013:271), because it serves to signal an attempt at doing something. In this case, it consists of the failed attempt at having Batman drink the *du̱ri* drink.

Except for example 25 above, all Imperfective forms illustrated in this section signal that an event did not yet come an end at the topic time. At that same topic time, another event occurs.

In such cases, one can speak of “simultaneity” (Bruil 2014) or “temporal overlap” (e.g. Farmer 2015). However, neither is the case in section 7.2 below.

7.2 Imperfective forms for events that come to an end

This section discusses instances of Imperfective forms that signal events that come to an end through the event described by the next verb. In other words, the event described by the next verb is the transitional point of the event described by the Imperfective form. As a result, it becomes difficult to maintain that these two events occur “simultaneously” or “at the same time”, because the next event *makes an end* to the event described by the Imperfective form. Let us consider example 26 below from the Batman story, where Batman’s wife has just joined Batman in going down to the river to look for their children.

(26) […she went with him, the husband.]
Saiyo ti̱’a̱o̱ña i̱hua’i saca̱i̱sicore.
sai-o tĩʔã-õ-ɲã ĩ-ĩ-waʔi
go-IMPF:F.SG reach-2/3SG.F.PST.N.ASS-REP DEM:PRX-CLS:M-PL
sa-kãĩ-sih-ko-ɾe
go-sleep-PST-CLS:F-ACC
‘She went and reached the place where they had gone to sleep.’
(Batman story, 20101123slicr001, line 035)

Here, the Imperfective form *saiyo* (the head) retakes the main verb *sacoña* ‘she went’ (the tail) of the previous sentence (not printed here). The Imperfective form signals that at this point in the story (i.e. at this very word *saiyo*), Batman’s wife has not yet reached her destination. Because the reaching of this end-point has not yet been expressed, the narrator can now newly introduce this end-point. In other words, the narrator can narrate *that* and *how* this end-point was reached. The ‘same subject’ form *saiyo* signals that the subject of the next verb will also be Batman’s wife. In this case, the narrator asserts explicitly that she reached the transitional point of ‘going’ (*saiyo*): she reached (*ti̱’a̱o̱ña*) the place she was looking for, which is the place where her children had slept.

Importantly, this example shows that the event signalled by Imperfective form *comes to an end* with the next verb. As such, it cannot be said that the two events are “simultaneous” or occurred “at the same time”. Instead, what the Imperfective form signals is that the transitional point is not yet reached at the topic time. That is to say, the narrator uses the Imperfective form to assert that the event is not yet completed at this point in the story (‘topic time’). After the Imperfective form, the narrator can newly introduce this end-point, and make a new claim: the end-point was reached.

Let us consider two more examples of this usage of Imperfective forms. In both examples, the Imperfective form is followed by a verb that describes *that* and *how* the event described by the Imperfective form comes to an end. The first example comes from the Batman story where Batman's wife has fled into a tree and Batman is standing alone at the fire, hungry. Because he cannot eat his wife (who escaped), he is going to eat at himself.

(27) *Yo'ni yureta̱'a̱ ja̱maca i̱ hua'i jai ga̱que̱'yese'e co'equë te'teni ti toana je̱o̱ o̱a̱ni boëña.*

d͡ʒo?-nĩ	d͡ʒuɾe-tã?ã	ɦãmãhka	ĩ-ĩ	wa?i	ɦai
do-PERF.SS	now-CNTEXP	next	PRO-M.SG	meat	big
gə̱̃ki?d͡ʒe-se?e	ko?e-kɨ		te?te-nĩ	ti	toa-nã
?-ONLY	search-IMPF:M.SG		cut.off-PERF.SS	?	fire-GOAL
ɦẽõ-õã-nĩ	bo̱o̱-ɨ-ɲã				
drop-let.lie-PERF.SS	roast-2/3SG.M.PST.N.ASS-REP				

'When he had done that, well next he looked for a big piece of meat, he cut it, threw it into the fire and roasted it.'
(Batman story, 20101123slicr001, 051)

Here, the topic time is fixed to a moment briefly after (*yo'ni yureta̱'a̱ ja̱maca*) Batman has taken off his tunic and his wife has witnessed his mutilated genitals (from a safe distance, hidden in a tree). The Imperfective form *co'equë* describes that Batman is engaged in looking for an edible piece of meat on his own body. It signals imperfective aspect: he does not yet reach the transitional point of this event at the topic time (viz. while the narrator is 'at' the word *co'equë*). The topic time does not advance, and the narrator is going to tell in which way the transitional point of this event of searching is reached. This is done by the Perfective form *te'teni* 'he cut off', which signals the end of Batman's searching and the next step in the process, which is cutting off a piece of his own flesh.

Again, the events of 'searching' and 'cutting off' cannot be said to be simultaneous, because cutting off the piece of his own flesh is the step in the process that makes an end to Batman's search. Instead, the Imperfective form signals that the event of searching is not yet completed at the topic time.

This use of the Imperfective can also occur with 'different subject' forms. This is illustrated in example 28 on the next page.

(28) *A̱ijë tutujëna yeo'cabi tsiayabi ño'cue dëchoëña ja̱o̱hua'i do̱mitsi̱re.*

ãĩ-f̃ĩ̃	tuhtu-fi̱-nã	d͡ʒeoʔka-βi	si̱ad͡ʒa-βi
eat-IMPF:PL.SS	sit.up.top-IMPF:PL-DS	below-ABL	river-ABL
ɲõʔkʷe-di̱ht͡ʃo-i-ɲã			fi̱ã-õ-waʔi
move-made.fall-2/3SG.M.PST.N.ASS-REP			DEM.PRX-CLS:F-PL
dõ̱mĩ-sĩ̱-ɾe			
woman-child-ACC			

'While they were eating and sitting up top, (something) from below from the river moved and made these girls fall.'

(Anaconda story, 20100913slicr003, line 009).

Here, two girls are sitting on top of a branch and engaged in eating food. These girls are the subject of the Imperfective form *a̱ijë*. The 'same subject' form *a̱ijë* signals that the subject of the next verb *tutujëna* is also the girls. This verb *tutujëna* contains the 'different subject' suffix *-na* [nã], which signals that the subject of the next verb is different from these girls. This new subject is the anaconda who sweeps them down from the branch and makes them fall (serial verb *ño'cue dëchoëña*).

Now, the topic time of *a̱ijë* and *tutujëna* is some time span shortly after the girls had climbed up the branch. The Imperfective forms *a̱ijë* and *tutujëna* signal that at the topic time, the transitional points of eating and sitting up top are not yet reached. In other words, the girls are still engaged in these activities. The topic time does not advance and the narrator proceeds to tell what happened at the same topic time. Because the transitional point has not yet been reached, the narrator can narrate *that* these two activities came to an end, and *how* this came to be. The audience learns that an anaconda makes a movement and causes the girls to fall down.

Again, we cannot maintain that this 'moving and making fall' by the anaconda is "simultaneous" to the activities of the girls eating and sitting, because the anaconda's sweep makes an end to these activities. Instead, the Imperfective forms only signal that the transitional points of eating and sitting up top are not yet reached at the topic time.

This subsection showcased instances of Imperfective forms that express an event that came to an end through the event described by the next verbal form (either main verb of Perfective form). As a result, we cannot say that the event described by the Imperfective form is "simultaneous" with the event described by the next verbal form, or occurs "at the same time". Instead, these Imperfective forms signal that at the topic time, the event has not yet reached its transitional point. Because the transitional point is not asserted to have occurred at the topic time, the narrator can continue to narrate that the next event makes an end to the event described by the Imperfective form. In other words, the event narrated next *is* the transitional point of the event described by the Imperfective form.

7.3 Imperfective forms that describe the same event

Imperfective forms can also be used if the narrator wishes to elaborate on the event that is described by the Imperfective form. In such cases, the Imperfective form describes the same event as the next verb in the sentence.

This subsection will discuss three examples that illustrate this use. The first example comes from the Batman story. In this episode, Batman's wife is hiding up a tree while Batman is down near the fire and talking to himself, lamenting the fact that he let his wife escape and that he cannot eat her now.

(29) […and he said: "I should have killed her before making firewood. Because I didn't kill her before, she escaped."]

Ị̱o̱ achaco ị̱ caye, achaco si'aye achaoña ị̱o̱.

ĩ-õ	ahʧa-ko	ĩ-ĩ	kaa-ʤe,	ahʧa-ko	siʔa-ʤe
PRO-CLS:F	hear-IMPF:F.SG	PRO-CLS:M	say-CLS:GEN	hear-IMPF:F.SG	all-CLS:GEN

ahʧa-o-ɲã	ĩ-õ
hear-2/3SG.F.PST.N.ASS-REP	PRO-CLS:F

'She heard what he said, she heard everything.'

(Batman story, 20101123slicr001, line 047).

Here, the topic time is the time span when Batman is expressing out loud his regret of letting his wife escape. The Imperfective form *achaco* signals that at this topic time, Batman's wife is listening to what her husband is saying and that this listening has not yet come to an end. This allows the narrator to elaborate on what happens before the transitional point is reached. The 'same subject' form *achaco* signals that the subject of the next verb is also going to be Batman's wife. In this case, the narrator elaborates on the same event with the second Imperfective form *achaco*. She not only hears what her husband is saying, but she hears *everything.* This Imperfective form allows the narrator to elaborate once more (this time with the main verb *achaoña*). However, this does not seem to add much additional information.

Example 30 on the next page is from the Hammock story, and comes from the episode where the young man has just fled into the forest with the hammock stuck to his back. The narrator describes how the young man deals with the hammock on his back in the forest.

(30) *Sani daisiquëbi guyaquë si'a jąę̱rë gajeni guyaëña.*

sa-nĩ	dą̱i̱-sih-kɨ-βi	gu̱d͡ʒa-kɨ	siʔa
go-PERF.SS	come-PST-CLS:M-NOM	bathe-IMPF:M.SG	all

ɦãĩ̱-ɾɨ	gą̱ɦẽ-nĩ	gu̱d͡ʒa-ɨ-ɲã
hammock-CLS:MAZE	descend-PERF.SS	bathe-2/3SG.M.PST.N.ASS-REP

'When he'd gone [sc. into the forest], he who had come there bathed, he went to down [sc. into the river] with the whole hammock and bathed.'

(Hammock story, 20100913slicr001, line 009)

In this sentence, the topic time of *guyaquë* is a time span briefly after the young man had fled into the forest (Perfective form *sani*). The Imperfective 'same subject' form *guyaquë* signals that at this topic time, the young man goes to bathe in the river. However, the transitional point is not yet reached at the topic time. This allows the narrator to elaborate on what happens before the transitional point is reached, and in this case, he elaborates on the same event. The audience learns that he goes to bath after he has descended into the river with the whole hammock on his back (*si'a jąę̱rë gajeni*). Like in example 29 before, we find a repetition of the lexical item. In this case, the verb *guyaye* 'to bathe' is repeated as the main verb *guyaëña* 'he bathed'.

Lexical repetition is not necessary for this use of the Imperfective, however. This is illustrated in the third example below from the Batman story. In this episode at the beginning of the story, Batman has just got a child and he is offered the *du̱ri* drink to drink, but he refuses.

(31) *Goequë "Yequëna ja̱re jąę̱ni o̱cuajë̱'ę̱," caëña.*

go̱e-kɨ	d͡ʒehk-ɨ-nã	ɦã-re	ɦã-ɾ̃ĩ-nĩ
refuse-IMPF:M.SG	other-CLS:M-GOAL	DEM.PRX-ACC	DEM.PRX-CLS:M-DAT

õhkʷa-ɦɾ̃ĩʔɾ̃ɨ	kaa-ɨ-ɲã
give.to.drink-IMP	say-2/3SG.M.PST.N.ASS-REP

'He refused and said, "Give it to him again."'

Lit.: 'In refusing, he said, "Give it to him again."'

(Batman story, 20101123slicr001, line 012).

Here, the Imperfective form *goequë* (the head) retakes the main verb *goeiña* 'he refused' (the tail) from the previous sentence (not printed here). The Imperfective 'same subject' form *goequë* signals that at the topic time, the transitional point of Batman's refusal is not yet reached. This allows the narrator to elaborate on this refusal, and this is done by citing the words that Batman uses to decline the drink. These words *are* Batman's refusal. Unlike in the two examples above (29-30), the verb lexeme of the Imperfective form is not repeated. The verb *goeye* 'to refuse' is not repeated,

but the more general verb *caye* ‘to say’ is used to elaborate on Batman’s refusal (here conjugated as *caëña* ‘he said’).

7.4 Wrapping up

This chapter took a close look at the referential uses of Imperfective forms. In all cases, the Imperfective form signals imperfective aspect: the transitional point of the event described by the Imperfective verb does not yet reach its transitional point at the topic time. In other words, this event is not yet completed at the topic time. This referential use can be applied in different ways. Most often, it is used to signal temporal overlap between two events. In most of these cases, one can still speak of “simultaneity” or “relative present tense” (Bruil 2014). However, this does not always work: Imperfective forms are also compatible with a following verb form that describes that the event described by the Imperfective form comes to an end. Moreover, the narrator can also use an Imperfective form to further elaborate on the event described by the Imperfective form. In these cases, one can no longer speak that two events occur “simultaneously”. Instead, it is preferable to uphold an aspectual analysis of the Imperfective forms.

Chapter 8 – Aspect on the discourse level

This chapter discusses the use of Siona aspectual forms on the discourse level. Forms that function on the discourse level cannot be analysed using time-relational notions. This is to say that their function cannot be described in terms of the temporal development of an event. Instead, they have "non-referential meanings" (Fleischman 1990:16). These aspectual forms function at the discourse level to give the narrative structure and create discourse cohesion. This function of aspect is almost exclusively found in the verb *caye* 'to say'. It should be noted that this verb is used very broadly as a quotative verb, and may sometimes better translated into English as 'to ask', 'to answer', or 'to order'.

For the sake of convenience, table 12 below contains the Perfective and Imperfective forms of this verb *caye* 'to say'. The verb *caye* 'to say' is a class I verb and has a non-nasal root. Note that the long vowel in the verb root is not written in Siona orthography. The Perfective 'same subject' form is invariably *cani* [kaanĩ] regardless of gender/number.

Table 12. Aspectual forms of *caye* 'to say' (class I verb).

		Same subject		Different subject	
Imperfective	Masc. sg.	*caquë*	[kaakɨ]	*caquëna*	[kaakɨnã]
	Fem. sg.	*caco*	[kaako]	*cacona*	[kaakonã]
	Plural	*cajë*	[kaaɦɨ]	*cajëna*	[kaaɦɨnã]
Perfective	Masc. sg.	*cani*	[kaanĩ]	*caëna*	[kaaɨnã]
	Fem. sg.	*cani*	[kaanĩ]	*caona*	[kaaonã]
	Plural	*cani*	[kaanĩ]	*carena*	[kaarenã]

Section 8.1 first briefly illustrates the problem of aspectual forms of the verb *caye* 'to say' to argue why a non-referential analysis is necessary. Next, section 8.2 deals with the use of Imperfective forms, and section 8.3 deals with Perfective forms. Section 8.4 analyses a stretch of conversation, and section 8.5 wraps up with the main take-aways from this chapter.

8.1 Why a non-referential analysis?

The previous two chapters discussed the referential function of Perfective and Imperfective forms. Perfective forms signal that an event reaches its transitional point at the topic time (chapter 6), and Imperfective forms signal that an event does not yet reach its transitional point at the topic time (chapter 7). This analysis gives the wrong results for the verb *caye* 'to say'. To see why, let us

consider examples 32 and 33 below. Example 32 is from the episode in the Batman story where Batman starts eating a fish that is not yet fully cooked yet. In an attempt to stop him, his wife comments that this fish is not indeed not yet fully cooked—perhaps Batman had not realised. But Batman thinks otherwise.

(32) [While Batman was eating it, his wife told him: "You are eating raw fish!"]
Cacona, "Tsoe cua'cosicoa," caëña.

kaa-ko-nã	sǫe	kʷa?ko-sih-kʷ-a	kaa-i-ɲã
say-IMPF:F.SG-DS	already	cook-PST-CLS:F-COP	say-2/3SG.M.PST.N.ASS-REP

'When she had said that, he said: "It is already cooked".'
(Batman story, 20101123slicr001, line 018).

Of interest is here the Imperfective form *cacona* (the head) which retakes the main verb *caoña* 'she said' (the tail) from the previous sentence (not printed here). The topic time of *cacona* is the time span when Batman's wife sees that Batman is eating raw fish. The referential, time-relational analysis of imperfective aspect from chapter seven does not work here: the Imperfective form *cacona* here does *not* signal that the wife's speech act did not yet come to an end at the topic time. This would suggest that Batman interrupted his wife before she could finish her question. But this cannot be the case here. The point is that Batman's wife first finishes her speech act, and the audience wants to hear what Batman has to hear in return.

Example 33 below comes from the Batman story and it contains a Perfective form of the verb *caye* 'to say'. At this moment in the story, Batman refuses to drink the *dụri* drink after the birth of his first son. He orders that his drink should be given to someone else, and someone else indeed drinks it for him.

(33) [Batman said: "Give it to this guy to drink!"]
Caëna yequëbi goa ụcuña.

kaa-i-nã	d͡ʒehk-i-βi	gʷa̰	ũhku-u-ɲã
say-PERF:M.SG-DS	other-CLS:M-NOM	just	drink-2/3SG.M.PST.N.ASS-REP

'When he had said (that), the other guy just drank (it).'
(Batman story, 20101123slicr001, line 009).

Here, the Perfective form *caëna* (the head) retakes the main verb *caëña* 'he said' (the tail) from the previous sentence (not printed here). The topic time of *caëna* is the time span briefly after Batman expressed his initial refusal to drink. At first sight, the Perfective form *caëna* does not pose a problem. This function of this Perfective form is in line with the referential analysis of perfective

aspect (chapter 6): the Perfective form *caëna* signals that Batman's speech act came to an end at this point in the story. After this, someone else drinks his *dụri* drink instead.

However, the problem lies in the contrast with the Imperfective form *cacona* in example 32 above. This Imperfective form also (!) describes a speech act that was completed at the topic time. As such, both *caëna* and *cacona* are equivalent in terms of the temporal development of the event that they signal: they both describe a speech act that reaches it transitional point at the topic time. As a result, the choice between the Perfective and Imperfective form in these cases does not depend on whether the speech act reached completion at the topic time. Consequently, it will not do to explain the Perfective form *caëna* in 33 in referential, time-relational terms. Instead, the *whole contrast* between the Imperfective and Perfective forms has to be given a different analysis.

This chapter aims to show that the contrast between Imperfective and Perfective forms of the verb *caye* 'to say' lies on the discourse level. Imperfective forms raise the expectation of some type of reply in the conversation. By contrast, Perfective forms do not raise such an expectation. They signal that the verbal exchange is rounded off, and that no further reply will follow. This chapter starts with the analysis of Imperfective forms (section 8.2), and continues with the analysis of Perfective forms (section 8.3). This chapter finishes with the illustration of a longer stretch of conversation to see how verbal aspect can structure a conversation (section 8.4).

8.2 Imperfective forms

Imperfective forms of the verb *caye* 'to say' frequently occur in question–answer pairs. They signal that a reply to the question is expected. Example 34 below comes from the episode in the Batman story where his wife is sitting inside their tent at night breastfeeding their child. At the same time, Batman is sitting outside by the fire and roasting something. His wife asks him what he is doing, but Batman does not want to give a sensible answer to this question.

(34) [His wife thought to herself, what is he doing?]

Goachako, "Quere yo'kë'ne më'ę̈?" cacona, "Bą̃ñë, goa ñu'i̱ñë," caëña i̱.

gʷą̃ht͡ʃa-ko	ke-e-ɾe		d͡ʒoʔ-ki-ʔnẽ	mɨ̃ʔɨ̃	kaa-ko-nã
think-IMPF:F.SG	what-CLS:GEN-ACC		do-2/3SG.M.PRS.N.ASS-Q	2SG	say-IMPF:F.SG-DS

bą̃ą̃-ɲɨ̃	gʷą̃	ɲũʔĩ-ɲɨ̃	kaa-i-ɲã	ĩ-ĩ
not.do-OTH.PRS	just	sit-OTH.PRS	say-2/3SG.M.PST.N.ASS-REP	PRO-CLS:M

'When she was thinking (that), she asked (*cacona*) him, "What are you doing?", and he said, "Nothing, I'm just sitting."'

(Batman story, 20101123slicr001, line 016).

Here, the topic time of *cacona* is the time span when Batman's wife is wondering what her husband is doing by the fire. At this topic time, Batman's wife asks Batman what is doing. This question is

tagged by the Imperfective form *cacona*. This form cannot be analysed with our notion of imperfective aspect from chapter seven, because her speech act reaches its completion at the topic time. Batman only replies *after* his wife had asked him her question. Instead, the Imperfective form signals that there will be a reply by Batman to this question. On the discourse level, the Imperfective form structures the narrative by indicating that this verbal interaction between them has not yet been completed, and the audience expects that the wife's question will be answered.

Example 35 below comes from the episode in the Batman story where Batman has interrupted his wife's cooking and already started to eat the fish which is not even fully cooked yet. His wife warns him, but Batman does not listen.

(35) [While Batman was eating it, his wife told him: "You are eating raw fish!"]
Cacona, "Tsoe cua'cosicoa," caëña.

kaa-ko-nã	sǫe	kʷa?ko-sih-ko-a	kaa-i̵-ɲã
say-IMPF:F.SG-DS	already	cook-CLS:F-COP	say-2/3SG.M.PST.N.ASS-REP

'When she had said that, he said "it is already cooked".
(Batman story, 20101123slicr001, line 018).

In this case, the Imperfective form *cacona* (the 'head') retakes the main verb *caoña* 'she said' (the 'tail') from the previous sentence (not printed here). Here, the topic time of *cacona* is the time span when Batman's wife sees her husband eat the raw fish. At this topic time, Batman's wife warns her husband. This warning is tagged by the Imperfective form *cacona*. This form does not signal imperfective aspect, because the speech act reaches its completion at the topic time. Instead, it functions on the level of discourse and raises the expectation of a reply. It anticipates the reply that Batman has to give in response to this warning: will he listen to his wife and change his course of action, or not? It structures the narrative by signalling that this particular verbal interaction between the two of them is not yet over.

So Imperfective forms anticipate a reply, but this reply does not have to actually come verbatim. This is illustrated in example 36 on the next page, which is from the Hammock story. In this episode, other people have warned the young man not to lie down in the hammock, because he will get caught up in it. (The narrator does not specify who these 'other people' are, but presumably these are people in his village.) The young man does not listen to these warnings, and goes to lie down in the hammock anyway.

(36) [They told him: “Don’t lie down in the hammock, because it will get stuck.”]
Cajëna i̱ sehuoye bą̈ą̈ña.

kaa-fiɨ-nã	ĩ-ĩ	sewo-d͡ʒe	bą̃ą̃-ɨ̃-ɲã
say-IMPF:PL-DS	PRO-CLS:M	accept-CLS:GEN	not.do-2/3SG.M.PST.N.ASS-REP

‘When they had said that, he did not listen.’
(Hammock story, 20100913slicr001, line 004).

Here, the Imperfective form *cajëna* (the ‘head’) retakes the main verb *careña* ‘they said’ (the ‘tail’) from the main verb (not printed here). The topic time of *cajëna* is the time span briefly after the young man had finished his hammock. At this topic time, the young man is given warnings that he should not lie down in the hammock. These warnings are then described by the Imperfective form *cajëna*. This form here functions on the discourse level and raises the expectation of a reply. When the young man is given a warning to not do something, the audience wants to know: is he going to listen? Or will he lie down in the hammock anyway? In this case, the narrator does not present a verbatim reply by the young man, but only describes that he does not heed the advice. The young man puts himself in great trouble this way, and the Imperfective form anticipates this unexpected reaction to the warning that he was given.

An Imperfective form can also be used when the same speaker adds something to what they have already said. This is the case in example 37 on the next page from the very end of the Hammock story. The young man has finally managed to shake off the hammock and is talking to the elders about what happened. Although he is now free from the hammock, he is afraid that she might come back and attach herself to him again. The relevant Imperfective form *caquë* [kaakɨ] is boldfaced in the example.

(37) *“Į̣o yure më’ ją̈ëre?” cajëna, “Tsoe į̣o [quea’ne]*[1] *betojubëna gą̨’nehuesëona je̯o go̯ni daë’ë,” **caquë** į̣ “memequëna gu̯inaobi dasio,” cani, yohuë aya mëni yequë ti’huina į̣ je̯ni cą̨quëña.*

ĩ-õ	d͡ʒuɾe	mɨ̃ʔ	ɦãɨ̃-ɾe	kaa-ɦɨ-nã	so̯e
PRO-CLS:F	now	2SG	hammock-CLS:MAZE	say-IMPF:PL-DS	already

ĩ-õ	ke-e-a-ʔnẽ	be̯hto-ɦuβɨ-nã	gą̃ʔ-nẽẽ-wesɨ-o-nã
PRO-CLS:F	what-CLS:GEN-COP-Q	coconut-bunch-GOAL	entangled-forever-F-DS

ɦẽõ-gõ̯õ̯-nĩ	da̯-ɨʔɨ	**kaa-kɨ**	ĩ-ĩ
leave.behind-?-PERF.SS	come-OTH.PST.ASS	say-IMPF:M.SG	PRO-CLS:M

mẽmẽ-kɨ-nã	gʷɪ̃nã-o-βi	da̯h-si-o	kaa-nĩ
be.afraid-IMPF:M.SG-DS	do.again-CLS:F-NOM	come-FUT-3SG.F	say-PERF.SS

d͡ʒo-wɨ	ad͡ʒa-mɪ̃ɪ̃-nĩ	d͡ʒehk-ɨ	tiʔwi-nã
canoe-CLS:CONTAIN	fill-go.down-PERF.SS	other-CLS:M	side-GOAL

ĩ-ĩ	ɦẽẽ-nĩ	kãh-kɨ-nã
PRO-CLS:M	cross-PERF.SS	sleep-2/3SG.M.PST.N.ASS-REP

‘“And now what about your hammock?”, they asked, and he replied, “She got entangled in a bunch of coconuts and I left her behind and I came here,” and he added “I’m afraid that she might come again,” and he went down into the canoe, crossed it to the other side and fell asleep.’

(Hammock story, 20100913slicr001, line 028).

Here, the Imperfective form *caquë* tags the first part of the young man’s reply to the elders (“she got entangled … and I left her behind”). The topic time of *caquë* is the time span after the elders had asked their first question. At this topic time, the young man completes his first speech act: he explains how he had got rid of his hammock. This speech act is tagged by the Imperfective form *caquë*.

Now, this Imperfective form *caquë* signals two things. First, on the level of discourse it signals that this conversation between the elders and the young man has not yet come to an end, and the audience expects to hear more about this conversation. Second, the verb *caquë* is a ‘same subject’ form, which signals that the subject of the next event will also be the young man.

Taking these two things together, the Imperfective ‘same subject’ form *caquë* signals that the young man himself is going to be the subject of another speech act within the same conversational context. In other words, he is going to add something to what he has already said. In this case, he expresses his fear that the hammock might return to haunt him. The Imperfective form *caquë* anticipates this ominous final comment by the young man.

To round off this section, let us consider an example of the verb *caye* ‘to say’ in combination with another verb of saying: *se̯ñe* ‘to ask’ (a class II verb). This verb occurs much less frequently

[1] ‘What is it?’, a comment by the narrator when the next word did not come to mind immediately.

than *caye* ‘to say’, and the example below is the only aspectual form attested in my corpus. This example comes from the passage in the Two Brothers story where the father has just killed the anaconda snake at the river and returns to the village. There, his younger son asks him what his father has done, and his father replies that he has killed the anaconda snake.

(38) *Tu̱mani ja’runi i̱ yëhuiya’rihua ñu’i̱na, i̱ mamaquë i̱ “Yure me yo’u’ne?” caquë* ***se̱i̱na****, “Tsoe i̱te yë’ nejo̱huë,” caëña bë’caquë.*

tũmã-nĩ	ɦa?ɾu-nĩ	d͡ʒɨwid͡ʒa?ɾiwa	ɲũ?ĩ-ɨ̃-nã		ĩ-ĩ
ascend-PERF.SS	sit.down-PERF.SS	seat	sit-IMPF:M.SG-DS		PRO-CLS:M
mãmãkɨ	ĩ-ĩ	d͡ʒuɾe	mẽẽ	d͡ʒo?-ɯ-?nẽ	
child-CLS:M	PRO-CLS:M	now	how	do-2/3SG.M.PST.N.ASS-Q	
kaa-kɨ	**sẽẽ-ĩ-nã**		so̱e	ĩh-te	d͡ʒɨ?
say-IMPF:M.SG	**ask-IMPF:M.SG-DS**		already	PRO-ACC	1SG
nẽɲ̃õ-w̃ɨ̃	kaa-ɨ-ɲã			bɨ?ka-kɨ	
destroy-OTH.PST.ASS	say-2/3SG.M.PST.N.ASS-REP			parent-CLS:M	

‘He went up [*sc.* back to the village] and sat down, and while he was seated on his seat, his son asked him: “Now, what have you done?”, and his dad said: “I’ve already killed it.”’ (Two Brothers story, 20100907slicr002, line 022).

Here, the topic time is the time span briefly after the son had sat down. At this topic time, the son asks his father what he did. This question is tagged by the Imperfective form *se̱i̱na* (as well as *caquë*). The question is completed at the topic time, because the father gives his answer after the son asked his question. Therefore, the Imperfective form *se̱i̱na* does not signal imperfective aspect. Instead, it functions on the discourse level by anticipating the answer that the dad is going to give his son. It signals that this particular verbal exchange has not yet come an end with the question that the son asks.

This example shows that verbs of saying more broadly can function on the discourse level, and not just *caye* ‘to say’. Other verbs of saying are very rare, however, because *caye* ‘to say’ is used as a very general verb of saying to describe statements, questions, and answers. No aspectual forms of other verbs of saying are attested in my corpus.

To conclude this section, the examples adduced serve to illustrate that Imperfective forms of *caye* ‘to say’ (and *se̱ñe* ‘to ask’) function on the discourse level. They raise the anticipation of a reply in the conversational context, or signal that the same person is going to add to what they have already said.

8.3 Perfective forms

In contrast to Imperfective forms, Perfective forms of the verb *caye* 'to say' do not raise the expectation that a reply will come. Instead, they signal that the verbal exchange is rounded off: no further reply is going to follow. Often, the story segues into a new episode with a different place and/or time. A good example of this comes from the episode in the Hammock story where the young man has come to the elders for advice on what to do with the hammock stuck to his back. The elders tell him that they will not help him, because he did not listen to their advice earlier. The young man then flees the village.

(39) [They told him: "We told you not to lie down in the hammock, but you didn't listen."]
Carena į ba'iquëbi airo sai si'a jąę̱rë hue'equë saquëña į bǫsë.

kaa-ɾe-nã	ĩ-ĩ	bą̱ʔi-kɨ-βi	ai-ɾo	sai-∅
say-PERF:PL-DS	PRO-CLS:M	be-CLS:M-NOM	big-CLS:LOC	go-IMPF:M.SG

siʔa	ɦãĩ-ɾɨ	weʔe-kɨ	sah-kɨ-ɲã
all	hammock-CLS:MAZE	carry-IMPF:M.SG	go-2/3SG.M.PST.N.ASS-REP

ĩ-ĩ	bǫ̃hsɨ
PRO-CLS:M	young.man

'When they had said that, he lived on and he went to the forest carrying the hammock and all, he went, the young man.'
(Hammock story, 20100913slicr001, line 008).

Here, the Perfective form *carena* (the 'head') retakes the main verb *careña* 'they said' (the 'tail') from the previous sentence (not printed here). The topic time of *carena* is the time span briefly after the young man had asked the elders for advice about the hammock that is stuck to his back. At this topic time, the elders tell him that they will not do anything for him. The Perfective form *carena* tags this speech act by the elders.

Now, the Perfective form signals that no further reply will come in this conversation between the young man and the elders. The elders have given their final verdict on the case (they let the young man solve his own problem), and that marks the end of their conversation. As such, the Perfective form functions on the discourse level: it structures the narrative by indicating that this conversation has come to an end, and that a new episode will begin outside of the conversational context. Indeed, the narrator jumps to the young man fleeing the village and going into the forest.

Example 40 on the next page comes from the episode in the Batman story where Batman refuses to drink the *dų̱ri* drink after the birth of his first son. He orders that his drink should be given to someone else.

(40) [Batman said: “Give it to this guy to drink!”]

Caëna yequëbi goa ụcuña.

kaa-ɨ-nã	d͡ʒehk-ɨ-βi	gʷa̰	ũhku-u-ɲã
say-PERF:M.SG-DS	other-CLS:M-NOM	just	drink-2/3SG.M.PST.N.ASS-REP

‘When he had said (that), the other guy just drank (it).’

(Batman story, 20101123slicr001, line 009).

Here, the Perfective form *caëna* (the ‘head’) retakes the main verb *caëña* ‘he said’ (the ‘tail’) from the previous sentence (not printed here). The topic time of *caëna* is the time span briefly after Batman indicated that he was not going to drink the *dụri* drink. At this topic time, Batman orders that another man should drink the *dụri* drink.

This speech act is tagged by the Perfective form *caëna.* This Perfective form signals that no further reply is expected in this verbal exchange: Batman’s order is immediately followed and another man drinks Batman’s drink without further ado. In this case, the place and time of the episode does not change as much as in example 39. However, the Perfective form functions on the level of discourse and signals that the end of the verbal exchange has been reached.

Example 41 below comes from the episode in the Hammock story where the young man has fled into the forest and the hammock has just turned into a woman. She has the young man in her grip and orders him around to do whatever she wants him to do.

(41) *Caona ị̈ mëni cuạ’sẹ’quehuë nesicore mëani ị̈…*

kaa-o-nã	ĩ-ĩ	mɪ̃ɪ̃-nĩ	kʷã?sẽ?ke-wɨ	
say-PERF:F.SG-DS	PRO-CLS:M	go.up-PERF.SS	hook-CLS:CONTAINER	
nẽẽ-sih-ko-ɾe	mɪ̃-ã-nĩ	ĩ-ĩ	…	
make-PST-CLS:F-ACC	go.up-TRS-PERF.SS	PRO-CLS:M	…	

‘When she had said that, he went up and took a hook that he had made, and he…’

(Hammock story, 20100913slicr001, line 023).

Here, the Perfective form *caona* (the ‘head’) retakes the main verb *caoña* ‘she said’ (the ‘tail’) from the previous sentence (not printed here). The topic time of *caona* is the time span briefly after the hammock turned into a woman. At this topic time, the hammock orders the young man to take down some coconuts. This command is tagged by the Perfective form *caona.*

This Perfective form signals the fact that no reply will come from the young man. In this situation, he is stuck with the bewitched Hammock and cannot do anything else but follow her orders. As such, he cannot give a reply to go against her, since he can only does as she asks. On the level of discourse, the Perfective form rounds off the verbal exchange (although there was

really only one conversational turn by the hammock). The narrator continues to narrate what the young man does to carry out the wishes of the hammock.

Some Perfective forms of *caye* 'to say' mark a question, which at first sight would seem to require an answer. However, closer inspection reveals that all of these questions are conjectural questions that the speaker addresses to herself or himself. These questions are not aimed at getting an answer. An example comes from the episode in the Batman story where Batman's wife is looking for her children around the creek. Suddenly, she stumbles upon an unusual object, which turns out to be the head of one of her sons. The relevant Perfective form *cani* [kaanĩ] has been boldfaced in example 42 below.

(42) *Ụịna ico, "Queoa'ne?"* ***cani,*** *gajeni ịọ sọ'quëyobi quërë sịni ñacona mamaquë tsịụbë baquëña.*

ũĩ-∅-nã	ih-ko	ke-o-a-ʔnẽ	**kaa-nĩ**
lie-IMPF:M.SG-DS	DEM.PRX-CLS:F	what-CLS:F-COP-Q	**say-PERF:SS**

gạfie-nĩ	ĩ-õ	sõʔkɨ-d͡ʒo-βi	kɨɾɨ-sĩĩ-nĩ
go.down-PERF.SS	PRO-CLS:F	barite.stick-CLS:?-INSTR	pull-roll-PERF.SS
ɲãã-ko-nã	mãmã-kɨ	sị̃ũ-βɨ	bạh-kɨ-ɲã
see-IMPF:F.SG-DS	child-CLS:M	head-CLS:ROUND	be-2/3SG.M.PST.N.ASS-REP

'While this was lying there, she said: "What is that?", and she went down and she pulled and rolled it around with a barite stick and then she saw that it was her son's head.' (Batman story, 20101123slicr001, line 038).

Here, the topic time of *cani* is the time span briefly after Batman's wife had stumbled upon her son's head. At this topic time, she asks herself a conjectural question. This conjectural question is marked with the Perfective form *cani.* The Perfective form signals that no answer is going to follow. After all, Batman's wife is asking herself a conjectural question that requires no actual answer.

Sometimes, a Perfective form of *caye* 'to say' is followed by another speech act. However, these verbal reactions are not answers to a question, nor do they contest what has been said. Example 43 on the next page is from the episode in the Batman story where Batman has just had his second son and has to drink the *dụri* drink again. Again, he refuses and orders that the drink should be given to someone else.

(43) [Batman said: “Give the drink to him again!”]

Caëna jąë gu yë’bi goa ụcusi’i cani ụcuña.

kaa-ɨ-nã	hã-ĩ	gụ	d͡ʒɨʔ-βi	gʷą
say-PERF:M.SG-DS	DEM:PRX-CLS:M	?	1SG-NOM	just

ũhku-si-ʔi	kaa-nĩ	ũhku-u-ɲã
drink-FUT-OTH.PRS.ASS	say-PERF.SS	drink-2/3SG.M.PST.N.ASS-REP

‘When he had said that, the other guy said: “I will drink this for nothing,” and he drank it.’ (Batman story, 20101123slicr001, line 013).

Here, the Perfective form *caëna* (the ‘head’) retakes the main verb *caëña* ‘he said’ (the ‘tail’) from the previous sentence (not printed here). The topic time is the time span when Batman is offered the *dụri* drink. At this time span, Batman declines the offer. His refusal is tagged by the Perfective form *caëna.* This Perfective form functions on the discourse level and signals that no further reply is expected. Batman did not ask a question, and his order is carried out, just like the previous time. Although in this case it is true that the second man says something in reaction, this does ultimately not lead to him to go against Batman’s order. He still complies and drinks the *dụri* drink.

A similar situation is the case in example 44 below, which is from the episode in the Hammock story when the hammock orders the young man around in the forest. Like in example 41 before, the hammock has the young man under her full control and she orders him to do whatever she likes.

(44) [The hammock said: “Let’s go and collect coconuts.”]

Caona, ĩ “Jaë’ë” cani, saiquëbi tị’ą̣ëña betoñë.

kaa-o-nã	ĩ-ĩ	ɦaiʔɨ	kaa-nĩ	sai-kɨ-βi
say-IMPF:F.SG-DS	PRO-CLS:M	OK	say-PERF.SS	go-CLS:M-NOM

tĩʔã-ĩ-ɲã	bę̱hto-ɲɨ̃
reach-2/3SG.M.PST.N.ASS-REP	coconut-CLS:TREE

‘When she had said that, he said “OK” and he went and reached a coconut palm.’ (Hammock story, 20100913slicr001, line 018).

Here, the Perfective form *caona* (the ‘head’) retakes the main verb *caoña* ‘she said’ (the ‘tail’) from the previous sentence (not printed here). The topic time here is the time span after the young man had started making chambira. At this topic time, the hammock orders the young man to stop doing this and to go to the forest instead. This command is tagged by the Perfective form *caona.* This form signals that there is not going to be any reply by the young man. After all, the Hammock has the young man fully in her power and he can only do as she pleases. The young man’s brief reply *jaë’ë* ‘OK’ only confirms this.

To sum up this section, Perfective forms of *caye* 'to say' do not raise the expectation of a reply within the conversational context. They signal that the end of the conversation has been reached. Often, the narrator changes the scene and moves into a new episode with a different time/place. In the rare cases that a verbal reaction follows a Perfective form, this verbal reaction is neither an answer to a question nor does it contest what has been said (examples 43-44).

8.4 Question–answer pairs

Imperfective and Perfective forms can also work together to structure larger stretches of conversation. In such cases, Imperfective forms tag the questions and raise the expectation of a reply to follow. By contrast, Perfective forms tag the answers, and do not raise the expectation of a further reply. In this way, Imperfective–Perfective pairs function to demarcate question–answer pairs in dialogue.

A good example of this can be found in the Batman story, given below under 45. This dialogue is given in English translation for the sake of convenience and legibility. The reader can find the Siona sentences with glosses and translations in appendix C.

Now in this episode, Batman has already killed and eaten his children near a creek. At this point, he has just returned home to his wife. He wants to do the same thing to his wife, and pretends to not know where his children are. He tries to trick her into looking for his children with him, but his wife is not quick to give in and only does so after three attempts. The conversation runs as below and each time, the aspectual form of *caye* 'to say' is part of a head-tail construction, retaking a main verb *caoña* 'she said' or *caëña* 'he said' from the previous sentence.

(45) **Line 027:** When he had returned (*go'ini,* PERF), he said to his wife: "Mum of my children, haven't you seen the children?"

Line 028: When he had asked that (*caquëna,* IMPF), his wife said: "How would I see them when they went with you?"

Line 029: When she had said that (*caona,* PERF), he said, "No, they said: 'Let's go and take mum so that she can bring and collect fish,' the boys said and they went back."

Line 030: When he had said that (*caquëna,* IMPF), she said: "They didn't do that, I haven't seen them come."

Line 031: When she had said that (*caona,* PERF), he said: "Come on, let's go and look for the children."

Line 032: When he'd said that (*caëna,* PERF), she thought: "How should I go?". She thought really deep.

(Batman story, 20101123slicr001, lines 027–032).

Let us go through the aspectual forms of *caye* 'to say' one by one. The Imperfective form *caquëna* (line 028) refers to Batman asking if his wife has seen their children (line 027). This Imperfective form signals that his wife is going to give an answer to this question. His wife, however, is clever and knows that she cannot have seen their children, because they went with her husband. She retorts with a rhetorical question (line 028) to make this point clear.

This rhetorical question is tagged by the Perfective form *caona* in line 029. This Perfective form signals that her reply does not anticipate a further reply: she answers negatively to Batman's question (with a rhetorical question), and that should settle the matter. She does not fall for Batman's deceitful suggestion that he left the children at home. Batman's first attempt at tricking his wife has failed.

However, Batman insists and tries again in line 029. He suggests an alternative scenario: the children did indeed go with him, but they decided to go back to fetch their mum. With this suggestion, Batman essentially (tacitly) asks the same question as before (line 027): given this new scenario, perhaps his wife does remember seeing their children?

This new suggestion by Batman is tagged with the Imperfective form *caquëna* (line 030). The Imperfective form again signals that a reply is expected from Batman's wife: what does she think about this new scenario that Batman presents to her? And has she *really* not seen the children?

His wife continues to be steadfast and once again answers in the negative. She first denies the new scenario that Batman offers, and then answers the implicit question by saying that she has truly not seen their children. Her reply is again tagged by the Perfective form *caona* (line 031). This form again signals that she expects no further reply from her husband. She does not know the answer and poses no further inquiry into the situation. Batman's second attempt at tricking his wife has also failed.

Batman once again insists and tries a third time. He abandons his two previous scenarios and simply urges his wife to join him. This speech act is tagged by the Perfective form *caëna* (line 032). This signals that no reply is expected in the context, at least in terms of the narrative material that the narrator presents. We do not hear the wife's reply, but instead the narrator switches to describing the wife's mental process.

This longer stretch of conversation shows how Imperfective and Perfective forms of *caye* 'to say' work on the discourse level. Together, they structure the conversation by demarcating question–answer pairs in this dialogue: Imperfective forms tag the question parts, whereas Perfective forms tag the answer parts.

8.5 Wrapping up

This chapter showed that both Imperfective and Perfective forms of the verb *caye* 'to say' describe speech acts that reach their transitional point at the topic time. In other words, they describe

speech acts that reach their completion before something else happens. As a result, the distinction between these Imperfective and Perfective forms cannot be a referential, time-relational difference in terms of temporal development of the event (the speech act). Instead, they must have "non-referential meanings" (Fleischman 1990:16).

Indeed, these aspectual forms function on the level of discourse. Imperfective forms signal that a particular verbal exchange has not yet reached its end: a reply by someone else will follow, or someone will add something to what they have already said. They signal the question parts in question–answer pairs. By contrast, Perfective forms round off a verbal exchange: they signal that no reply is going to follow. Often, the narrator switches to a new episode in a different place and/or time. Perfectives are also used in the answer parts in question–answer pairs.

Chapter 9 – Discussion

This chapter aims to answer the two research questions posed in the first chapter:

(1) How can Klein's (1994) neo-Reichenbachian approach be used to account for the referential uses of aspect in Ecuadorian Siona?
(2) How can Klein's (1994) neo-Reichenbachian approach be used to account for the non-referential uses of aspect in Ecuadorian Siona?

Chapters five through eight analysed the tense-aspect semantics of main verbs and aspectual forms (dependent verbs). Chapter six and seven dealt with the referential uses of perfective and imperfective verb forms (question 1), and chapter eight dealt with the non-referential uses (question 2). Let us briefly reiterate the main findings from these three chapters.

Chapter six showed that on the referential level, Perfective forms signal that the transitional point of an event is reached at the reference time (called the 'topic time' after Klein 1994). After this, the reference time advances to a time span after the event was completed, so that the narrator continues to tell what happens afterwards. Perfective forms are compatible with both past and future contexts.

Chapter seven showed that on the referential level, Imperfective forms signal that the transitional point is not yet reached at the reference time. Typically, the reference time stays the same and the narrator continues to tell what happens during the event described by the Imperfective. However, it is also possible that the narrator continues to tell in what way the event came to an end, or that the narrator elaborates on the event described by the Imperfective form (using the same verbal lexeme). Just like Perfective forms, Imperfective forms are compatible with both past and future contexts.

Chapter eight showed that on the discourse level, Imperfective forms of the verb *caye* 'to say' signal that a verbal exchange is not finished yet: a reply or an addition is going to follow the speech act. By contrast, Perfective forms of *caye* 'to say' round off the conversation, and usually no further speech act follows. These are the "non-referential meanings" (Fleischman 1990:16) of Siona aspect.

The analysis in these chapters has now prepared the ground for an analysis of Klein's (1994) neo-Reichenbachian approach itself. Whereas the previous chapters took the data as point of departure, the following discussion (section 9.1) takes Klein's (1994) approach as point of departure: what is it about his approach that allowed us to successfully analyse the referential uses

of Siona aspect? Clarifying this will be useful in understanding how Klein's (1994) approach can be used to account for the non-referential uses of Siona aspect too (section 9.2).

9.1 Explaining the referential uses

Chapter three presented Klein's (1994) approach to tense and aspect in isolation. But linguistic approaches do not exist in isolation. They build on, engage with or distance themselves from other approaches. Understanding why one approach works well is therefore inextricably bound to the question of why other approaches do not. Thus, the theoretical advantages of Klein's (1994) approach are best understood in contrast to other approaches. In this case, these other approaches comprise Reichenbach (1947) and other neo-Reichenbachian approaches.[1] In order to make this comparison, I will briefly present Reichenbach's (1947) approach below. For reasons of space, I will here not discuss neo-Reichenbachian approaches in-depth. I will touch upon them when particularly relevant.

So before embarking on the theoretical discussion, let us first briefly sketch the main tenets of Reichenbach's (1947) approach. He uses a three-parameter system, distinguishing between three points of time: the moment of speaking 'S', the reference point 'R', and the event 'E'. These are his temporal primitives. He uses the relative position of these three points in time to explain the uses of the different tense-aspect forms in English, such the Past Progressive, Present Perfect, etc. In this system, there are three types of temporal relation as shown below in table 13.

Table 13. Different Reichenbachian temporal relations.

Temporal relation	Symbol	Example	Explanation
Anterior	<	R < S	'R' precedes 'S'
Simultaneous	,	E,R	'E' is at 'R'
Posterior	>	R > E	'R' follows 'E'

The meaning of the English Present Perfect ('I have seen John'), for instance, is given as **E < R,S**. This is to say that the reference point 'R' is "at" the moment of speaking 'S'. The event 'E' precedes both of these. Reichenbach (1947:290) provides additional examples from English, some of which I reprint in 46 below for illustration.

(46)

Present Simple:	*I see John.*	S,R,E
Past Simple:	*I saw John.*	E,R < S
Present Perfect:	*I have seen John.*	E < R,S
Past Perfect:	*I had seen John.*	E < R < S

[1] Such as Comrie (1985), Hornstein (1990), Declerck (1991), and Ogihara (1996).

For each tense-aspect category, the three points in time have a specific position relative to the other two points in time. In other words, each tense-aspect category is associated with a particular configuration of these three temporal primitives.

Now, Klein's (1994) temporal primitives can be compared to Reichenbach's (1947) temporal primitives, as shown in table 14 below.

Table 14. Comparable temporal primitives.

Reichenbach (1947)	Klein (1994)
Moment of speaking 'S'	Time of the utterance 'TU'
Reference point 'R'	Topic time 'TT'
Event 'E'	Situational time 'TSit'

However, Klein (1994) implements these temporal primitives in a different way. It is exactly this different implementation that makes Klein's (1994) approach useful in explaining the use of aspect in Ecuadorian Siona. Essentially, his approach comprises three important improvements over the traditional Reichenbachian (1947) approach. First, he gives a clear definition of what the reference time is (section 9.1.1). Second, he separates the three-point temporal configurations into two dyadic relations, thus separating tense and aspect (section 9.1.2). Third, he uses time spans instead of points in time (section 9.1.3).

9.1.1 Definition of the reference time

An important drawback of Reichenbach's (1947) approach is that he leaves his reference point 'R' undefined (Klein 2000:363). What is it exactly, how is it found, and what is its function? Hamann (1987:29) says that 'R' can be determined by temporal adverbials, but she also concedes that its status is unclear (1987:32). Other authors assume that there is some time reference point without further explaining its nature (e.g. Hornstein 1990). Comrie (1985:125) states little more than that it can be determined through the context.

The advantage of Klein's (1994) approach is that his reference time (his 'topic time') has a clear interpretation. The topic time is the time span that a language user talks about (Klein 1994:4, Bohnemeyer 1998:33). In other words, it is the time span to which the utterance of a language user is confined. The topic time can be made explicit though temporal adverbial phrases that are in syntactic topic position (Klein 1994:164).[1]

An important consequence is that within Klein's (1994) approach, the topic time is always involved. After all, a language user *always talks about some time span*.[2] This can even be (almost)

[1] But this need not be the case and it can be inferred from context (Partee 1984:264-5) or through Gricean implicatures (Bohnemeyer 1998, 2009). Temporal adverbials can also specify location in time of a state of affairs itself (Klein 1994:184-214).

[2] See also Kratzer (2011) for this idea, who discusses it in relation to Austin's (1950) "topic situations".

the whole of time when saying something like “the earth revolves around the sun” or “three squared makes nine”. By contrast, the Reichenbachian reference point ‘R’ is not always consistently employed, for example only invoked when complex tenses are involved (Bertinetto 1992), when relative tense is involved (Comrie 1985:124),[1] when imperfective aspect comes in (Boogaart 1999:11). Alternatively, it is even completely removed for subordinate clauses (Schopf 1984:285).

The idea that language users always make assertions *about some time span* is already found in other work, such as Partee (1973, 1984).[2] She gives the example below, uttered by a speaker who is “half-way down the turnpike” (1973:602).

(46) I didn’t turn off the stove.

Here, the speaker has to have a specific reference time in mind. This is the time span shortly before they left their house the same day when they were preparing to leave (e.g. putting on shoes, turning off the lights and the stove, locking the door). This sentence cannot be interpreted without this reference time, because this would imply that the event of ‘not turning off the stove’ (in however much that is an event) holds for all past time. But obviously, sentence 46 is not taken to mean that the speaker has never turned off a stove in their entire life. So even in elementary cases like these, some reference *has* to be involved in order to arrive at a sensible interpretation.[3]

When we consider verb forms Ecuadorian Siona, the same point holds: a reference time is necessary in order to arrive at a sensible interpretation. Let us consider example 47 below, zooming in on the dependent verb *neni* [nẽẽnĩ].

(47) *Dụri* ***neni*** *ọcuajëna goeëña.*

dụ̃ri	nẽẽ-nĩ	õhk^{w}a-ɨi-nã	gọe-ɨ-ɲã
dụri	make-PERF.SS	give.to.drink-IMPF:PL-DS	refuse-2/3SG.M.PST.N.ASS-REP

‘They made *dụri* and offered him this to drink, but he refused.’

(Batman story, 20101123slicr001, line 006, reprinted from page 49).

Here, it is inappropriate to *not* attribute some reference time to this dependent verb *neni* (e.g. Schopf 1984:285, Hamann 1987:37). It is equally inappropriate to have its sole function be to give a reference time for the rest of the sentence (Reichenbach 1947:293-5). Just like in Partee’s example above, the making of the *dụri* drink happened a specific time span within the story. That is to say, it occurred at a non-arbitrary reference time, which can be inferred from the preceding

[1] For arguments against this proposal of Comrie’s, see Declerck (1991:234-48).

[2] Other scholars include McGilvray (1974:37) and Kratzer (1978:69). See Declerck (1991:240) for an overview.

[3] See Richards (1987:357) for the same point. My point here does not go against Declerck’s (1991:311-2) observation that the specific time of the reference time need not always be exactly identified for a full interpretation of a sentence. See *op. cit.* for examples.

context as well as cultural knowledge of Siona society. Not attributing any reference time gives the wrong suggestion that making the *d̰uri* drink somehow happened in a temporal vacuum. This is not the case. As a result, one needs to interpret this verb form *neni* with respect to some reference time in order to arrive at any sensible interpretation. This reference time is Klein's (1994) topic time.

In short, Klein (1994) provides a clear definition of his topic time, which is the time span that a language user talks about. This topic time is always involved, because language users always talk about some time span. This is in line with previous findings on the use of tense (e.g. Partee 1973, 1984).

9.1.2 Dyadic relationships

The second advantage of Klein's (1994) approach is that he uses dyadic relationships. This is to say that he defines relationships between only two of the three temporal primitives. By contrast, for Reichenbach (1947) all three parameters are always equally involved. That is to say, he describes a particular grammatical category using *all three* parameters.

However, Siona dependent verbs show that the referential uses of aspectual forms (the dependent verbs) do not involve all three temporal parameters at once. Reichenbach's (1947) approach does not work for Siona aspectual forms in this respect. This is because Siona aspectual forms do not signal any relation to the moment of speaking 'S'. We concluded this because Perfective and Imperfective forms in Siona can be used both in past contexts (example 48) as well as in future contexts (example 49) (here illustrated with Perfective forms).

(48) *Huani daëna i̱ dëji̱o soeni te'teni cua'coni mamajë̱re a̱o̱ña.*

waa-nĩ	da̱a̱-i-nã	ĩ-ĩ	di̱ñĩõ	soe-nĩ
kill-PERF.SS	bring-PERF:M.SG-DS	PRO-M.SG	wife	pluck-PERF.SS
te?te-nĩ	k^{w}a?ko-nĩ	mãmã-ñĩ-ɾe		ãõ-ɲã
cut-PERF.SS	cook-PERF.SS	child-CLS:PL-ACC		feed-2/3SG.F.PST.N.ASS-REP

'He killed (the game) and brought it (home), and his wife plucked it, cut it up, cooked it and gave it to the children to eat.'

(Anaconda story, 20100913slicr003, line 006, reprinted from page 40).

(49) *Airo sani ñocua neñu'u.*

ai-ɾo	sa-nĩ	ɲõhkʷa	nẽẽ-ɲũʔũ
big-CLS:LOC	go-PERF.SS	chambira	make-ADH

'Let's go to the forest and make chambira.'

(Hammock story, 20100913slicr001, line 013, reprinted from page 43).

These examples show that it does not matter if the speaker is talking about the past or the future. For the use of Perfective aspect, it is only important that the event reaches its transitional point at the reference time. The reference time may lie before or after the moment of speaking. Within a Reichenbachian context, one would at least have to say that Perfective forms only specify the relative position of 'E' to 'R', and leave any relation to 'S' unspecified.

So neo-Reichenbachian approaches work with dyadic relations instead. That is to say: they assign semantic functions to the relation between two ('dyadic') of the three points in time. However, most of these are still ill-suited to capture the aspectual opposition in Siona. For example, Comrie (1985) distinguishes between the S–E relation ('absolute tense'), and the R–E relation which he calls 'relative tense'. However, aspect does not feature in this system. Hornstein (1990) calls the S–R relation 'tense' (and I would agree), but leaves the R–E relation unspecified. Declerck (1991:232, 256) assumes that not all temporal primitives are necessarily included in the meaning of a tense-aspect category (indeed I would again agree), but does not pose any specific dyadic relations. In all fairness to these authors, their primary focus was tense and not aspect.

The advantage of Klein's (1994) neo-Reichenbachian approach in particular is that he divides his three temporal primitives (time of the utterance, topic time, situational time) into two clearly defined dyadic relationships. This way, he distinguishes clearly between tense and aspect: tense relates the topic time to the utterance time, and aspect relates the topic time to a particular part of the temporal development of an event (see chapter 3). This allows us to describe the referential uses of the Siona aspectual forms without needing to reference the moment of speech. Instead, Siona aspectual forms only express the relationship between the topic time and the situational time.

9.1.3 Time spans and interval configurations

The third and most important advantage is that Klein (1992:527) explicitly conceives of events and reference times (his 'topic time') as time *spans* that have duration. This approach is known as "interval semantics" (Dowty 1979, Bohnemeyer 1998:50-6). This means that they are not conceived of as *points* in time like Reichenbach (1947).

Because Reichenbach's (1947) uses a system of points in time, he only has three types of temporal relation available between any two points: anteriority, simultaneity, and posteriority (see table 13 earlier). But applying interval semantics allows for many more possible temporal

relationships between the situational time ('TSit') and the topic time (Allen 1983, Bohnemeyer 1998:91, E. Dahl 2015:54). These different configurations then correspond to various types of aspect (Bohnemeyer 2013:949). Some examples are given in table 15 on the next page. The black line represents the situational time and the blue dotted line the topic time.[1]

Table 15. Non-exhaustive list of possible configurations between the situational time (black) and the topic time (blue dotted), and their corresponding aspects.

	Proper inclusion of TT in TSit: imperfective[2]
	Proper inclusion of TSit in TT: perfective
	TT follows TSit: perfect
	TSit follows TT: prospective
	Proper inclusion of left boundary of TSit in TT: inchoative

This table shows five different ways that the two intervals can be related to each other. These five examples show that using interval semantics allows us to describe a greater variety of ways in which an event can be positioned on the timeline with respect to a reference time. In other words, interval semantics allows for many more possible temporal configurations between an event (or the situational time) and a reference time (the topic time). Crucially, interval semantics assigns two *different* configurations for perfective and imperfective aspect.

Now, the reader might object that Klein (1994) is not the only one to note that events have duration. This is certainly true. Reichenbach (1947:291) claims that the English Progressive tenses should be seen as the event 'E' "stretching around" the reference point 'R'. Other neo-Reichenbachian scholars state that Reichenbach's points really are intervals (Comrie 1985:112, Hamann 1987:32, Hornstein 1990:10, Ogihara 1992:16, Boogaart 1999:61, Borik 2002:96, E. Dahl

[1] Note that these types of aspect constitute comparative concepts (Haspelmath 2010, 2018).

[2] See Hollenbaugh (2018:71) for discussion on imperfective aspect in Ancient Greek and Slavic languages and the interval configurations associated.

2015:52). However, these remarks rarely lead to extending the number of formally possible temporal relations beyond Reichenbach's three.

For example, Reichenbach (1947:291) himself notes that the French *imparfait* is an "extended tense", whereas the *passé défini* is not. His verbal explanation and accompanying diagrams are very similar to the approach within interval semantics like here. However, his technical notation does not reflect this difference. He renders both as **R,E** > **S** and thus suggests that they are equivalent in meaning (quod non).

The same is true of other neo-Reichenbachian scholars. These also limit the formal possibilities to Reichenbach's (1947) original temporal relations, i.e. anteriority, simultaneity, and posteriority. For example, Comrie (1985:112), Hamann (1987:32) and Hornstein (1990:12) explicitly state that events are time spans. Nevertheless, they continue to limit themselves to Reichenbach's (1947) three temporal relations (Hamann 1987:32, Comrie 1985:122, 124-5, Hornstein 1990:10). Boogaart (1999:61) mentions an inclusivity relation, but otherwise practises the same limitation of formally available configurations.

Why is this important? This is because an analysis of aspect requires that we not only *say* that events have duration, but also *that we adapt our theoretical tools to accommodate this idea.* The claim that events have duration is vacuous unless this idea is reflected in the theoretical tools we use. In other words, recognising that events have duration should lead to adopting (at least some version of) interval semantics.

And we *need* (at least some version of) interval semantics to arrive at the right predictions. This is illustrated by aspectual forms in Ecuadorian Siona. If we limit ourselves to Reichenbach's (1947) three temporal relations, it is impossible to distinguish between the referential uses of Siona Imperfective and Perfective forms. Let us consider examples 50 and 51 below, contrasting a Perfective and Imperfective form of the verb *neñe* 'to make'.

(50) *Dụ̈ri neni o̤cuajëna goeiña.*

dụ̈ri	nẽẽ-nĩ	õhkʷa-fɨ̃-nã	go̤e-i-ɲã
dụ̈ri	make-PERF.SS	give.to.drink-IMPF:PL-DS	refuse-2/3SG.M.PST.N.ASS-REP

'They made *dụ̈ri* and offered him this to drink, but he refused.'

(Batman story, 20101123slicr001, line 006, reprinted from page 49).

(51) *Necona i̤ mamajë ja̤re, "Sani e'oeñu'ṳ a'ri tsiaya," mamajëre caëña.*

nẽẽ-ko-nã	ĩ-ĩ		mãmã-ɲ̃ĩ̃-ɾe	ɦãɾe	sa-nĩ
make-IMPF:F.SG-DS	PRO-M.SG		child-CLS:PL-ACC	like.this	go-PERF:SS
eʔoe-ɲũʔũ	aʔɾi	si̤a͡dʒa	mãmã-ɲ̃ĩ̃-ɾe	kaa-ɨ-ɲã	
fish-ADH	small	river	child-CLS:PL-ACC	say-2/3SG.M.PST.N.ASS-REP	

'She was making that and then he said to the children: "Let's go and fish in the creek."'

(Batman story, 20101123slicr001, line 023, reprinted from page 48).

In example 50, the topic time is some time span after Batman had had a son. The Perfective form *neni* in example 50 describes that at this topic time, the people living in Batman's house made the *dṵri* drink, and they completed this process at this topic time. After this, they offer the drink to Batman.

In example 51, the topic time is a time span after Batman's wife had started making cassava. The Imperfective form *necona* in example 51 describes that Batman's wife is still engaged in the process of making cassava at this topic time. During this process, Batman invites his children to join him to the creek.

In neither case can we claim that the event of *neni* or *necona* is anterior or posterior to a Reichenbachian reference point 'R'. We would be forced to claim that *both* (!) forms represent the temporal relation **E,R** so that the event 'E' is "at" the reference point 'R'. But if we give both forms the same formal representation, this gives the wrong impression that they have the same meaning (quod non).

Representing the meaning of both forms as **E,R** utterly fails to capture the difference between imperfective aspect and perfective aspect. Both signal that (some part of) the situational time occurs at the reference time (at the 'topic time'). However, perfective aspect additionally signals that the transitional point is also reached, whereas this is not true for imperfective aspect. This difference cannot be expressed by collapsing the two into one and saying that the event 'E' is "at" the reference point 'R'.

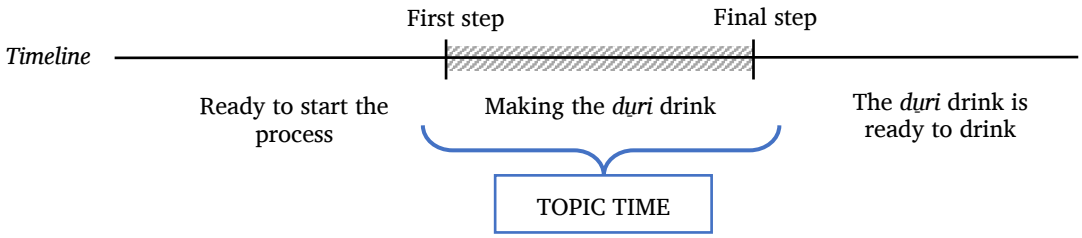
Instead, it is necessary to use interval semantics to describe the functional difference between the Perfective and Imperfective form. The Perfective form signals that the situational time (including initial point and transitional point) is properly included in the topic time, whereas the Imperfective form signals that the topic time is properly included in the situational time. This is represented in the figure on the next page.

This approach using interval semantics explains the functional difference between the two forms. The first figure shows that the narrator uses the Perfective form *neni* to assert that the whole process of making the *dṵri* drink occurred at the topic time: it includes the fact that the transitional point was reached at the topic time. This is captured in the figure by including the initial point, the whole situational time and the transitional point within the topic time. As shown in chapter five, after *neni* the topic time advances and the narrator continues to tell what happens after the *dṵri* drink was made.

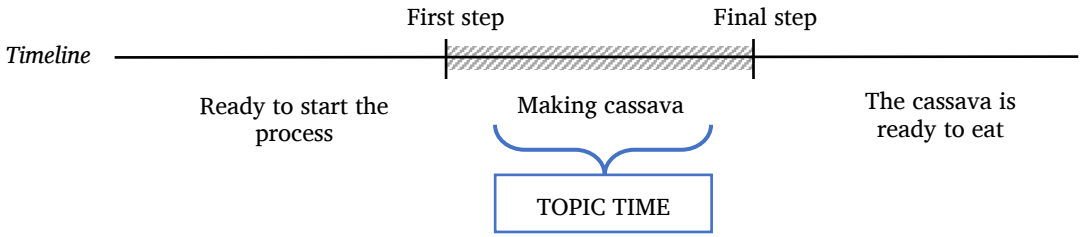
By contrast, the narrator uses the Imperfective form *necona* to assert that the process of making cassava occurred at the topic time, but that this process did not yet reach completion at the topic time. At this point in the story, Batman's wife has not yet produced the intended amount of edible cassava. This is captured in the second figure by including the topic time within the

situational time. The transitional point falls outside the topic time. After *necona* the topic time remains in place and the narrator continues to tell what happens while Batman's wife is making cassava.

Representation of *Duri neni…* 'They made *duri* and then they…'



Representation of *Necona…* 'She was making cassava and then …'



This functional difference can only be explained when we conceive of states of affairs and reference times as *time spans* that have duration, and explicitly acknowledge this in our theoretical concepts ("interval semantics").

In sum, describing the referential uses of Siona aspect is made possible by three key properties of Klein's (1994) approach: (1) his definition of the reference time ('topic time'), (2) the use of dyadic relationships, (3) and the use of interval semantics which allows for more temporal configurations available. This allows us to describe the referential uses of both Imperfective and Perfective forms.

Imperfective forms signal that at the topic time (**property 1**), only a part of the situational time occurs. In other words, the topic time is properly included in the situational time (**property 3**). Imperfective forms can be used in both past and future contexts. As such, they only signal a relationship between the topic time and the situational time, and not any relation to the moment of speaking (**property 2**).

Perfective forms signal that at the topic time (**property 1**), the whole situational time including initial point and transitional point occur. In other words, the situational time is properly included in the topic time (**property 3**). Perfective forms can be used in both past and future contexts. As such, they only signal a relationship between the topic time and the situational time, and not any relation to the moment of speaking (**property 2**).

9.2 Explaining the discourse uses

Defining the referential uses of Perfective and Imperfective aspect using Klein's (1994) time-relational notions allows to understand how the non-referential discourse uses are related. In other words, it allows us to account for the semantic extensions that we find in Siona dependent verbs: the discourse uses of the verb *caye* 'to say' (and *señe* 'to ask'). I will argue that the discourse uses are best understood as a metaphorical extension of the referential uses.

9.2.1 What is a metaphor?

Together with metonymy, metaphor constitutes one of the most important mechanisms that drive semantic change and grammaticalization (Nerlich & Clark 1992, Traugott & Dasher 2001). Metaphors involve the mapping of a semantic structure from a SOURCE DOMAIN to a TARGET DOMAIN (Lakoff 1990, Gibbs 1994:147, Panther & Thornburg 2009:13). As such, metaphor is said to involve "domain-external cognitive mapping" (Peña Cervel & Ruiz de Mendoza Ibánez 2009:340), because a particular semantic structure is cognitively mapped to a domain outside ('external') of the source domain. These semantic structures that are mapped are "image schemas" (Johnson 1987, Peña Cervel & Ruiz de Mendoza Ibánez 2009:339), which are abstract topological constructs. Examples include the notion of three-dimensional space (such as containers), orientation (such as 'up' and 'down'), or the notion of a path. See Lakoff's (1987:330-585) case studies for more examples.

Concrete examples of metaphors are given by Lakoff & Johnson (1980) in their seminal study. They show that metaphors pervade our language use, and are systematic in character. For example, love and relationships are often talked about in terms of a journey (1980:44).

(52) a. *Look how far we've come.*
b. *It's been a long, bumpy road.*
c. *We're at a crossroads.*
d. *We may have to go our separate ways.*

In each of these sentences, there is an underlying metaphor: LOVE IS A JOURNEY. The image schema that is being mapped is that of a path. This image schema is taken from the source domain of

JOURNEY, arguably a 'literal' path.[1] This semantic structure is then mapped onto the target domain LOVE, so that the life of a person in a romantic relationship is viewed as a path, expressed through words such as 'road' and 'way'. See also Gibbs (1994:147) for this example.

A lot of early work focussed on metaphors in lexical items and idiomatic expressions (e.g. Lakoff & Johnson 1980, Gibbs 1994). However, metaphors can also be found in the semantics of grammatical categories (such as aspect, as we will see in a moment). These are so-called "grammatical metaphors" (Panther & Thornburg 2009). Examples include Lakoff's (1987) treatment of English *over* and *there*-constructions, Lindstromberg's (2010) treatment of English prepositions, as well as Schulze's (2009) treatment of East Caucasian noun cases. Goldberg (1995:81) discusses the metaphorical semantics of the ditransitive construction in English by comparing the two sentences below.

(53) a. *Pat threw the metal off the table.*
b. *Pat hammered the metal flat.*

Both sentences exhibit the 'ditransitive construction'. They both have a verb in the active voice with *the metal* as the direct object and an additional phrase at the end of the sentence. In example 53a, this additional phrase is *off the table* and it describes a physical goal. In example 53b, the additional phrase *flat* describes a state that the metal in is as a result of Pat hammering on it.

Goldberg (1995) argues that sentence 53b exemplifies a metaphorical use of the ditransitive constructions, because the phrase *flat* does not describe a physical location in space. In sentence 53a, the phrase *off the table* describes a 'literal', physical location in space. The image schema END-OF-PATH (Lakoff 1987:441) is taken from the target domain of PHYSICAL MOTION (as in 53a), and it is mapped onto the target domain of QUALITATIVE CHANGE (as in 53b).

To sum up, metaphors involve the cognitive mapping of an image schema from a source domain to a target domain. Metaphors found in grammatical categories (such as prepositions, noun cases, or aspect) are called grammatical metaphors.

9.2.2 Grammatical metaphor in Siona aspect

A metaphoric mapping of a semantic structure between two domains can also be observed when looking at the uses of the Siona aspectual forms. Let us first recall the referential uses: Perfective forms signal that the transitional point is reached at the topic time. By contrast, Imperfective forms signal that the transitional point has not yet been reached at the topic time. As such, these two forms signal an opposition in terms of completeness: Perfective forms signal that

[1] But see Schulze (2009) for the suggestion that there is no literal meaning in language, and that everything is (ultimately) a metaphor.

an event is completed at the topic time, whereas Imperfective forms signal that an event is not yet completed at the topic time.

The notion of COMPLETENESS here is the image schema that will be subject to the cognitive mapping. For the referential, time-relational uses of Siona aspect, this image schema works within the domain of the EVENT. This is because the aspectual forms signal whether or not the event itself reaches its completion at the topic time. This EVENT domain is the source domain.

The discourse uses are a product of the metaphoric extension of this image schema. More specifically, they result from the domain-external mapping of the image schema COMPLETENESS from the source domain EVENT. Here, the target domain is the domain DISCOURSE. The aspectual forms of *caye* 'to say' signal the completeness of a discourse episode, more specifically a conversation. Perfective forms signal that the verbal exchange is completed, whereas Imperfective forms signal that the verbal exchange is not yet completed.

It is important to note that the image schema of COMPLETENESS also contains the notion of a reference time. Within the domain of the EVENT, the notion of completeness cannot be evaluated without a temporal anchor. After all, when telling a story about the past (almost) all events will trivially have been completed at the moment of speaking. And again, a speaker will always be making an assertion *about some time span*, making it impossible to state anything without a temporal anchor. As a result, the notion of completeness should always be evaluated in terms of a particular reference time, which in Klein's (1994) terms is the topic time of an utterance.

This reference time is equally necessary for the notion of completeness within the target domain DISCOURSE. After all, one cannot claim that a conversation is in and of itself incomplete when the whole conversation has in fact taken place in the past. Instead, Imperfective forms of *caye* 'to say' signal that the conversation is not yet completed at *the particular speech act that it refers to.* Similarly, Perfective forms of *caye* 'to say' signal that the particular speech act that it refers to is the one that completes the verbal exchange.

To put this metaphor analysis in practice, let us return to the first example given in chapter one, reprinted below under 54.

(54) [His wife told him: "You are eating raw fish!".]
Cacona, "Tsoe cua'cosicoa," caëña.

kaa-ko-nã	sǫe	kʷa?ko-sih-kʷ-a	kaa-ɨ-ɲã
say-IMPF:F.SG-DS	already	cook-PST-CLS:F-COP	say-2/3SG.M.PST.N.ASS-REP

'When she had said that, he said: "It is already cooked".'
(Batman story, 20101123slicr001, line 018).

Here, the Imperfective form *cacona* does not signal that the speech act itself is not yet completed at this point in the story. We can now say that instead, it signals that the *conversation* is not yet

completed. Batman is going to answer his wife's question, and this is the very reason why an Imperfective form is used.

We can now also understand the use of Perfective forms, as in example 55 on the next page. This sentence also comes from the Batman story, and it follows the sentence from 54 above.

(55) [When she had said that, he said: "It is already cooked".]
Cani ba'iquëbi ya mamaquë jaiquëmaca baquëña.

kaa-nĩ	bą̱ʔi-kɨ-βi	d͡ʒa	mãmãkɨ	ɦai-kɨ-mãhka
say-PERF.SS	be-CLS:M-NOM	already.SP	child-CLS:M	big-CLS:M-DIM

bą̱h-kɨ-ɲã
be-2/3SG.M.PST.N.ASS-REP

'When he had said (that), he lived on (and) his son was already biggish.'
(Batman story, 20101123slicr001, line 019).

Here, the Perfective form *cani* does **not** signal that the speech act was completed at the topic time (because the Imperfective form *cacona* would seem to fulfil a similar function). Instead, we can now say that the Perfective form *cani* signals that the *conversation* between Batman and his wife has reached its end. The narrator jumps to a new segment in the story.

To sum up: the referential uses of the Siona aspectual forms entail that they signal completeness at a reference time within the domain of the EVENT. The textual uses entail that they signal the completeness of a conversation at a particular speech act within the domain of DISCOURSE.

9.3 Wrapping up

This chapter showed how Klein's (1994) neo-Reichenbachian approach to tense and aspect can explain both the referential and the non-referential discourse uses of the Siona Perfective and Imperfective forms.

To explain the referential uses, Klein's (1994) approach exhibits three key properties: it has a clear definition of the reference time (his 'topic time'), it works with dyadic relationships, and it makes use of interval semantics (Dowty 1979). The combination of these three properties allows us to define perfective and imperfective aspect in a way that accounts for the referential uses of the Siona Perfective and Imperfective forms.

Using these definitions, I showed how the non-referential discourse uses can be understood as a grammatical metaphor. In this grammatical metaphor, the image schema of COMPLETENESS is mapped from the source domain EVENT onto the target domain DISCOURSE.

Chapter 10 – Conclusion

As Croft (2012:127) wrote: "Like all grammatical categories, grammatical aspect categories tend to be polysemous within a language and differ in their uses across languages." Aspect in Ecuadorian Siona is no exception. This is demonstrated by the use of so-called dependent verbs as analysed in narratives, which occur in either a Perfective form or an Imperfective form. Broadly speaking, these forms have two functions.

First, they can say something about the temporal development of an event at a particular reference time in a story (at the 'topic time'). These I call the referential uses, because they pertain to the truth-conditional ('referential') content of an utterance. Imperfective forms signal an event that does not yet reach its end-point at the topic time. By contrast, Perfective forms signal an event that does reach its end-point at the topic time.

Second, they can give structure to the narrative by signalling if a speech act is going to be followed by another speech act, most often a reply. This function is found almost exclusively in the verb *caye* 'to say'. These are "non-referential" uses (Fleischman 1990:16), because they do *not* pertain to the truth-conditional ('referential') content of an utterance. Imperfective forms raise the anticipation that another speech act is going to follow. As a result, they signal that a particular discourse segment (a verbal exchange) has not yet come to an end. By contrast, Perfective forms signal that no other speech act is going to follow. As such, Perfective forms typically round off a verbal exchange. These non-referential uses are particular to Ecuadorian Siona. In fact, this type of non-referential use does not seem to have been described yet in the broader linguistic literature.

The referential uses of Siona aspect can be captured using Klein's (1994) time-relational approach to aspect. A time-relational approach entails analysing aspect in terms of the temporal relationship between two time spans: the topic time and some part of the temporal development of an event. Aspect is defined as signalling which part of the temporal development of an event occurs at the topic time.

However, the non-referential uses cannot be captured using time-relational notions. This is because the discourse uses of Siona aspect do not say anything about the temporal development of an event. Crucially, however, this does not mean that we should jettison a time-relational analysis for Siona aspect altogether. As a matter of fact, a time-relational analysis is key to understanding the whole system. This is true for two reasons.

First, a time-relational analysis allows for a precise description of the referential uses of aspectual forms. This makes it possible to pinpoint when exactly language users employ aspectual forms *outside* of their referential function. In other words, it facilitates identifying where exactly

non-referential semantic extensions of aspect can be found. In this study, it turned out that the use of Imperfective forms of *caye* 'to say' falls outside the referential function of Imperfective forms. This is because they do not signal that the transitional point is not yet reached at the topic time. In other words, they do not signal that subject is still speaking when something else happens. Instead, they describe situations when someone finishes speaking. So precise definitions of the referential uses elucidate the *limits* of the referential function of aspect.

Second, clear definitions of the time-relational, referential uses allows us to understand in what way the non-referential uses are related. In other words: how did the semantic extensions found take place? In this study, it was argued that the non-referential discourse uses are best understood as a metaphoric extension of the notion of completeness. At the referential level, the notion of completeness applies at the level of the event. At the discourse level, this notion of completeness applies at the level of discourse. The notion of completeness is mapped from the source domain of the event (the referential function) to the target domain of discourse (the discourse function).

So in general, we arrive at somewhat of a methodological paradox. The entire aspectual system of a language cannot be captured with a time-relational analysis only. (And if it can, it is an empirical finding, and not an assumption.) However, a time-relational analysis is still necessary in order to ultimately account for the entire system. And although a time-relational analysis can only describe the referential uses, it is indispensable in understanding the non-referential uses too.

It is the inherent restrictiveness of a time-relational approach that allows for an understanding of a system as a whole. It does not pretend to capture the aspectual system of a language in its entirety, but leaves room for language-specific peculiarities. Leaving open this room is required to capture the rich variety that aspectual systems across different languages exhibit. A catch-all approach would only work if the aspectual systems we analyse are homogeneous (enough) to indeed be given the same catch-all analysis. But aspectual systems across the world are not homogeneous: this is Croft's (2012:127) very point. So studying aspect requires a variationist approach. And variationist approaches only work when the theoretical tools we employ allow for variation to exist. This is exactly why the restrictiveness of a time-relational approach is a key feature of its usefulness.

Further research can be taken into four different directions. First, it is worthwhile to research other tense-aspect marking in Ecuadorian Siona. How these can be incorporated into the analysis presented in this study? For example, Ecuadorian Siona uses a nominalising suffix *-si* [si] that Bruil (2014) analyses as a perfective marker. In addition, Ecuadorian Siona features the suffixes *-to* [to] and *-ru* [ɾu] which seem to create a type of embedded clause with a time-relational function. Do these also express aspect *sensu* Klein (1994), or are they best given a different analysis? And what

is the interaction between aspect and negation (cf. Schmid 1980:39, Miestamo & Van der Auwera 2011)?

Second, the verbal system of other West-Tukanoan languages deserve further scrutiny. Can dependent verbs in these languages also be given an aspectual analysis? And how is this for other types of verbs, such as main verbs? Schwarz (2018) describes Ecuadorian Secoya, which is very close to Ecuadorian Siona. She gives both main verbs and dependent verbs an aspectual analysis. This raises the question: how does the verbal system in Ecuadorian Secoya compare to the one in Ecuadorian Siona as outlined in this study?

Related to this is the question whether dependent verbs in other West-Tukanoan languages exhibit the same discourse uses that we find in Ecuadorian Siona. Ecuadorian Secoya also uses both 'imperfective' and 'perfective' forms of the verb *kaaye* 'to say', which may express a contrast similar to that of *caye* 'to say' in Ecuadorian Siona. Preliminary inquiry suggests that in Western Máíhɨ̀kì (Farmer 2018), 'imperfective' and 'perfective' forms of the verb *ásá* 'to listen' show a distribution similar to that of Ecuadorian Siona *caye* 'to say'.

Third, my analysis emphasised the functional differences between Ecuadorian Siona main verbs and dependent verbs: the former express tense, whereas the latter express aspect. However, the morphological make-up strongly suggests a common diachronic origin for dependent verbs and non-assertive main verbs (Bruil 2018). How did these diachronically related suffixes come to express two different notions (tense and aspect)? For this, comparison with other West-Tukanoan (as well as East-Tukanoan) languages would be particularly insightful.

Fourth and finally, there is the bigger typological question concerning semantics extensions of aspect. This study concerned only Ecuadorian Siona, but other scholars have studied semantic extensions of aspect in other languages (e.g. Fleischman 1990, Cleary-Kemp 2013; see chapter 1). What types of semantic extensions can be found in different languages? How should other semantic extensions be understood in relation to the time-relational referential uses? Are there qualitative or quantitative patterns to be found? Answering these questions will further our understanding of aspect as a cross-linguistic category.

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Appendix B – Overview of class II verb root amplifications

Class II verb roots can have three different root amplifications. They can also occur without root amplifications.

(1) In the present tense, the imperfective, the 'infinitive' and the imperative, the root is amplified with an additional *-i* [i] or *-'i* [ʔi] (or their nasal counterparts) depending on the verb. This amplification may historically be related to the stative suffix *-i* found in the East-Tukanoan language Kubeo (Chacón 2012:264). The zero suffix in the imperfective masculine singular form is the result of an assimilation of historic (or underlying, if the reader prefers) **-ë* [ɨ] to zero before *-i* [i] or *-į* [ĩ] (see Bruil 2014:117).

There are class II roots in *-e* [e] or *-ẹ* [ẽ] such as *hueye* [weed͡ʒe] 'to lie down in a hammock' and *sẹñe* [sẽẽŋnẽ] 'to ask'. These deviate from the 'standard' amplification above:

- They lengthen their root vowel due to assimilation from historic/underlying *-i* [i] or *-į* [ĩ] to a preceding *e* [e] or *ẹ* [ẽ] so that e.g. **sẹiñe* [sẽĩŋnẽ] has become *sẹñe* [sẽẽŋnẽ] (see Bruil 2014:116).
- The imperfective masculine singular *huei* [weei] and *sẹi* [sẽẽĩ] result from assimilation of historic/underlying **-ë* [ɨ] to *-i* [i] before *e* [e] (the same process holds for the nasal variants), so that e.g. **sẹiẹ̈* [sẽĩɨ̃] > **sẹẹ̈* [sẽẽɨ̃] > *sẹi* [sẽẽĩ] (see Bruil 2014:118).

The table below illustrates all forms of the class II verb *ą̨iñe* 'to eat' that take the amplification with *-į* [ĩ], as well as all corresponding forms of *sẹñe* 'to ask'.

Verb forms of *ą̨iñe* 'to eat' with the amplified root *ą̨i-* [ãĩ] as the stem, and *sẹñe* 'to ask'					
Present tense assertive	3SG.M	*ą̨ijį*	[ãĩɲ̃ĩ]	*sẹjį*	[sẽẽɲ̃ĩ]
	3SG.F	*ą̨ico*	[ãĩko]	*sẹco*	[sẽẽko]
	Other	*ą̨iñë*	[ãĩŋɨ̃]	*sẹñë*	[sẽẽŋɨ̃]
Present tense non-assertive	2/3SG.M	*ą̨iquë*	[ãĩkɨ]	*sẹquë*	[sẽẽkɨ]
	2/3SG.F	*ą̨ico*	[ãĩko]	*sẹco*	[sẽẽko]
	Other	*ą̨iñe*	[ãĩŋnẽ]	*sẹñe*	[sẽẽŋnẽ]
Imperfective ('same subject')	Masculine	*ą̨į*	[ãĩ]	*sẹi*	[sẽẽĩ]
	Feminine	*ą̨ią*	[ãĩõ]	*sẹą*	[sẽẽõ]
	Plural	*ą̨ijẹ̈*	[ãĩɲ̃ɨ̃]	*sẹjẹ̈*	[sẽẽɲ̃ɨ̃]
'Infinitive'		*ą̨iñe*	[ãĩŋnẽ]	*sẹñe*	[sẽẽŋnẽ]
Imperative		*ą̨ijẹ̈'ẹ̈*	[ãĩɲ̃ɨʔɨ̃]	*sẹjẹ̈'ẹ̈*	[sẽẽɲ̃ɨʔɨ̃]

(2) In the past tense, perfective and adhortative, the bare root is not amplified and the bare root functions as the verb stem. This produces pre-aspiration on a voiceless stop of the suffix that directly follows the root. The table below contains all forms of the class II verb *ą̱i̱ñe* 'to eat' that have the unamplified root *ą̱-* [ã] as the stem. Recall that preaspiration is not written in Siona orthography.

Verb forms of *ą̱i̱ñe* 'to eat' with the unamplified root *ą̱-* [ã] as the stem				
Past tense assertive	3SG.M	*ą̱ja̱'i̱*	[ãn̄ãʔĩ]	
	3SG.F	*ą̱co'ë*	[ãhkoʔɨ]	*
	Other	*ą̱ë'ẽ*	[ãĩʔɪ̃]	
Past tense non-assertive	2/3SG.M	*ą̱quë*	[ãhkɨ]	*
	2/3SG.F	*ą̱co*	[ãhko]	*
	Other	*ą̱te*	[ãhte]	*
Perfective 'different subject'	Masculine	*ą̱quëna*	[ãhkɨnã]	*
	Feminine	*ą̱cona*	[ãhkonã]	*
	Plural	*ą̱tena*	[ãhtenã]	*
Perfective 'same subject'		*ą̱ni*	[ãnĩ]	
Adhortative		*ą̱ñu'u̱*	[ãɲũʔũ]	
* = has pre-aspiration				

(3) In serial verb constructions, the root is amplified an additional *-ni* [nĩ]. It is synchronically different from, but probably historically related to the perfective 'same subject' suffix *-ni* [nĩ], which is however found on both class I and class II verbs. Serial verb constructions are spelled with a space in Siona orthography; I have glossed them as single units.

(i) a. *A̱ni ti̱'ą̱bi.* Class II verb
ã-nĩ-tĩʔã-βi
eat-EP-reach-3SG.M.PST.ASS
'He was able to eat it.'

b. *Acha ti̱'ą̱bi.* Class I verb
ahtʃ͡a-tĩʔã-βi
listen-reach-3SG.M.PST.ASS
'He understood it.' (lit.: 'He managed to listen to it.')

In example i-a, the class II verb *ą̱i̱ñe* 'to eat' takes the amplification *-ni* [nĩ] in order to be serialised with the verb *ti̱'ą̱ñe* 'to reach, to manage'. Example i-b shows that the class I verb *achaye* 'to listen' does not take this amplification in serialization.

(4) Before the counterfactual suffix *-da'* [dą̲ʔ], the root is amplified with an additional *-ti* [hti] (always with preaspiration). The precise semantics of the counterfactual suffix remain an open empirical question, just as the diachronic origin of the amplification *-ti* [ti]. Counterfactual forms always take class I suffixes.

(ii) a. *Ą̲tida'bi.* Class II verb
ã-hti-dą̲ʔ-βi
eat-EP-CNTF-3SG.M.PST.ASS
'He would have eaten it.'

b. *Achada'bi.* Class I verb
ahtʃ͡a-dą̲ʔ-βi
listen-CNTF-3SG.M.PST.ASS
'He would have listened.'

In example ii-a, the class II verb *ą̲iñe* 'to eat' takes the amplification *-ti* [hti]. Example ii-b shows that the class I verb *achaye* 'to listen' does not take this amplification.

Appendix C – Batman story lines 027–031 glossed and translated

This appendix contains lines 027–031 from the Batman story, glossed and translated. These data featured in section 8.4.

(i) *Go'ini caëña dëjo̱re, "Huare ja'co, më' ña baco tsi̱dohuëre?" caëña i̱.*

go̱ʔi-nĩ	kaa-ɨ-ɲã		dʒ̃ɦõ-ɾe		waɾe
return-PERF.SS	say-2/3SG.M.PST.N.ASS-REP		wife-ACC	child	
ɦaʔ-ko	mĩʔ	ɲãã-ã	ba̱h-ko		sʒ̃-ɾowɨ-ɾe
parent-CLS:F	2SG	see-NEG	be-2/3SG.F.PST.N.ASS		boy-PL-ACC
kaa-ɨ-ɲã		ĩ-ĩ			
say-2/3SG.M.PST.N.ASS-REP		PRO-M.SG			

'When he had got back, he asked his wife, "Mother of our children, haven't you seen the boys?" he asked.'

(Batman story, 20101123slicr001, line 027).

(ii) *Caquëna, "Me yë' ñañe më'ja̱'re saisicua'ire?" caoña i̱o̱.*

kaa-kɨ-nã	mẽẽ	d͡ʒɨʔ	ɲãã-ɲẽ	mĩʔ-ɦãʔɾe
say-IMPF:M.SG-DS	how	1SG	see-OTH.PRS.N.ASS	2SG-COMITATIVE
sai-sih-kʷaʔi-ɾe		kaa-o-ɲã		ĩ-õ
go-PST-CLS:PL-ACC		say-2/3SG.F.PST.N.ASS-REP		PRO-CLS:F

'When he had said that, she said: "How would I see them, since they went with you?"'

(Batman story, 20101123slicr001, line 028)

(iii) *Caona, "Ba̱ni, 'Ja'core quërëjañu'u̱ hua'i dani siaja̱'core,' cani go'ihuë tsi̱," caëña.*

kaa-o-nã	bã̱ã̱-nĩ	ɦaʔ-ko-ɾe		kɨɾɨ-ɦa-ɲũʔũ	waʔi
say-PERF:F.SG-DS	not.do-PERF.SS	parent-CLS:F-ACC		take-AND-ADH	fish
da̱a̱-nĩ	sia-ɦãʔ-ko-ɾe	kaa-nĩ		go̱ʔi-wɨ	
bring-PERF.SS	collect-FUT-CLS:F-ACC	say-PERF.SS		return-OTH.PST.ASS	
sʒ̃	kaa-ɨ-ɲã				
boy	say-2/3SG.M.PST.N.ASS-REP				

'When she had said that, he said, "No they said: 'Let's go and take mum so that she can bring and collect fish,' the boys said and they went back."'

(Batman story, 20101123slicr001, line 029).

(iv) *Caquëna, "Bạhuë̱ daiye, ñama'coa'ë," caoña i̱o̱.*

kaa-ki-nã	bã̱ã̱-w̃ĩ	da̱i̱-d͡ʒe		
say-IMPF:M.SG-DS	not.do-OTH.PST.N.ASS	come-CLS:GEN		
ɲãã-mã?-kʷ-a-?ɨ		kaa-o-ɲã		ĩ-õ
see-NEG-CLS:F-COP-OTH.PRS.ASS		say-2/3SG.F.PST.N.ASS-REP		PRO-CLS:F

'When he'd said that, she said: "No they didn't come, I haven't seen them."'
(Batman story, 20101123slicr001, line 030).

(v) *Caona, i̱ caëña i̱ dëji̱o̱re, "Jë̱naje̱'ë̱ sañu'u̱. Sani tsi̱re go'eñu'u̱," caëña i̱.*

kaa-o-nã	ĩ-ĩ	kaa-i-ɲã		ĩ-ĩ	di̱ɦõ-ɾe
say-PERF:F.SG-DS	PRO-M.SG	say-2/3SG.M.PST.N.ASS-REP		PRO-M.SG	wife-ACC
ɦĩ̃nãhĩ̃?ĩ̃	sa-ɲũʔũ	sa-nĩ	si̱-ɾe		gi̱o̱?e-ɲũʔũ
ADH.EXCL	go-ADH	go-PERF.SS	boy-ACC		search-ADH
kaa-i-ɲã		ĩ-ĩ			
say-2/3SG.M.PST.N.ASS-REP		PRO-CLS:M			

'When she had said that, he said to his wife: "Come on, let's go. Let's go and look for the boys."'
(Batman story, 20101123slicr001, line 031).

(vi) *Caëna, "Me saiye?" i̱o̱ goachaoña. Ai jaiye goachaoña i̱o̱.*

kaa-i-nã	mẽẽ	sai-d͡ʒe	ĩ-õ	gʷa̱ht͡ʃa-o-ɲã
say-PERF:M.SG-DS	how	go-CLS:GEN	PRO-CLS:F	think-2/3SG.F.PST.N.ASS-REP
ai	ɦai-d͡ʒe	gʷa̱ht͡ʃa-o-ɲã		ĩ-õ
much	big-CLS:GEN	think-2/3SG.F.PST.N.ASS-REP		PRO-CLS:F

'When he had said that, she though "How should I go?" She thought really deep.'
(Batman story, 20101123slicr001, line 032).

Appendix D – Analysis of aspectual forms

This appendix contains a coded analysis of aspectual forms in the Batman story, the Hammock story and the Two Brothers story. The letter 'P' indicates a Perfective form and the letter 'I' indicates an Imperfective form. The numbers and letters used to code the uses are as follows:

Code	Meaning
1	Perfective used for an event that reaches the transitional point at the topic time
1b	Perfective of *yo'ye* 'to do, to work' that has lexicalised into something that is functionally similar to English 'next' or 'thereupon'
2	Imperfective used for temporal overlap
2b	Imperfective used with copula *ba'iye* 'to be, to live'
3	Imperfective for events that came to an end
4	Imperfective for the same event
5	Imperfective with negations
6	Perfective on the discourse level
6b	Perfective that marks a conjectural question that the speaker addresses to herself or himself
7	Imperfective on the discourse level

Verb class and phonetic transcription have been added in the few cases when Siona orthography does not allow to directly distinguish between an Imperfective or Perfective form (but pronunciation does). An empty cell in the 'line' column indicates that it is the same line as the cell above. The use of Imperfective forms together with negation (code: 5) and the copula *ba'iye* 'to be' (code: 2b) have been coded to facilitate future research.

Batman story

Line	Form	Aspect	Use	Notes
002	ba'ijëna	I	2	
004	huejani	P	1	
005	baëna	P	1	
006	neni	P	1	
	ọcuajëna	I	2	
009	caëna	P	6	
010	yo'ni	P	1b	

011	baëna	P	1
	cajëna	I	7
012	goequë	I	4
013	caëna	P	6
	cani	P	6
014	yo’ni	P	1b
	suani	P	1
	ñu’i̱	I	2
	ñu’i̱na	I	2
	u̱ñona	I	2
	so̱saco	I	2
	u̱ñona (bis)	I	2
	ñu’i̱ (bis)	I	2
	boquë	I	2
015	a̱i̱na	I	2
016	goachako	I	2
	cacona	I	7
017	moni	P	1
	daëna	P	1
	ja’reni	P	1
	cua’cocona	I	3
	mani	P	1
	ñoni	P	1
	a̱i̱na	I	2
018	cacona	I	7
019	cani	P	6
020	ba’ina	I	2
021	yo’ni	P	1b
022	caëna	P	6
	duta jani	P	1
	guë’toni	P	1
023	necona	I	2
	sani	P	1
024	caëna	P	6
	sihuajë	I	2
025	sani	P	1
	moni	P	1
	a̱o̱ma’ë	I	5
	të’cajo’ani	P	1
	sëyoni	P	1

026	ą̱ini tëjini	P	1	Speaker hesitation at *ą̱i*, expected form is *ą̱ni*.
027	go’ini	P	1	
028	caquëna	I	7	
029	caona	P	6	
030	caquëna	I	7	
031	caona	P	6	
032	caëna	P	6	
033	yo’ni	P	1b	
	ti̱’ą̱ni	P	1	
034	caëna	P	6	
035	saio	I	3	
036	yo’ni	P	1b	
	co’ema’ë	I	5	
	cueni	P	1	
	yo’quëna	I	2	
	cani	P	6b	
	ñaco	I	2	
037	ñaco	I	2	
	nëcajujani	P	1	
	ba’ina	I	2	
	cani	P	6	
	gajeco	I	2	
	ñacona	I	2	
038	u̱i̱na	I	2	
	cani	P	6b	
	gajeni	P	6	
	si̱ni	P	6	
	ñacona	I	2	
039	ą̱ni	P	1	
	gochoquëna	I	2	
040	cani	P	6	
	tu̱mani	P	2	
	go’eco	I	3	
	ñacona	I	2	
041	ba’ina	I	2	
	sëyoni	P	1	
	ą̱ni	P	1	
	caco	I	2	
	oiyo	I	2	
	oiyona	I	2	

	yaëquëna	I	2	
	ca’raco	I	2	
	cani	P	6	
042	yo’ni	P	1b	
043	hue’eco	I	2	
044	mëni	P	1	
	tuiyona	I	2	
	cą̨quëna	P	1	[kãhkɨnã], class II verb *cą̨iñe* ‘to go to sleep’.
	ñaco	I	2	
	tuiyona (bis)	I	2	
	suani	P	1	
	dani	P	1	
045	caquëna	I	7	
	goachaco	I	2	
	sehuoma’o̱	I	5	
046	tuiyona	I	2	
	guijujani	P	1	
	tëtojoni	P	1	
	necọ̈ni	P	1	
	bą̨ë̱na	P	1	
047	achaco	I	2	
	achaco (bis)	I	2	
048	yo’ni	P	1b	
	ñacona	I	2	
	cani	P	6	
049	dutaquëna	I	2	
	ñacona	I	2	
050	hue’equë	I	2	
051	yo’ni	P	1b	
	co’equë	I	3	
	te’teni	P	1	
	jẹ̱o o̱ą̨ni	P	1	
052	boquëna	I	2	
	ñaco	I	2	
	tuiyona	I	2	
	siriquë	I	2	
	cọ̈ni	P	1	
053	daina	I	2	
	ña’coquë	I	2	

	ạị	I	2	
054	be’oquëna	I	5	
	caraëna	P	1	
	ñaquë	I	2	
056	cani	P	6b	
057	tëani	P	1	
	jẹọ ọạni	P	1	
	ëoquëna	I	2	
058	uquëna	I	2	[uukɨnã], class I verb *uye* ‘to burn’.
	ñu’ị	I	2	
	etaquëna	I	2	
	caquë	I	2	
	se siriquë	I	2	*se* seems to be a prefix with andative meaning, possibly related to the verb *saiye* ‘to go’, cf. Vallejos and Schwarz (2016) for Secoya.
	boquë	I	3	
061	goebequëna	I	2	
	cani	P	6	
	ñaco	I	2	
062	yo’ni	P	1b	
	se’ bọ’nekë	I	2	
063	tạtaquëna	I	2	
064	gajeni	P	1	
	ạni	P	1	
	cani	P	6	
	caona	P	6	
	bọnëni	P	1	
	ñani	P	1	
	dani	P	1	
	më’ni	P	1	
	huani	P	1	
065	caëna	P	6	
066	tëtojoni	P	1	
067	jëjo ëoni	P	1	
068	ba’ini	P (?)	?	See note 1 below.
	jëjo tọni	P	1	
	ëoni	P	1	
	oiyo	I	2	
070	go’ini	P	1	
	ạni	P	1	

Note 1: In the original recording, the speaker says *ba'ini* [bą̰ʔinḭ̃] in line 068. This appears to be the Perfective 'same subject' form (unspecified for gender and number). This form seems odd for a number of reasons: the verb *ba'iye* 'to be' generally does not occur in the Perfective form. In this case specifically, a Perfective form makes little sense: the narrator refers to a state that Batman continued to be in (his stomach being full of worms), and not one that had come to an end. Furthermore, the same-subject morphology appears be out of place: in this case, it is Batman who is in a state of being full of worms (as described in the previous sentence), whereas it is his wife who pushes him into the fire.

Instead, it seems that the Imperfective 'different subject' masc. sg. form *ba'ina* would fit the context better. The final vowel of an (as I conjecture) intended *ba'ina* is flanked by /i/ vowels, making it an easy target for assimilation. Vowel assimilation occurs often in Ecuadorian Siona (Justin Case, pers.comm. 2023). The form *ba'ina* is also attested in Batman story line 037 for example.

Hammock story

Line	Form	Aspect	Use	Notes
001	yo'quë	I	2b	
002	neni	P	1	
	dani	P	1	
	sereni	P	1	
	cua'coni	P	1	
	cuecani	P	1	
	oyaquë	I	2b	
003	ju'ani	P	1	
	hueina	P	1	
004	cajëna	I	7	
	bą̰quë	I	5	
	hueina	P	1	
005	hueicą̰ina	I	2	
006	së'aëna	P	1	
	cani	P	6	
	yo'quëna	I	2	
007	huëni	P	1	
	caquëna	I	7	
	ñani	P	1	
	cani	P	6	
	cajëna	I	7	
008	carena	P	6	
	hue'equë	I	2	

009	sani	P	1
	guyaquë	I	4
	gajeni	P	1
010	guyani	P	1
	tumani	P	1
	ja’ruquëna	I	2
011	ja’ruquëna (bis)	I	2
012	huëina	I	2
	joyeni	P	1
013	yo’quëna	I	2
	sai	I	2
	sani	P	1
014	caona	P	6
	sani	P	1
	nequë	I	2b
015	neni	P	1
	go’ini	P	1
016	sereni	P	1
	cua’coni	P	1
	oyaquë	I	2
	huei	I	2
	oyaquë (bis)	I	2
017	sani	P	1
	caona	P	6
018	cani	P	6
019	tị'ạ̈ëna	P	1
020	nëcaco	I	2
	ñaco	I	2
023	caona	P	6
	mëni	P	1
	mëani	P	1
	dạ̈ëquëna	I	2
	caona (bis)	P	6
	dạ̈ëquëna (bis)	I	2
	ñama’ë̈	I	5
	dạ̈ëquëna (ter)	I	2
024	nëcacona	I	2
	dạ̈ë huatotoquëna	I	2
	caco	I	2
	de’oni	P	1

025	gạ’ne huesëni	P	1
	guicona	I	2
	ñaquëna	I	2
	gạ’ne huesëni (bis)	P	1
	guico	I	2
	memecona	I	2
	gajeni	P	1
027	go’ini	P	1
028	cajëna	I	7
	gạ’nehuesëona	P	1
	jẹọ gọni	P	1
	caquë	I	7
	memequëna	I	2
	cani	P	6
	aya mëni	P	1
	jẹni	P	1

Two Brothers story

Line	Form	Aspect	Use	Notes
001	yo’jë	I	2b	
004	carena	P	6	
	ñajẹ	I	2	
	caëna	P	6	
	aya mëni	P	1	
005	sani	P	1	
	tị’ạni	P	1	
	sëani	P	1	
006	sani	P	1	
007	jụni	P	1	
	ayani	P	1	
008	go’ini	P	1	
	ñajẹna	I	2	
009	huahuaquëna	I	2	
	ñajẹ	I	2	
	nëcajẹ	I	2	
	caëna	P	6	
	nëcaquë	I	2	
	ñaquëna	I	2	
	gajeni	P	1	
	cuësaoni	P	1	

	jëjo daoquëna	I	2	
	cu̱ni	P	1	
010	cu̱quëna	P	1	[kũhkɨnã], class II verb *cu̱ĩñe* ‘to bite’.
	sani	P	1	
	caëna	P	6	
	ayani	P	1	
	co’mequë	I	2	
011	ñaquëna	I	2	
	huesëona	P	1	
	oi	I	2	
	meaquëna	I	2	
012	dẽmëquëna	I	2	
	guiquë	I	2	
	memequë	I	2	
	caquë	I	2	
	guiquëna	I	2	
	meaquë	I	4	
	huesëona	P	1	
	meaquëna	I	2	
013	dẽmëni	P	1	
	caquë	I	2	
	guiquëna	I	2	
	co’mequë	I	4	
	co’mequë	I	2	
	meaquë	I	3	
014	ti̱’a̱ni	P	1	
	mani	P	1	
	caquë	I	2	
015	oina	I	2	
016	ba̱quë	I	5	
017	sehuoni	P	1	
	jë’yeni	P	1	
	cua’coni	P	1	
018	u̱cuni	P	1	
	u̱cuquë	I	2	
019	i̱ni	P	1	
	gajequë	I	4	
	caquë	I	2	
	gajeni	P	1	
020	nehuesëna	P	1	

	cani	P	1
	ëjojëna	I	2
	yo’quë	I	2b
021	yo’ni	P	1b
	caquë	I	2
022	tụmani	P	1
	ja’runi	P	1
	ñu'i̱na	I	2
	caquë	I	7
	sẹi̱na	I	7
023	caëna	P	6
	ñataquëna	I	2
	tuaquë	I	2
024	tuma omeina	I	2
	caquë	I	2
	ti̱’a̱ni	P	1
	ñani	P	1
	sani	P	1
	jọni	P	1
	du’teni	P	1
025	neni	P	1
	neni (bis)	P	1
	sani	P	1
	ba’i	I	2b