Risto Uusikoski

Concepts of tense

Academic dissertation to be publicly discussed, by due permission of the Faculty of Arts at the University of Helsinki in auditorium XII, Main Building, on the 2nd of December, 2016 at 12 o’clock.

Department of Modern Languages
University of Helsinki
Abstract

The dissertation examines the concepts of tense. There is not and cannot be one true concept for any linguistic phenomenon as there are no "true", language-independent linguistic phenomena. This means that studies employ concepts that differ from each other. However, the concepts should not differ from each other randomly; the concepts cannot be "right" or "wrong", but they can be more or less appropriate. Yet, it is not enough to just build or use an appropriate concept. It is also important to be explicit on the choices made to prevent further misunderstandings and to make the results of the study easier to understand and to compare; the results are always dependent on the theoretical background, yet the composition of concepts is too often too implicit.

The dissertation is metatheoretical in its nature: I examine twelve already existing concepts of tense: I have broken their structure down into individual components, which may have several different values. I have compared this theoretical data with a typological data of 193 tense markers from 62 languages and evaluated how each component value affects the possible data, the analysis and the results of any given study (typological or other).

The objectives of the dissertation are to make past and future tense research more comparable, to examine how the choice of concept affects the data, the analysis and the results, to help in building appropriate concepts that best serve the research question and to highlight the importance of making concepts and their component values explicit. The work has been structured in such a way that the central ideas are easy to transfer to the study of other linguistic phenomena as well.

The results show that carefully considering the concept is indeed an essential part of any linguistic study: Using different component values as a part of the concept results in different types of data that may be more or less suitable for a given purpose. These effects are individually illustrated with the typological data and the studies used as examples. The results also include a detailed list of components and their values relevant for tense as well as an analysis of their frequency, centrality and canonicity in regard to the concepts of tense. The typological data also serves as a typological study of tense in its own right. This means that in addition to addressing the main objectives the dissertation also provides answers to the questions what is typically considered as tense in the literature and what tense markers are typically like. The dissertation also provides methodology for the systematic analysis of concepts in general.
Preface

I chose tense as my research topic for very pragmatic reasons. During one of his typology classes – which I took during my first year of study – Seppo Kittilä, who would later become my supervisor, said that there has not been that much typological research on tense. I jotted down this information and thought to myself: well, why not. I went on to write my Bachelor's Thesis and Master's Thesis on tense, and sure enough, I am now writing the preface for my Doctoral Thesis on tense.

I am sure that over time I will be able to look back and reflect on everything I have learned of myself and of tense over these years, but at this very moment, it seems that I have reached the point where I just want to prepare for my defence and forget tense for a while after that. I am full of strong emotions that range from excitement to frustration, from relief to anxiety and from pride to dissatisfaction. In other words, this process has clearly meant a lot to me. The one feeling I wish to elaborate here is gratitude.

First and foremost, I wish to express my gratitude to my opponent and preliminary examiner of my thesis, Helle Metslang. I am very grateful for her invaluable and reassuring feedback that made the final stages of the work easier to complete. Her accurate and detailed criticism and suggestions helped enormously in refining the work in crucial ways. I am also very grateful to my other preliminary examiner, Pier Marco Bertinetto. His critique was crucial in refining some of the central notions of the work and his honest feedback has greatly contributed to my maturation as a linguist. Both external reviewers spent a lot of time for making my dissertation better than it was, and it would not be what it is without their comments.

Second, I wish to express my sincerest gratitude to my supervisor Seppo Kittilä. I simply have no words with which to properly praise the accuracy of his criticism, the importance of his advice and his constructive feedback, and especially his encouragement and support during both good and difficult times. I have never left his office without an optimistic feeling, no matter what problems I had entered with. It has always been easy to be open and honest with him, no matter whether I have struggled with academic or personal issues. I consider myself extremely lucky to have had Seppo as my supervisor and I respect him in every way possible.

I am also grateful to all my colleagues at the University of Helsinki. One of my deepest regrets is that I could not bring myself to interacting with many of you. I know I missed out on many great opportunities to give and receive professional and personal support to and from many wonderful people. I can only hope that I will be able to seize as many of the future possibilities as possible.
The community absolutely crucial for me was Langnet Doctoral Programme in Language Studies, which was headed by the University of Jyväskylä during the years I was able to participate. I am immensely grateful to the fellow students, the supervisors, and the administrative staff of Langnet for the countless wonderful moments, memorable events and especially for the friendships formed. Nowhere else did I experience such a feeling of belonging than during the Summer Schools. I especially want to thank the sub-programme Grammar and Theory of Language and its leaders Seppo Kittilä – who is also my supervisor – and Urpo Nikanne.

I am very grateful to Kone Foundation for providing me a research grant for four consecutive years. Their steady financial support and the encouraging tone of their communication made it possible for me to focus on my thesis as completely as possible. Needless to say, I would not have been able to complete my dissertation in a little over four years without this support. I am also very grateful to the University of Helsinki for providing me a grant for finishing the thesis. Without this grant I would not have been able to make some crucial late changes or polish the dissertation nearly as well.

Last but not least, I want to express my gratitude to my friends and family: My friend Hanna. My mother, my father and my sister. My wife Aurora, and my children Kerttu and Eerik. You have listened to me, you have understood me, and you have loved me nonetheless. I have had the privilege to listen to you, to understand you, and to love you. I am eternally grateful that you are in my life.

Vantaa, October 27th 2016

Risto Uusikoski
## Contents

Abstract ................................................................................................................................................. i
Preface.................................................................................................................................................. ii
List of Tables and Figures................................................................................................................. viii
Abbreviations ....................................................................................................................................... x

1. Introduction ...................................................................................................................................... 1
   1.1. Research topic ........................................................................................................................... 1
   1.2. Background ............................................................................................................................... 3
   1.3. Research Objectives .................................................................................................................. 5
   1.4. Structure of the Dissertation ...................................................................................................... 7

2. Theoretical Framework .................................................................................................................... 7
   2.1. Previous Research on Tense....................................................................................................... 8
   2.2. Time........................................................................................................................................... 9
      2.2.1. Is the World Tensed? .......................................................................................................... 9
      2.2.2. The Real World and the Projected World ........................................................................ 11
      2.2.3. Stealing the Best Bits from Philosophy ............................................................................ 12
      2.2.4. The Linguistic Concept of Time ....................................................................................... 13
      2.2.5. The Timeline ..................................................................................................................... 14
   2.3. Comparative Concepts ............................................................................................................ 15
      2.3.1. Comparative Concepts in Comparative Studies ............................................................... 16
      2.3.2. Concepts in Language-internal Research ......................................................................... 18
      2.3.3. The Structure of Concepts ................................................................................................ 19

3. Methods and Data .......................................................................................................................... 21
   3.1. Methods ................................................................................................................................... 21
   3.2. Theoretical Data ...................................................................................................................... 23
      3.2.1. All Studies use Concepts .................................................................................................. 24
      3.2.2. Included Concepts ............................................................................................................ 26
      3.2.3. Identifying the Components and Their Values ................................................................. 31
   3.3. Typological Data ..................................................................................................................... 36
      3.3.1. The Nature of the Typological Data ................................................................................. 37
      3.3.2. The Sample ....................................................................................................................... 40

4. The Structure of Concepts.............................................................................................................. 42
4.1. Grammatical and Semantic Specificity ................................................................. 43
4.2. Primary and Secondary Component Values ......................................................... 47
4.3. Canonicity of Component Values ........................................................................ 51
4.4. Centrality of Components ................................................................................... 56
4.5. Tense and Other Phenomena ............................................................................... 59
  4.5.1. The Network of Phenomena ......................................................................... 59
  4.5.2. Temporal Adverbials ..................................................................................... 61
  4.5.3. Grammatical Aspect .................................................................................... 66
  4.5.4. Lexical Aspect ............................................................................................ 77
5. The Semantic Components ..................................................................................... 83
  5.1. The Notions Included Under Tense ................................................................. 84
    5.1.1. The Components ......................................................................................... 84
    5.1.2. The Theoretical Data .................................................................................. 86
    5.1.3. The Typological Data ................................................................................. 90
    5.1.4. Discussion .................................................................................................. 91
  5.2. Symmetry Between Past and Future ............................................................... 94
    5.2.1. The Component .......................................................................................... 94
    5.2.2. The Typological Data .................................................................................. 95
    5.2.3. Discussion .................................................................................................. 97
  5.3. The Degrees of Remoteness ........................................................................... 99
    5.3.1. The Component .......................................................................................... 99
    5.3.2. The Theoretical Data .................................................................................. 100
    5.3.3. The Typological Data ................................................................................. 100
    5.3.4. Discussion .................................................................................................. 109
  5.4. The Theme and the Function of Tense ............................................................. 112
    5.4.1. The Components ........................................................................................ 112
    5.4.2. The Theoretical Data .................................................................................. 113
    5.4.3. Discussion .................................................................................................. 117
  5.5. The Origo and the Type of Temporal Relation ................................................ 119
    5.5.1. The Components ......................................................................................... 119
    5.5.2. The Theoretical Data .................................................................................. 120
    5.5.3. Treatment in the Reference Grammars ...................................................... 121
    5.5.4. The Typological Data ................................................................................. 123
    5.5.5. Discussion .................................................................................................. 125
6.4.1. The Component .............................................................................................................. 191
6.4.2. The Theoretical Data ...................................................................................................... 192
6.4.3. The Typological Data ..................................................................................................... 193
6.4.4. Whether the Verb Can Stand Alone ............................................................................... 196
6.4.5. Non-finite Forms ............................................................................................................ 197
6.4.6. Discussion ....................................................................................................................... 207
7. Discussion .................................................................................................................................... 211
  7.1. The Theoretical Data – What is Typically Considered as Tense ...................................... 211
  7.2. The Typological Data – What Tense Markers are Typically Like ...................................... 218
  7.3. Applying the Findings to Other Linguistic Phenomena ...................................................... 226
  7.4. The Relevance of the Study ............................................................................................... 227
Appendix: The Typological Data ..................................................................................................... 233
Bibliography ..................................................................................................................................... 257
Abstract in Finnish ........................................................................................................................... 271
List of Tables and Figures

<table>
<thead>
<tr>
<th>Figure/Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.1</td>
<td>Time is defined as a line.</td>
<td>15</td>
</tr>
<tr>
<td>Table 2.1</td>
<td>The relation of notions concept, component and value.</td>
<td>20</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>The hypothetical tense system of Bull (1960).</td>
<td>27</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>The list of components and their values.</td>
<td>33</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>The concepts broken down to their components; the theoretical data.</td>
<td>35</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>The list of languages in the typological data.</td>
<td>41</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>The number of explicit components by concept.</td>
<td>45</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>The combinations of semantic and grammatical specificity and vagueness.</td>
<td>47</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Canonical approach versus network of phenomena.</td>
<td>53</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>The canonical values of components.</td>
<td>55</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>The frequency of explicit components.</td>
<td>58</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>A partial network of phenomena.</td>
<td>60</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>The semantics of aspects according to Wolfgang Klein (1994).</td>
<td>67</td>
</tr>
<tr>
<td>Figure 4.3</td>
<td>English Pluperfect in three concepts of tense.</td>
<td>71</td>
</tr>
<tr>
<td>Figure 4.4</td>
<td>Independent combination of tense and aspect.</td>
<td>73</td>
</tr>
<tr>
<td>Figure 4.5</td>
<td>Aspect differentiated only in the past tense.</td>
<td>73</td>
</tr>
<tr>
<td>Figure 4.6</td>
<td>Tense differentiated only in the imperfective aspect.</td>
<td>74</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Tense and aspect as independent categories.</td>
<td>76</td>
</tr>
<tr>
<td>Figure 5.1</td>
<td>A simple timeline.</td>
<td>85</td>
</tr>
<tr>
<td>Figure 5.2</td>
<td>The simplified meaning of perfect and prospective.</td>
<td>85</td>
</tr>
<tr>
<td>Figure 5.3</td>
<td>The simplified meaning of past perfect.</td>
<td>85</td>
</tr>
<tr>
<td>Table 5.1</td>
<td>The acceptance of various semantic domains under the notion of tense by concept.</td>
<td>89</td>
</tr>
<tr>
<td>Table 5.2</td>
<td>Temporality and referability of past and future by concept.</td>
<td>89</td>
</tr>
<tr>
<td>Table 5.3</td>
<td>The occurrence of future in different types of oppositions.</td>
<td>96</td>
</tr>
<tr>
<td>Table 5.4</td>
<td>The meaning of tenses marked for remoteness.</td>
<td>105</td>
</tr>
<tr>
<td>Table 5.5</td>
<td>The expression type of markers with and without remoteness distinctions.</td>
<td>108</td>
</tr>
<tr>
<td>Table 5.6</td>
<td>The distribution of meaning of remote markers versus non-remote markers.</td>
<td>110</td>
</tr>
<tr>
<td>Figure 5.4</td>
<td>The semantics of tense.</td>
<td>112</td>
</tr>
<tr>
<td>Figure 5.5</td>
<td>The difference between locating, examining and pointing to a direction.</td>
<td>114</td>
</tr>
<tr>
<td>Table 5.7</td>
<td>The relationship between the origo and the theme and the nature of the theme.</td>
<td>115</td>
</tr>
<tr>
<td>Figure 5.6</td>
<td>The Turkish tense of repetition according to Reichenbach (1947, 291).</td>
<td>117</td>
</tr>
<tr>
<td>Figure 5.7</td>
<td>The relationship between a category and an opposition between its members.</td>
<td>127</td>
</tr>
<tr>
<td>Figure 5.8</td>
<td>Tense-mood-aspect categories of Bulgarian according to Thieroff &amp; Budde (1995).</td>
<td>128</td>
</tr>
<tr>
<td>Figure 5.9</td>
<td>Hierarchy of categories.</td>
<td>129</td>
</tr>
<tr>
<td>Figure 5.10</td>
<td>Tense as the “final product” and as a member of a category.</td>
<td>129</td>
</tr>
<tr>
<td>Figure 5.11</td>
<td>Inherent categories of the finite verb in Dutch according to Thieroff (1994).</td>
<td>131</td>
</tr>
</tbody>
</table>
Figure 5.12. Tenses in the concept of Harder (1994) – the interpretation of multiple tense categories. 131
Figure 5.13. Tenses in the concept of Harder (1994) – the interpretation of a single tense category. 132
Figure 5.14. The formula of tense according to Comrie (1985). 133
Figure 5.15. Axes of orientation in the concept of Bull (1960). 135
Figure 5.16. English tense system according to Bull with the example of the verb “to sing” (1960). 136
Table 5.8. Concepts according their acceptance of multiple, binary and hierarchical oppositions and non-tenses. 138
Figure 5.17. The dynamicity of semantics of tense and the number of tense categories. 157
Table 5.9. The dynamicity of the formation of semantics in concepts with a reference point(s). 158
Table 6.1. Tenses by their type of expression. 177
Table 6.2. The types of expression by their meaning. 178
Figure 6.1. Two ways of linking two situations. 208
Table 7.1. What are tense markers typically like according to the two types of data. 230
### Abbreviations

<table>
<thead>
<tr>
<th>1 / 2 / 3</th>
<th>1st/2nd/3rd person etc.</th>
<th>FOC</th>
<th>focus marker</th>
<th>P</th>
<th>patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>agent</td>
<td>FUT</td>
<td>future tense</td>
<td>PASS</td>
<td>passive</td>
</tr>
<tr>
<td>ABS</td>
<td>absolutive</td>
<td>GEN</td>
<td>genitive</td>
<td>PAST</td>
<td>past tense</td>
</tr>
<tr>
<td>ACC</td>
<td>accusative case</td>
<td>GER</td>
<td>gerund</td>
<td>PCPL</td>
<td>participle</td>
</tr>
<tr>
<td>ACT</td>
<td>active</td>
<td>HERE</td>
<td>here (spatial)</td>
<td>PL</td>
<td>plural</td>
</tr>
<tr>
<td>ADJV</td>
<td>adjectivizer</td>
<td>HEST</td>
<td>hesternal (yesterday)</td>
<td>PERF</td>
<td>perfect</td>
</tr>
<tr>
<td>ALL</td>
<td>allative</td>
<td>Hod</td>
<td>hodiernal (today)</td>
<td>PERS</td>
<td>personal marker</td>
</tr>
<tr>
<td>ANA</td>
<td>anaphoric</td>
<td>HON</td>
<td>honorific</td>
<td>PFV</td>
<td>perfective</td>
</tr>
<tr>
<td>ANIM</td>
<td>animate</td>
<td>iff</td>
<td>if and only if</td>
<td>POSS</td>
<td>possessive</td>
</tr>
<tr>
<td>ANT</td>
<td>anterior</td>
<td>IMM</td>
<td>immediate</td>
<td>POST</td>
<td>posterior</td>
</tr>
<tr>
<td>ART</td>
<td>article</td>
<td>IMPF</td>
<td>imperfective</td>
<td>POSTP</td>
<td>postposition</td>
</tr>
<tr>
<td>ASP</td>
<td>aspect</td>
<td>IMPR</td>
<td>imperative</td>
<td>PRED</td>
<td>predicative</td>
</tr>
<tr>
<td>ASSOC</td>
<td>associative</td>
<td>INANIM</td>
<td>inanimate</td>
<td>PRES</td>
<td>present tense</td>
</tr>
<tr>
<td>ASRT</td>
<td>assertive</td>
<td>INC</td>
<td>inceptive</td>
<td>PROG</td>
<td>progressive</td>
</tr>
<tr>
<td>BRF</td>
<td>brief</td>
<td>INCH</td>
<td>inchoative</td>
<td>PROL</td>
<td>prolate</td>
</tr>
<tr>
<td>CAUS</td>
<td>causative</td>
<td>INCL</td>
<td>inclusive</td>
<td>PRON</td>
<td>pronoun / pronominal</td>
</tr>
<tr>
<td>CL</td>
<td>close (temporal)</td>
<td>IND</td>
<td>indicative</td>
<td>PROP</td>
<td>propriete</td>
</tr>
<tr>
<td>CLASS()</td>
<td>classifier(class/type)</td>
<td>INDEF</td>
<td>indefinite</td>
<td>PROS</td>
<td>prospective</td>
</tr>
<tr>
<td>CMP</td>
<td>complementizer</td>
<td>INDV</td>
<td>individuation</td>
<td>PROX</td>
<td>proximate</td>
</tr>
<tr>
<td>COMIT</td>
<td>comitative</td>
<td>INFR</td>
<td>inferential</td>
<td>PTV</td>
<td>partitive</td>
</tr>
<tr>
<td>COMP</td>
<td>completive</td>
<td>INESS</td>
<td>inessive</td>
<td>PUNC</td>
<td>punctual</td>
</tr>
<tr>
<td>COMPR</td>
<td>comparative</td>
<td>INF</td>
<td>infinitive</td>
<td>PURP</td>
<td>purpose</td>
</tr>
<tr>
<td>CON</td>
<td>conjunction/connective</td>
<td>INGR</td>
<td>ingressive</td>
<td>REC</td>
<td>recent</td>
</tr>
<tr>
<td>COND</td>
<td>conditional</td>
<td>INS</td>
<td>instrumental</td>
<td>REFLX</td>
<td>reflexive</td>
</tr>
<tr>
<td>CONT</td>
<td>continuous</td>
<td>INT</td>
<td>interrogative</td>
<td>REL</td>
<td>relational</td>
</tr>
<tr>
<td>CONTR</td>
<td>contrastive</td>
<td>INTERJ</td>
<td>interjection</td>
<td>REM</td>
<td>remote</td>
</tr>
<tr>
<td>CONV</td>
<td>converb</td>
<td>IRR</td>
<td>irrealis</td>
<td>RES</td>
<td>resultative</td>
</tr>
<tr>
<td>COORD</td>
<td>coordinate</td>
<td>ITR</td>
<td>iterative</td>
<td>SBJ</td>
<td>subject</td>
</tr>
<tr>
<td>COP</td>
<td>copula</td>
<td>IZ</td>
<td>izafet</td>
<td>SEQ</td>
<td>sequential</td>
</tr>
<tr>
<td>DAT</td>
<td>dative case</td>
<td>LK</td>
<td>linker</td>
<td>SG</td>
<td>singular</td>
</tr>
<tr>
<td>DEC</td>
<td>declarative</td>
<td>LOC</td>
<td>locative</td>
<td>SIM</td>
<td>simultaneous</td>
</tr>
<tr>
<td>DEF</td>
<td>definite</td>
<td>MASC</td>
<td>masculine</td>
<td>SIT</td>
<td>situation-change</td>
</tr>
<tr>
<td>DEM</td>
<td>demonstrative</td>
<td>MID</td>
<td>middle</td>
<td>SPE</td>
<td>specific</td>
</tr>
<tr>
<td>DET</td>
<td>determiner</td>
<td>MOD</td>
<td>modal</td>
<td>ST()</td>
<td>stem</td>
</tr>
<tr>
<td>DETR</td>
<td>detransitivizer</td>
<td>NEAR</td>
<td>near (temporal)</td>
<td>SUBJ</td>
<td>subjunctive</td>
</tr>
<tr>
<td>DIM</td>
<td>diminutive</td>
<td>NEC</td>
<td>necessity</td>
<td>TEL</td>
<td>telicizer</td>
</tr>
<tr>
<td>DIR</td>
<td>direct</td>
<td>NEG</td>
<td>negation</td>
<td>TO</td>
<td>directional</td>
</tr>
<tr>
<td>DIRE</td>
<td>directional</td>
<td>NEUT</td>
<td>neuter</td>
<td>TOP</td>
<td>topic</td>
</tr>
<tr>
<td>DIST</td>
<td>distal</td>
<td>NFUT</td>
<td>non-future</td>
<td>TRN</td>
<td>transitivizer</td>
</tr>
<tr>
<td>DXS</td>
<td>deictic adverb</td>
<td>NOM</td>
<td>nominative</td>
<td>u</td>
<td>utterance time</td>
</tr>
<tr>
<td>E</td>
<td>event, time of event</td>
<td>NOMZR</td>
<td>nominalizer</td>
<td>UP</td>
<td>movement upwards</td>
</tr>
<tr>
<td>ERG</td>
<td>ergative</td>
<td>NPAST</td>
<td>non-past</td>
<td>VC</td>
<td>voice</td>
</tr>
<tr>
<td>EXCL</td>
<td>exclusive</td>
<td>OBJ</td>
<td>object</td>
<td>VENT</td>
<td>ventive</td>
</tr>
<tr>
<td>EXP</td>
<td>experiential</td>
<td>OBL</td>
<td>oblique</td>
<td>VOW</td>
<td>vowel</td>
</tr>
<tr>
<td>FEM</td>
<td>feminine</td>
<td>ORD</td>
<td>ordinal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Introduction

1.1. Research topic

This dissertation examines the concepts of tense. *Tense* is perhaps most famously defined by Bernard Comrie as a "grammaticalized expression of location in time" (1985, 8). In an earlier, hugely influential treatment by Hans Reichenbach tenses "determine time with reference to the time point of the act of speech" (1947, 287-288). A third definition I would like to introduce here is that of Wolfgang Klein: according to Klein tenses concern the relation between the topic time and the time of utterance (1994, 6). However, as becomes apparent when familiarizing oneself with the literature, these three definitions – that themselves are quite different from each other – are far from being the only ones. This leads to one of the starting points of the current study; that linguistic phenomena are not objective, language-independent entities, but they may be subjectively defined in variety of ways. This means that what is meant by tense in one study differs from what is meant by tense in other studies. I will call these different, subjective views of tense *concepts of tense*.

A concept is here seen as a wider notion than a *definition*. I view a definition (such as the definitions by Comrie, Reichenbach and Klein above) as a compact claim stating the central features of the target phenomenon. A concept, on the other hand, is seen as comprising *all* the relevant features associated with tense (or some other phenomenon) in a given study (see table 3.1. for the features relevant for tense). In other words, concepts are manifested throughout the studies – even between the lines. Following this definition of *concept* every study that uses the term *tense* – be it a typological or a language-internal, a theoretical or an applied study – can be said to involve a concept of tense. However, concepts do not differ from each other randomly. Concepts may not be right or wrong – as they are subjective – but they may be more or less *appropriate* to a given study as the choice of the concept affects every aspect of the study from gathering the data to the conclusions that can be drawn. In this work the term *concept* always refers to a certain (or a hypothetical) set of relevant features associated with tense. When discussing the phenomenon of tense in general, I will use the term *notion of tense* (or just tense, when appropriate).

Even though the concepts of tense differ in *what* they consider tense to refer to, it is still necessary for me to clarify the terminology as much as possible. In this work by *tense opposition* I refer to the opposition of *temporal meanings* (or *temporal reference*), not to the opposition of actual linguistic markers. Actual linguistic markers do, however, express such oppositions. Tense opposition does
not refer to the opposition of linguistic markers that do not differ in their temporal meaning. What this means in practice depends on the concept under examination. To clarify: if, for example, the concept under examination considers past, present and future but not perfect to belong under the notion of tense, then tense opposition does not concern e.g. the difference between English Simple Past and Pluperfect that differ only in regard to the meaning of perfect. If, on the other hand, the concept under examination does include the notion of perfect under tense, then English Simple Past and Pluperfect do involve a tense opposition. Whatever the semantics, the notion of tense also concerns the grammatical features of those markers that express as one of their meanings a member of a tense opposition. This means that for a marker to "qualify" as a tense marker the concepts may place certain grammatical restrictions. In no way, however, am I equating tense with complete linguistic markers or forms (as a marker may also carry meanings other than tense), as I focus on tense as a meaning, not as the combination of meaning and form; markers rather express or carry tense as one of their meanings (or as their only meaning). The English Simple Past (I slept), for example, is in an aspectual opposition with Past Progressive (I was sleeping), in a temporal opposition with Simple Future (I will sleep) and in both a temporal and an aspectual opposition with the Present Progressive (I am sleeping). The forms thus carry, in my terminology, tense and aspect meanings, but are not tenses (or aspects etc.) in themselves. I therefore speak of markers (e.g. Imperfect) that express certain tense (past tense) whereas other authors might choose to speak e.g. of tenses (e.g. Imperfect) that have certain temporal reference (past temporal reference) (Bertinetto & Delfitto 2000, 190). For practical reasons, however, I will refer to "a marker that expresses tense (among other possible meanings)" as a "tense marker".

This dissertation will not introduce yet another concept of tense. Instead, I will examine the ways in which concepts of tense may differ and evaluate the appropriateness of different types of concepts for different types of research. I will achieve this by examining two types of data: a theoretical data that consists of existing concepts of tense and a typological data that consists of actual tense markers. Given the abundance of different concepts that have been proposed – and the fact that in many cases the concepts have not been made explicit enough, making it difficult to compare the results of previous research – I view this as an issue of utmost importance. The objectives of this dissertation (properly presented in section 1.3.) are to make past and future tense research more comparable, to examine how the choice of concept affects the data, analysis and results, to help in building appropriate concepts that best serve the research question, and to highlight the importance of making concepts and their components explicit.
Based on the analysis of the theoretical data (the theoretical data is discussed in section 3.2.) the following working concept of tense is created. It is structured in such a way that allows considerable semantic variation – it is build around generalizations made from the theoretical data – while still being recognizable as describing tense as generally understood. Its creation serves two purposes: the working concept captures the variation in the concepts in an intuitive way and it is the basis for collecting the typological data. However, it should be stressed that this working concept is not intended to be an answer to the puzzle of tense (for one thing, it does not take perfect into account, something that is done in several concepts of tense). It is merely a convenient way to tackle the question.

A tense marker – as one of its primary meanings – locates (examines, locates or points to the direction of) something (an event, a time span or a point or a region) with regard to time and thus forms (whether by a static configuration or by a dynamic process) a temporal relation (a relation or a vector) between two entities (time points or spans, situations or regions, which either can or cannot expand infinitely).

In this chapter I will further elaborate the background (1.2.) and the research objectives (1.3.). Finally I will present the structure of the dissertation (1.4.).

1.2. Background

My interest in tense first rose when I was writing my Bachelor's Thesis. Back then I was keen on applying one of the existing concepts of tense to Finnish language. By the time of my Master's Thesis I had moved on: I was eager to modify existing concepts to create a new one that best suited Finnish and English, and which would of course have been, by conjecture, a universally applicable, superior concept. After the work was completed, I realized that I had played out an old joke: to solve the problem of competing standards I had created a new one. I had not solved the puzzle of tense, I had merely added more pieces to the puzzle. So I took a step back and took another look at the multitude of concepts already out there. I realized that the relevant question was not which concept is the correct one but rather the other way around: to which uses is a given concept appropriate. And furthermore, the existing concepts together surely have most of the necessary pieces to build any new concept possible. Thus the best way to solve the problem of competing standards is to break the standards down to pieces, analyze the pieces carefully to gain an understanding of them, and finally encourage everyone to use whatever pieces they need while
keeping in mind what the pieces do: that is, to turn the existing concepts into an easily accessible resource. This has the double benefit of making both the past and future tense research more compatible and transparent.

The more one looks at the previous concepts of tense, the clearer is the need for establishing compatibility and evaluating the appropriateness of individual features and concepts as whole. The existing concepts of tense are indeed a very heterogeneous group, more appropriately grouped together by family resemblance than by a set of necessary criteria. Before tackling the actual concepts included in the current study (there are twelve of them and they are discussed in detail in section 3.2.2.), we may take a quick tour through the jungle of features associated with tense in these concepts. If we first look for common denominators between different concepts the list will be relatively short: All concepts agree that tense is a grammatical, linguistic phenomenon which can (at least) be expressed with an affix and can be (at least) a category of the verb. Tense also concerns the relation between the *origo* and the *theme*; the origo can be defined as the reference point on which the relation is based (for example the moment of speech) and the theme can be defined as the entity (a time, a situation or a region) that is related to the origo in some way. Nothing else is accepted in all of the twelve concepts.

First, not all concepts consider tense to be about *time* at all. And even if they do, they may argue that either *past* or *future* tense may not concern time but rather something else. The theme may be a *situation*, a *time* or even a *region*, it may or may not have duration and it is either *located*, *examined* or *pointed to the direction of*. Tense marking may be considered *obligatory* or not, *periphrastic expression* may or may not be allowed, *degrees of remoteness* may or may not be supported, *perfect* may or may not be included under the notion of tense and so called *reference points* in the semantic description are respectively included or not. Tense may consist of one or several separate *oppositions* which may be restricted into *binary* oppositions and which may have a *hierarchy*. *Non-future* and *non-past* may or may not be supported, the principle of *one form – one meaning* may or may not be upheld, tense may be considered to be just the *category of the verb* or also possibly that of a *nominal* or the *sentence*. *Finiteness* of the verb associated with the tense may or may not be required, different types of *grammatical expression* (for examples affixes and auxiliaries) may or may not co-occur inside one tense opposition and *universal truths* may be explained with the meaning of one of the tenses or as a separate meaning. And so on. Based on this it is easy to understand that it is not fruitful to try to compress all the different views into a single all-purpose definition that would be watertight and in every way the "best" way to describe the phenomenon of tense in the languages of the world. That is because there *is* no one phenomenon called tense that
can be objectively identified in different languages and there is not only one type of research question to which there would be an optimal concept.

What this dissertation therefore does is to combine theoretical analysis with typological data in order to facilitate future tense research, be it theoretical, typological or something else. In this sense this study is not a theoretical or a typological study in itself, but rather a meta-theoretical or a metatypological study that aims to provide tools and methods for such studies. The results of this study are valuable for both such research in which tense is the main object of study and for such research in which tense has a smaller role. Ultimately the principles outlined in this study – those of breaking down existing concepts, identifying all the relevant features and evaluating their appropriateness – should also prove useful for the study of linguistic phenomena other than tense, as the same problems can be identified with any linguistic concept.

1.3. Research Objectives

The study has three distinct objectives, introduced properly below. These objectives are wide and open-ended, making it quite hard to objectively examine whether they are reached or not. However, as the study revolves around the very subjective notion of appropriateness, and as it is taken as the starting point that all linguistic phenomena may only be defined subjectively, this is inevitable. The outcome of this dissertation should therefore be judged by the amount of transparency and concept consciousness – evaluated based on the objectives – it succeeds in introducing to the research of tense. The three objectives of the study are presented below (in an order that best serves their explanation):

1.) To make past and future tense research more comparable

I intend to make the dialogue between individual studies and research traditions easier; contrasting or incomparable results often have their origins in the differences of the concepts used. For example, it is not surprising that a study that allows tense in non-finite expressions, such as Bernard Comrie's (1985), is more likely to include and describe anaphoric tenses than a study that does not (such as the study of Klein [1994]). Similarly, only allowing inflectional expression of tenses (leaving out e.g. auxiliaries) – as e.g. Robert Allen (1982) does – often goes hand in hand with excluding future from the notion of tense, whereas allowing periphrastic expression and allowing future tense are often linked (this is the case e.g. in. Functional Grammar [de Groot 1995]).

5
Regardless of the direction of the analysis in these cases (whether the grammatical features affect the possible semantics or vice versa), if the reader only focuses e.g. on the semantics proposed by tense studies, s/he is presented with contrasting, mutually exclusive views. However, if the grammatical aspects of the concepts are also taken into account, the differences in their semantics are easier to understand. This dissertation therefore guides to interpret past tense research not as these facts hold but rather as these facts hold if and only if tense is seen in this particular way.

2.) To examine how the choice of component values affects the data, the analysis and the results and to help in building appropriate concepts that best serve the research question

Studies employ concepts that differ from each other. However, they should not differ from each other randomly. Theoretical presuppositions influence the data that can be gathered, the analysis and ultimately the results of the study. The concept is appropriate if it leads to optimal data that facilitates the sort of analysis and data-internal comparison called for by the research question. A less appropriate concept may lead to a sub-optimal data for that particular. This dissertation aims to examine the effect of each relevant element of any concept of tense so that future research would be based on concepts that are as informed – and therefore as appropriate – as possible.

3.) To highlight the importance of making concepts and their essential component values explicit

It is not enough to understand previous literature and to build and use an appropriate concept which serves the study. It is also important to be explicit on the choices made in selecting and building the concept to prevent further misunderstandings and to make the results of the study easier to understand and to compare; the results are always dependent on the theoretical background that includes the concept. Yet, the composition of concepts is too often too implicit and the notions used not well enough defined (Desclés & Guentchéva 2011, 123). The effects of this major problem can be exemplified by the discussion of nominal tense (tense as a grammatical category of nominals) between Rachel Nordlinger and Louisa Sadler (2004 & 2008) and Judith Tonhauser (2007 & 2008). Nordlinger and Sadler fail to provide an explicit enough concept for tense, instead speaking of tense as "standardly defined" (2004, 777). As a result the initial critique by Tonhauser (2007) – who has a different concept of tense in her mind – as well as the subsequent discussion misses its mark to a large extent (see section 6.3.4. for more details). The dissertation therefore aims to highlight the importance of explicitness by pointing out the various pitfalls of not being explicit enough. Being explicit is also the key in selecting or building an appropriate concept as described in the second objective above, as being explicit forces the linguist to properly consider the concept and commit to it.
In addition to these rather abstract objectives the typological data gathered for this dissertation will serve as a typological study in its own right. It will provide a picture of tense marking, although not a statistically representative one, in the languages around the world. Likewise, the theoretical data will provide a picture of how tense is typically seen. The typological and the theoretical findings are summed up in the concluding chapter of the dissertation.

1.4. Structure of the Dissertation

Chapter 2 introduces the theoretical framework behind the study focusing on the two central notions of time and concept. Chapter 3 describes the qualitative method of the study as well as the data that consists of two separate types of data: theoretical and typological. Chapters from 4 to 6 contain the main analysis of the work; the existing concepts of tense are broken down to their components and these components are examined alongside corresponding typological data. The analysis is divided into three separate chapters: Chapter 4 deals with the structure of concepts (issues such as how many components do the concepts deal with and which components are more central or primary), Chapter 5 deals with the semantic components (such as what is the nature of the origo and the theme) and Chapter 6 deals with the grammatical components (such as whether tense can be expressed periphrastically and whether tense is a category of a verb, a nominal or the sentence). Chapters 5 and 6 are not strictly organized around the components; rather, the discussion moves in an order that is the most natural. For information about which components are discussed in which section, see section 3.2.3. and Table 3.1. Chapter 7 contains a summary of the resulting typological and theoretical picture as well as the concluding discussion.

2. Theoretical Framework

This chapter starts with a short introduction to the previous tense research and some of its most central and persistent issues (section 2.1.). After this two very central notions that form the theoretical framework of the study are discussed. The first is the notion of time and its linguistic expression (section 2.2.) and the second is the notion of concept in comparative research (section
2.3.). Section 2.2. thus gives us the phenomenon and section 2.3. gives us the tools for examining the linguistic expression of this phenomenon in the languages of the world.

2.1. Previous Research on Tense

Tense has a long research tradition dating back to the works of Aristotle, who distinguished between *nouns* and *verbs*, saying that the predication of the latter is relative to *time* – past, present and future (Klein 1994, 14). Different verb forms in Greek and later Latin were consequently called *time forms* or *tense forms* even though the forms carried two different types of oppositions (Hewson 2011, 507). It was only much later – in the 20th century – when these two oppositions, aspect and tense, were properly differentiated in literature. However, the long tradition still has influence over linguistics to this day as it is not uncommon to see references to e.g. the "six tenses" of Latin (see Hewson 2011, 508) or the preterit and the imperfect as tenses of modern languages (e.g. Fleischman 1990, 24-25). Neither of these views is right or wrong, however, as long as the notions used are properly defined and differentiated.

Tense (and time in general) has enjoyed the status of one of the favourite topics in philosophy (e.g. Le Poidevin 1998) and logic (e.g. Prior 1957). In linguistics, there have been numerous studies dedicated to the semantics of tense (e.g. Comrie 1985, Klein 1994) and tense as a part of the verb / tense-mood-aspect system of a single language (e.g. Allen 1982) or several languages (e.g. Thieroff 1994). Tense has been widely studied diachronically (e.g. Bybee, Perkins & Pagliuca 1994) and typologically (e.g. Dahl 1985). As tense is one of the central categories of the verb, it has naturally received a lot of attention in theories of syntax such as generative grammar (Chomsky 1965), systemic functional grammar (Halliday 2004, Bache 2008) and the study of the argument structure of tenses (e.g. Zagona 1990).

Issues that have received a large amount of attention include the status of the future tense (whether a temporal future tense can exist at all [see e.g. Nordlander 1997, 25-28] and whether certain markers are better labeled as markers of future tense or markers of modality [see e.g. Salkie 2010]), the scope of the notion of tense (whether it includes notions such as perfect or not [see e.g. Comrie 1985, 32-35]) and the nature of possible tense oppositions (for example should tense be seen as a group of more or less independent binary oppositions such as *Present vs. Past* and *Future vs. Non-future* or as a complex, non-compositional system of tense forms that includes tenses such as *Future*...
Posterior and Past Anterior [see e.g. Verkuyl 2011, 565-570]). All these issues and several more are discussed in this work in the context of the relevant components.

While the spectrum of tense studies is wide, they all have one thing in common: they necessarily include a concept of tense, whether they introduce an original one or borrow one from previous research. Later on, in Chapter 3, twelve of these studies – which form the theoretical data of this dissertation – are presented in more detail. These are the studies of Reichenbach (1947), Bull (1960), Allen (1982), Johnson (1981), Comrie (1985), Klein (1994), Thieroff (1994), Janssen (1994), Harder (1994), de Groot (whose work is based on Functional Grammar) (1995), Bache (1995) and Nordlander (1997). The reader who wishes to familiarize themselves with the details of these prominent tense studies at this point is referred to section 3.2.2.

2.2. Time

This section examines the notion of time, first in the philosophical (sections 2.2.1 and 2.2.2.) and then in the linguistic sense. The aim of this chapter is to establish the idea of time as something that can be expressed linguistically, whereas the next section (2.3.) aims to show that this expression may be examined and compared.

2.2.1. Is the World Tensed?

The fundamental question concerning time in the philosophical sense stems from the classic work of J. Ellis McTaggart (1908). McTaggart distinguishes two series of times: the A series and the B series. The A series consists of series of positions that run from the distant past through the present and to the distant future. In other words, events can be classified according to their relative position to the present moment. The B series consists of series of positions that only run from earlier to later. (1908, 458). In the B series the events don't have any properties relative to the present moment. McTaggart's claim is that the A series of time is necessary for any theory of time since change only occurs in the A series (1908, 460). The A series leads to a paradox, however, as for an event to have the properties of being in the future, being present and being in the past (even if not at the same time), the concepts of future, present and past are required. In other words, for the A series to make
sense, the A series has to be presupposed (1908, 468). This leads McTaggart to argue that our perception of time is merely an illusion: *time cannot be true of reality* (1908, 470).

This has lead to the argument in the field of philosophy between tensers and detensers. Tensers believe that linguistic tense is used to express tensed thoughts and tensed facts about the world (Ludlow 2011, 59). The truth values of these tensed facts hold at a specific point in time (Le Poidevin, 1998a, 1). *It is raining* is true only if the raining and the present moment coincide. Tensers thus believe in the objective reality of tense – the existence of the A series – in despite of McTaggart's paradox. Detensers on the other hand believe that there *are* no tensed facts – complying with McTaggart's argument of the unreality of time. The moment of utterance is just another point on the B series timeline (Ludlow 2011, 63). Detensers believe that tense operators of languages should be analyzed as earlier-than/later-than B series relations (Ludlow 2011, 60). This is paradoxical in its own right as earlier-than/later-than relations are temporal themselves and McTaggart's argument goes that as the B series presupposes time it is unreal as well (1908, 461). Another problem for detensers is that it can be argued that psychological tense requires metaphysical tense – a psychological state requires an external anchor to exist (Ludlow 2011, 63-64). The argument between tensers and detensers more or less comes down to whether tense is lifted into the metalanguage – "*PAST(E)* is true iff *E held*" (Ludlow 2011, 63, emphasis mine) – as tensers believe, or not – "*Past(E)* is true iff (the time of) *E is earlier than (the time of) u*" (2011, 63) as detensers hold. What is common to both views is that there is an utterance time, whether it is seen as a philosophically significant point or not.

When we move on to examine time from a purely linguistic point of view, we may keep the previous in mind but at the same time allow all kinds of possible philosophical paradoxes. The philosophy of time provides concepts and tools for linguistic analysis but actual languages cannot be held responsible to philosophy. Thus, the behaviour of linguistic, temporal expressions may be characterized with philosophical terms such as A series relations and B series relations, but utterances do not turn into an illusion if their logic is challenged. We can therefore speak of stealing the best bits from philosophy.
2.2.2. The Real World and the Projected World

Linguistic analysis of time is often in line with the ideas of the detensers. It is often proposed that instead of objective reality and the actual world languages deal with a projected world (Jackendoff 1983, 29) and that the language is located in the minds of its speakers (even if time in the mind would presuppose time in the world [Ludlow 2011, 63-64]), not in the real, physical world. The difference between the real and a projected world is evident. Any linguistic expression is necessarily only a partial description of a real state of affairs – even if we would like to be as accurate as possible. If I said that I saw a beautiful flower growing between two houses when I came to work this morning I’m leaving most of the real situation undescribed no matter how verbose I’d been. What did the flower look like? Or the houses? What was the wind like? Did I feel comfortable? Did I fantasize about becoming a butterfly? Any expression of temporality is also subjective; how accurately can we remember the correct order of subevents of a larger event? And furthermore, how can we trust in our recollection of the passing time? An hour may seem like two or vice versa. Our memory plays a large part. (Klein 2009a, 15). No matter what the nature of time is in reality, the observer is the one who “creates” the distinction between the present, the past, the future and the “now”. These are not physical properties. (Klein 2009a, 23).

Bache states that the meanings of grammatical categories are conceptual units, not meanings of the world. It is thus the conceptual reality, not the real reality, that affects the definitions. Thus the relation between the form and the meaning equals the relation between the language and the mind, not the language and the world. Bache calls the world in the mind the world as conceived (Bache 1995, 58), equalling the term to the projected world used by Jackendoff (1983, 29). That is also why future necessarily has conceptual reality just as past does (Bache 1995, 267): philosophical debate on the reality of the future does not place restrictions on the analysis of actual linguistic elements. This leads to the difference between a real situation and a projected situation. The reference of linguistic expressions is a relation between language expressions and projected entities (Bache 1995, 54). Thus tenses and language deal with real or possible-world situations as conceived by the locutionary agent and his addressees (Bach 1995, 55). The object of our interest is therefore a partial, subjective view of a situation. And by subjective, I mean both that individuals pick different aspects of a situations to encode (focusing on different phases of the situation etc.) and that languages offer different sets of grammaticalized oppositions for those purposes; This means that languages must be shown to be sensitive for the proposed oppositions; the source for any opposition must be the language itself, not the cognition of the linguist. (Holisky 1981, 128-
131). For example, a verb in a particular language can be said to be punctual if it is encoded in such a way that it is separated from non-punctual verbs – even though the corresponding real-world situation almost always can be seen as having duration (even explosions take time and have phases).

2.2.3. Stealing the Best Bits from Philosophy

As we have established the object of interest to be separate from the real world and therefore from the metaphysics of time, we may turn to exploiting the philosophical terms in the linguistic description. The difference between the real world and the projected world means that languages may freely utilize expressions that are describable with A series or B series relations. And indeed they do. Deictic tenses are describable with both the A and B series of time: the present moment / the utterance time divides time into past and future and situations / times can respectively be assigned the properties of pastness or futurity (A series) and the situations / times, including the present moment, are ordered (B series). The concepts of tense may treat the future as non-existent or not yet existent (agreeing on this point with the tensers, who may even take the position of presentisim, according to which only the present moment exists [Ludlow 2011, 64]) or as certain and most real (agreeing with detensers). The severe philosophical consequences, including fatalism, can be neatly ignored: Tomorrow, I will become the king of France! Anaphoric expressions are describable with just the B series of time: they are concerned with before-after relations (e.g. Comrie 1985, 124). The same expression is typically used no matter if the actual situation takes place in the past or in the future – that is, the expressions do not have any properties relative to the present moment. The anaphoric future tense of Ndyuka, for example, is relative to a temporal point of reference established in the context. In example (1) this point of reference is the time of some other event in the past (1994, 493).

(1) Kitikooma, ne a o teli en nen.
hawk CON 3SG FUT recount 3SG.OBL name
‘Falcon, then he was about to proclaim his name.’
In (2) from Finnish the situation of 'eating', expressed by an anaphoric converbal construction, takes place in the past, while in (3) it takes place in the future. The temporal reference is the time of the situation expressed by the finite verb.

(2) \( \text{Lähd} - i - n \text{ syö} - týă - ni \)
leave -PAST -1SG eat -CONV -1SG.POSS
'I left after I had eaten.'

(3) \( \text{Lähd} - e - n \text{ syö} - týă - ni. \)
leave -NPAST -1SG eat -CONV -1SG.POSS
'I will leave after I will have eaten.'

Thus from detensers we can take the idea that it is sometimes only the temporal ordering, not the relation to the present moment, that matters. There exist, however, temporal expressions that are anaphoric, yet require description with both A and B series of time: in Dutch there exist separate words for 'then' depending on whether the event located is in the past (where \( \text{toen} \) is used) or in the present or the future (where \( \text{dan} \) is used) (Klein et al. 1995, 120).

2.2.4. The Linguistic Concept of Time

Languages thus deal with a projected world, projected situations and with a concept of time. The A series of time – in addition to the B series and the concept of time in general – thus has a cognitive basis. That is, the concept of time in the minds of people is tensed (Le Poidevin 1998a, 4). The favourability of the tensed view can be explained by the shared present of the speaker and the hearers (Le Poidevin 1998a, 5). The moment of speech is always relevant to the act of communication. The tensed view of the world is unscientific, however, as science is supposed to represent a view from nowhere whereas tensed time is egocentrical and perspectival (Ludlow 2011, 59). Time is not tangible and the present moment has no substance. It is not therefore intuitively clear how time is conceived in the mind; what form does it take?

Martin Haspelmath argues that the concept of time has its roots in the concept of space and that this statement can be confirmed by investigating the sources of temporal adverbials in languages (1997, 140). As there is – in the case of deictic tenses – a point, the moment of speech, that separates past from the future (a meaningful point for tensers, less meaningful for detensers), there necessarily exists a one-dimensional time axis; a two or three-dimensional view of tense would not be able to
account for the tensed view of time nor separate past from the future. The three possible spatial axes that may serve as the basis for temporal expressions are the frontal axis (front-back), the vertical axis (up-down) and the lateral axis (left-right) (Haspelmath 1997, 21). The one consistently chosen by the languages and their speakers is the frontal axis. This is because the passing of time is conceived in the same way as movement through space (Haspelmath 1997, 22).

So we have a tensed view of time (there is a present moment) conceptualized as a front-back axis (situations may lay ahead or be behind us). What is left is to determine, whether it is the observer that is seen as moving through time, or whether the observer is still but time flows past them.

Haspelmath’s evidence from languages suggests that languages prefer the moving-time model to the moving-ego model (Haspelmath 1997, 60). In the moving-time model the time spans located in time can be seen as having inherent front-back orientation (Clark 1973, 50). This means that similar expressions for 'after' and 'before' are used for past and future situations: the year 3000 will come before year 4000 and the year 1000 came before the year 2000 as each year is seen as flowing past the present moment in an endless parade. If the moving-ego model would be prevalent, then the situation further in the past would appear to be behind more recent situations and the use of 'after' and 'before' would be inverted in the past (Haspelmath 1997, 60): the year 2000 would be before the year 1000 as the ego would examine the situations from the current present moment.

All the previous speculation is based on the idea that temporality shares properties with spatiality and that there has been conceptual transfer from space to time. This is made tangible by Haspelmath’s study of temporal adverbials (1997, 140). The image of time in our minds that the previous arrives to is thus the following: mental time is a tensed phenomenon – meaning that situations may have values such as 'in the past' and 'in the future' – in which a present moment separates the future and the past along a front-back axis and time flows past the observer who is located in the present moment.

2.2.5. The Timeline

A completely separate question is how this time is illustrated in linguistic discussion of time and tense: the classic timeline. As the frontal axis cannot be used in writing (we would need deeper pages), the convention is to use the lateral (left-right) axis. This naturally follows from the Western left-to-right writing pattern and the conventional nature of the timeline is usually pointed out in studies that utilize it. For the sake of the tradition, the timeline for the purposes of the work at hand
is defined as follows: Time is represented with a simple line that goes on indefinitely in both directions (Figure 2.1.). The present moment is illustrated with the symbol 0. The segment of the timeline on the left of the present moment is defined as the past, and the segment on the right side is defined as the future. Of two situations or times marked on the timeline the one on the left temporally precedes the one on the right. In Figure 2.1. the situation or time A precedes the situations or times B, C and D, the situation or time C precedes only the situation or time D etc. For a detailed account of this "naivistic" view of time, see (Comrie 1985, 2-7).

[Diagram]

Figure 2.1. Time is defined as a line.

As I go through with analyzing the concepts of tense it becomes apparent that the timeline may appear very different depending on the individual components: situations and times (including the present moment) may be seen as pointlike (punctual) or as having duration, the present moment may not be seen as the only relevant *origo* for tenses etc. However, the above basic notions remain more or less unchallenged.

### 2.3. Comparative Concepts

In this section I will introduce the notion of *concept*, which is necessary for examining and comparing different views of a subjective linguistic phenomenon such as tense. First I will discuss the emergence of the notion of concept in the context of comparative studies (2.3.1), after which I will justify the use of the notion also in language-internal studies (2.3.2). Finally I will examine the structure of concepts – what do concepts consist of (2.3.3).
2.3.1. Comparative Concepts in Comparative Studies

According to the idea of categorical universalism there is a set of universally available – cross-linguistic – categories, such as adjective, future tense or subject, from which languages may select (Newmeyer 2007, 135). The job of typology would be to identify these categories from languages. The language-specific categories could be equated with categories of another languages as they would instantiate the same cross-linguistic categories (discussed in Haspelmath 2010, 663-664). However, language-specific categories differ from each other in many respects. They have additional properties that are not contained in any cross-linguistic definition (Haspelmath 2010, 666) and the semantic and grammatical criteria for category assignment differ from language to language (2010, 663) as "A grammatical element used in - - social context will take on all the meanings afforded by that context - -" (Bybee 2010, 191). There thus seems to be no basis for equating language-specific categories.

The semantic criteria for category assignment are not neatly separate building blocks out of which language-specific categories are assembled, either. Just as a language-specific category cannot instantiate a cross-linguistic category, an individual meaning cannot instantiate an invariant, universal meaning; invariant meanings (such as past) do not represent linguistic reality. Rather "- - the mix of tenses and aspects that have evolved into grammatical expression in the languages of the world has come to reflect human experience - - and this experience is neither uniform nor symmetrical across the domain of time" (Bybee 2010, 190). There is thus actual semantic variation between markers that have a superficially identical meaning, as suggested by Bybee above and other research in the field of grammaticalization (e.g. Bybee, Perkins & Pagliuca 1994).

This variation may be due to the different ways one semantic space is divided: just as colour terms have a different scope depending on the existence of other colour terms (see e.g. Saunders 2000), the tense remote past has a different scope depending on whether it opposes for example only hodiernal past (earlier today) or also hesternal past (yesterday). Variation may also be due the path of grammaticalization cutting through several semantic spaces resulting in categories that are not characterizable e.g. as purely temporal or aspectual. This is the case, for example, when a marker with the meaning of perfect is further developing into a purely temporal marker of close or distant past (Bybee, Perkins & Pagliuca 1994, 101). The meaning of actual linguistic elements should thus be seen as local instead of abstract or global (Bybee 2010, 190). In other words it is not the whole story to say that, for example, a linguistic element in language a expresses both pastness and perfectivity and a linguistic element in language b expresses both pastness and reported
evidentiality as pastness, perfectivity and reported evidentiality are not notions set in stone. Thus equating language-specific categories or language-specific meanings is not possible. The problem does not arise if we do not operate with universal, invariant categories or meanings but acknowledge that comparison is possible only by criteria selected for the purpose of comparison. In other words, we can't compare tenses in any absolute sense, but we can compare a group of features that we see relevant for something we understand as tense.

Thus, instead of cross-linguistic categories or invariant meanings (which cannot exist) or language-specific categories (that are not equitable) the comparison of linguistic phenomena is always necessarily based on something else. So, what is it that can be (and in practice, is) compared? Émile Benveniste suggests that it is the functions (1966, 119) while Jean-Pierre Desclés and Zlatka Guentchéva call them conceptual properties (2011, 123). Both of these are conceptual-semantic notions, which – when doing comparative research – are typically accompanied by reference to the grammatical form, as stressed by Newmeyer (2007, 136). According to Martin Haspelmath, we may call the resulting union of semantic and grammatical criteria a comparable concept (2010, 663). A lot of typological work has been carried out using what effectively are comparative concepts as the difference between language-specific categories and comparative concepts is not always explicitly discussed (Haspelmath 2010, 665).

A comparative concept cannot be right or wrong. It is created by the linguist for his or her own purposes and it is just more or less appropriate to the task at hand (Haspelmath 2010, 665). What is the basis of comparison, then, is not tense but one subjective view of tense; a view that is anchored in the research tradition in one of the many possible ways. Language-specific categories are not equated with each other; they simply are or are not captured by the comparative concept, appropriateness of which is open for evaluation. A (simplified) comparative concept of tense may be, for example, that tense is a grammatical expression that locates situations in time or that tense is a category of verb which conveys temporal information. But doesn't a comparative concept deal with invariant, abstract meaning components anyway, if only cut into smaller pieces? Aren't deicticity or locating a situation abstract and invariant just as past and future are? Technically, yes they are, but the difference is that they are not claimed to tell the whole story. The exact meaning of the future marker in languages a and b may differ in other ways not specified by the comparative concept: the comparative concept merely states the meanings of these elements share at least the features included in the comparative concept. Thus, the meanings are possibly unique and they merely have enough in common to be captured by the comparative concept.
Cross-linguistic comparison is walking on a thin line. While usage-based evolution of meaning is believable, if interpreted in the strictest of senses it would make any comparison impossible – every linguistic element or even every usage of the element is unique! The linguist must however be able to categorize ever-evolving elements into those that are compatible with the selected criteria and into those that are not. While this process, from the creation of the comparative concept to the analysis of the markers, is highly subjective, it is nonetheless as transparent and accurate as possible. Dealing in absolutes (completely equatable categories or completely unique meanings) simply does not work in modern typology. While the problem of equation/uniqueness will eventually surface even when working with comparative concepts (whether an element conforms to the criteria or not is a set of categorical decisions that have to be made), it is acknowledged that these decisions do not represent an objective division line between linguistic elements that are the same or different but are rather challenges to the analysis which aims to collect a set of appropriate data. The outcome of successfully managing these challenges is a study with explanatory power. We should thus not be alarmed by the multitude of contrasting possibilities: We do not have to decide, whether tense is "really" about locating situations or times or whether it is "really" a category of the verb or the sentence. What matters is that comparative concepts should reflect the research question; they affect the data, analysis, the conclusions and ultimately the falsifiability and explanatory power of the study. And above all, they should be explicit and transparent so that the results may be interpreted accordingly.

2.3.2. Concepts in Language-internal Research

Even though the notion of a comparative concept has its origins in and is primarily a tool for cross-linguistic research, every language-internal study that uses the term tense to describe the function of a set of markers invokes a concept of tense. That is, to label markers as expressing tense is to fall back on a previous concept that includes semantic and grammatical features. So, while language-specific categories cannot be equated, their function is expressed by a concept that is typically readily understandable by the audience. Therefore, from here on, the wider term concept is used in this dissertation instead of comparative concept: this means that the objects of interest of this study are not only concepts used for comparative purposes but also concepts used in other types of tense research.
A language-internal study may invoke a concept only very superficially (e.g. "this marker expresses past tense") or to a larger degree (e.g. "the past tense marker locates a situation before the time of utterance"). Even when a concept is invoked only superficially – and perhaps especially in such cases – the concept inherits a lot of features from previous research, many of them remaining implicit. For example, the author may simply know that tense is a category of finite verbs only or know that tenses only concern deictic time reference. This may e.g. lead to only examining certain markers without clearly stating why some other markers are excluded. In any case, the invoked concept is necessarily either at least partly similar to one of the previously conceived concepts of tense – which form a huge network based on family resemblance – or a completely new concept. The key issue is that the term tense cannot be used without invoking its history. For these reasons the focus of the current study includes language-internal studies: language-internal studies are just as capable of (or more accurately, just as incapable of escaping from) invoking, further developing or creating concepts as are comparative or more theoretically oriented studies, and they are therefore equally good sources for concepts of tense when collecting the theoretical data for this dissertation. In fact, contrasting different types of concepts and research questions with each other is essential in evaluating the appropriateness of complete concepts and their features: only by mapping the variation can we arrive at the justification of choices.

2.3.3. The Structure of Concepts

Any study that is comparative in nature is based on a comparative concept. Likewise, any language-specific study that uses the term tense necessarily invokes a concept that has its roots in the research tradition. The language-specific categories which match the comparative concept are similar in the relevant respects (Haspelmath 2010, 666). These relevant respects are henceforth called components (2010, 673). The term component, as understood in this study, refers to a variable; in what ways or senses can the concepts differ from each other? Morphosyntactic slot and The duration of the origo are components. The term value refers to the value of this variable. Values of the former component are *Tense can be a category of the verb, Tense can be a category of the verb* and *Tense can be a category of the sentence*, and the values of the latter are *The origo is the moment of speech, The origo is a time of orientation and The origo is a vantage point*. These relations (a concept consists of components that have values) are illustrated in Table 2.1. below.
Components may be semantic or grammatical in nature. Semantic components of tense deal with issues such as what does tense locate or examine (The nature of the theme) or what kind of tense oppositions are possible (e.g. Several tense oppositions). Examples of grammatical components are Finiteness and The principle of one form – one meaning. Components may be dealt with explicitly or implicitly. I call component values explicit when they are discussed directly and purposefully. In Comrie's concept, for example, the component of The nature of the theme (The theme is a time, The theme is a situation or The theme is a region) is addressed in a straight-forward way; "- - tense simply locates the situation in question" (1985, 41). Implicit component values are those that are not addressed directly but which necessarily follow from the discussion and other components. Degrees of remoteness, for example, are not supported by concepts that necessarily have binary tense oppositions, such as Harder's (1994) or that see tense in general atemporal (Janssen 1994). Periphrastic expression of tense – via auxiliaries or particles – is often implicitly allowed as marking such as the English will future is accepted, as in Bache (1995). Even finiteness may not be overtly required even if the discussion would only concern finite forms – Thieroff, for example, only states that the tense systems of finite and infinite forms may differ (1994, 5).

The source for both explicit and implicit component values is the whole work, not just the "definition line", which is necessarily only a sneak peek to the concept, not the whole concept by any means. Thus, even though we can identify several component values from Comrie's famous definition of tense as a grammaticalized expression of location in time (1985, 9), it does not tell the whole story. The 19 explicit component values of Comrie's concept of tense (collected for the current work) are found scattered between the first and the last page of the book; not to mention the implicit ones that have to be read between the lines.

The whole discussion of concepts boils down to appropriateness. The current study evaluates the appropriateness of certain component values to different kinds of studies and research questions. Appropriate component values make relevant analysis, comparison and conclusions possible, inappropriate values may prevent reaching relevant results in several ways: relevant comparison may not be made or the data may appear too (or even inevitably) consistent or arbitrarily narrowed.
down. The complete list of components and their values relevant for tense that can be extracted from the concepts that form the theoretical data are presented in section 3.2.3.

3. Methods and Data

This section deals with the methods and the data of the study. Section 3.1. focuses on the methods; it describes the process of analyzing the data in order to find answers to the research questions presented in the beginning of this work. This process is divided into separate steps as described below. Section 3.2. describes the theoretical data that consists of existing concepts of tense. The section goes through the guidelines and challenges of collecting the data and presents an overview of the data gathered. Section 3.3. describes the typological data in the same manner.

3.1. Methods

The three aims of the study, as presented in the first chapter, are:

1.) To make past and future tense research more comparable
2.) To examine how the choice of component values affects the data, the analysis and the results and to help in building appropriate concepts that best serve the research question
3.) To highlight the importance of making concepts and their essential component values explicit

To reach these rather abstract aims a systematic process is required. This process revolves around comparability. First different concepts of tense – that make up the theoretical data – must be made comparable with each other. Then this data must be made comparable with the typological data, which in itself is collected with comparability in mind. If the choices made in collecting and analyzing these sets of data are systematic and coherent enough, then the data can be used to reach the aims listed above. The process consists of four separate steps:
1.) Different component values are identified

The first step involves identifying two or more contrasting values in the theoretical literature – such as tense as dealing with *times*, tense as dealing with *situations* and tense as dealing with *regions*. These values may then be seen as possible values of one component – in this case *The nature of the theme*. This process is repeated until no more meaningful contrasts are found. The step results in a table in which all the identified components and their values are listed. This represents the *spectrum of possibilities*.

2.) An analysis is conducted to the theoretical literature

After identifying the components and the values a systematic analysis is conducted on the twelve existing concepts that are selected as the basis of the theoretical data. The reasons for including these concepts are explained in section 3.2., but here it suffices to say that they form a *variety sample* of concepts: each concept is a unique mix of components and their values while they still have enough in common to make comparison meaningful. The systematic analysis consists of going through each concept and searching whether the component values are present explicitly, implicitly or not at all. This results in the formation of the proper theoretical data. Steps one and two – and especially the problems encountered while proceeding through them – serve to reach the goals of making past and future research more comparable and of highlighting the importance of making component values explicit. The next two steps tie these theoretical results in actual linguistic reality.

3.) The typological data is gathered

Step three is the bridge between theory and reality. The table of components created in step one is used to collect a typological data from a variety sample of 62 languages. The table of components is modified when necessary; some semantic components cannot be analyzed from the language data (e.g. *The nature of the theme*), whereas in some cases the language data makes finer distinctions possible (e.g. instead of analyzing markers as simply grammatical or not they may be analyzed in regard to obligatoriness, boundedness and replacability). The resulting typological data, which consists of 193 tense markers and represents the *spectrum of reality*, is as comparable with the theoretical data as possible; this is ensured by using the same components and their values as much as possible.
4.) The effects of using each component value are evaluated. These include

- The (relative) size and composition of the language data that can be gathered with each value
- What kind of comparison or analysis is (im)possible using each value
- What are the effects of using the value on the results of studies

Step four is the backbone of the analysis. In this step the two sets of data are compared with each other and the above questions are answered. It is important to stress that I am not looking for a diamond-cut cross-section that would stand for an optimal or prototypical concept of tense. Quite the contrary, there can be no wrong values in concepts or wrong tense markers. This step will show the concrete effects of selecting certain component values with the help of actual linguistic data. It will also provide insight to the appropriateness of individual component values for different types of actual research questions.

Because some of the components identified in the theoretical data are such that cannot be identified in the typological data the analysis will differ in those cases: in some cases the theoretical data can be compared only with the definitions used by authors of the reference grammars, yet in some cases the theoretical data can only be internally examined; that is, the concepts are compared to each other, not to the typological data. Furthermore, because the typological data was collected from a variety sample of languages, typologically representative statistical analysis of the data is not possible. Some statistical analyses are conducted but these are for illustration purposes only. They are merely intended to highlight the effects of selecting certain component values. The nature of the study is therefore mainly qualitative despite the size of the typological data.

3.2. Theoretical Data

This section describes the guidelines of collecting the theoretical data. I will first offer some justifications for considering different types of tense studies comparable in that they all concern a concept (3.2.1.). I will then introduce the twelve concepts selected for the theoretical data (3.2.2.), discuss the process of identifying the components and their values and finally present a table of components (3.2.3.)
3.2.1. All Studies use Concepts

The theoretical data of the study consists of twelve concepts of tense that are analyzed in regard to the components that form the table of components in section 3.2.3. Each concept corresponds to one study that focuses on a phenomenon it calls tense. None of these studies uses the term concept and therefore it is important to clarify what I mean by imposing it upon the theories: I consider a concept to be such a set of claims of the nature of tense that are analyzable as individual components and their values – whether the claims are a part of the definition provided by the study or whether they are manifested elsewhere in the study. Thus in my terminology a definition is a narrower term, as a definition may consist only of a single sentence, whereas a concept is a wide term, capturing component values even between the lines. The following four points expand this further.

1.) Each work instantiates a concept, whether it is completely borrowed or individually developed. The simple mention of the term tense invokes the rich research history, which may be present in the work in the form of quiet assumptions and implicit component values, unless explicit discussion proves otherwise.

2.) The component values of a concept may be explicit or implicit. Explicit values are stated positively in the source while implicit values have to be read between the lines. To assure that the analysis does not claim anything that is not a part of the concept, an implicit value is identified only if the value is necessarily true or necessarily impossible; it is not enough if a value is merely possible (e.g. if the concept could handle degrees of remoteness but does not, that does not count as an implicit value). Implicit components are often those that are thought to “go without saying” or those that simply follow from the choice of other component values (or vice versa if other values are selected because of implicit assumptions). Implicit component values are nonetheless present (and accounted for in this work) as they differentiate concepts: a concept that implicitly requires inflectional expression does not yield the same results than a concept that implicitly allows periphrastic expression.

Identifying explicit values is also a necessarily subjective process to some extent. The component values represent clear differences, such as the difference between The theme is a time, The theme is a situation and The theme is a region (the values of the component The nature of the theme). Because of the varying terminology used in the concepts I have to decide which component value does a given term best correspond to. Therefore terms such as situation, action, event and states of
affairs are all analyzed to represent the component value *The theme is a situation* (as they correspond better to a situation than to time or a region). In some cases the analysis is not as self-evident; for example in examining whether *Tense locates something, Tense examines something or Tense points to a direction of something* (the values of the component *The function of tense*) I have analyzed “- - to refer to - -“ (Allen 1982, 156) and “- - the time where the event - - is happening - -“ (Thieroff 1994, 7) to correspond with locating. I consider such cases to represent explicit component values as the problem is merely how to control the terminology and wording of the concepts. However, for example in examining whether past and future tenses are considered semantically symmetrical, I consider the positive value (symmetry) to be an implicit component if past and tense are merely described symmetrically without actually stating anything of the matter; for example when their semantics are given as “E simul/before/after S” (Comrie 1985, 123). To sum up, there is necessarily a considerable amount of subjectivity involved both in distinguishing explicit and implicit component values from each other and in identifying terms as corresponding to a certain value.

3.) The concept of tense is not limited to the "definition line" – e.g. Comrie’s famous “tense is a grammaticalized expression of location in time” (1985, 9). Instead, component values are scattered throughout the work. In the case of Comrie, the definition line alone does not reveal e.g. that for Comrie tense locates situations (as opposed to times) (1985, 41), non-past and non-future are acceptable (1985, 49) and that degrees of remoteness are supported (1985, 129). This means that even if the "definition line" is borrowed from earlier work the concept is usually further developed via explicit or implicit component values later on in the work – whether in the main discussion, in figures etc. These further developments may conflict with the work the definition was borrowed from in which case an original concept is effectively created. This would be the case if Comrie’s definition above would be used but a limitation to finite verb forms were added (as Comrie allows non-finite expression of tense [1985, 16]). New developments do not necessarily mean conflicts with the old, however. Later developments may simply be further restrictions to a previously ambiguous concept.

4.) While studies have different aims and they focus on different languages, they all have a concept that is comparable with other concepts of tense. This can be derived from the idea of lacking universal categories: as there is no objective and universal phenomenon of tense, all that is possible to have is a multitude of concepts. The concepts of tense have a *family resemblance* rather than a set of necessary and sufficient component values. Any concept of tense used in any kind of
study invokes the vague semantic notion of tense and inherits some or many component values that warrant partial comparability with other concepts.

For the above reasons I consider it perfectly feasible to contrast typological studies with language-specific studies and studies focusing purely on semantics with studies focusing more on grammar or with studies focusing on possible oppositions and categories. In all of them the notion of tense is invoked and a set of surprisingly similar components is dealt with. The concepts in their entirety are not appropriate to studies with very different aims, but to show why is the aim of the current study.

3.2.2. Included Concepts

The included studies vary in their nature. Some focus on just one language (e.g. Harder 1994), others intend to be general and to present typologically viable definitions (e.g. Comrie 1985). Some are clearly more focused on the semantics of tense (e.g. Reichenbach 1947), some on the possible tense oppositions (e.g. Thieroff 1994), while some place more stress on grammatical components (e.g. Janssen 1994). The studies are also from a wide time range. Such studies are excluded that deal with tense logic, as they are not as readily comparable with the other studies – the components and aims of such studies differ too considerably and it can be argued that they do not deal with the same phenomenon at all (tense logic is a sub-field of logic while tense as understood here is a linguistic phenomenon). It could seem that such a restriction would result in too a narrow selection of studies; however, as the analysis will prove, the amount of variation in the concepts remains very large.

The group of concepts forms a hand-picked variety sample. This means that the variation explained above (variation both in focus and in time) is ensured by selecting the concepts individually. The sample includes every modern tense study that can be considered as major or influential, as the concepts used by these studies are the ones most often encountered and referred to. The sample is – quite understandably – in no way statistically representative. The twelve concepts are properly introduced below in a chronological order.

Chronologically the first study included is the influential treatment by Hans Reichenbach in his work *Elements of Symbolic Logic* (1947). He focuses on the semantics of tense as described using three points in time: the point of speech (S), the point of reference (R) and the point of the event (E) (1947, 288). The different combinations of these three points result in tense differences, which for Reichenbach include the notions of perfect and prospective. Reichenbach’s only grammatical
component is that of verbality and he does not deal with possible separation of tense into several oppositions. Reichenbach's concept of tense intends to be cross-linguistically applicable and the examples – while predominantly from English – come also from Turkish and French (1947, 291). Other languages such as German and Greek are also mentioned. The three elements already present in Reichenbach's theory (S, R and E) surface again and again in subsequent studies with different names and treatment.

William Bull's monograph *Time, Tense, and the Verb*, published in 1960, has a lot in common with Reichenbach. It also focuses on the semantics of tense and ultimately builds a "hypothetical tense system" (1960, 25), which is then examined in regard to several languages; notably Spanish, but also briefly to English, Hawaiian and Yoruba (1960, 29-31). A great number of languages are additionally touched upon while discussing the hypothetical tense system. Bull's theory is therefore more rooted in the linguistic reality than Reichenbach's. The hypothetical tense system of Bull is semantically mostly identical to Reichenbach's with two main differences: Bull does not have redundant reference points where they are not needed (a problem of Reichenbach's that is often discussed, e.g. in Mittwoch 1995, 256) and he does not consider future markers to express tense. This is reflected in the organization of the tense diagram (Figure 3.1.), in which "futures" are treated asymmetrically. For Bull tense also more clearly combines meaning and form as grammaticality and the nature of morphemes is discussed in some detail (1960, 20).

Robert Allen's monograph *The Verb System of Present-Day American English* (1982), which was originally published in 1966, focuses, as the title implies, on one language only. Additionally, it does not focus on tense alone, but rather on the whole verb system. The focus is thus radically different from Reichenbach and Bull as Allen's concept of tense necessarily takes other verbal categories into account yet has to be supported by linguistic evidence from one language only.
Allen restricts the notion of tense only to past and present. The semantics of tense are respectively simpler and concern only the moment of coding (1982, 151) and the event (1982, 156). To future and perfects Allen reserves the term *time relationships* (1982, 257). As Allen only deals with one language, he can describe the grammatical features of tense without considering alternative linguistic environments: tense is expressed with a suffix [-d] in the past tense and with zero in the present tense (1982, 255).

Another treatment of tense as a part of a larger theoretical environment is Casper de Groot's account of *Aspect, Mood, And Tense in Functional Grammar* (1995), Functional Grammar (FG) as followed here being foremostly developed by Simon Dik (1989) beginning in the 1970s. The aim of FG is to be typologically adequate, thus in addition to focusing on the relations between tense and other *operators* (1995, 32) the theory has to be supported by a lot of linguistic evidence – even though the examples in the paper are rather scarce as the number of different operators is large. Tense is thus examined as comprising meaning and form as well as having a specific place in the syntactic hierarchy. FG represents what might be called a "stereotypical" view of tense. Tenses include past, present and future and possible degrees of remoteness (de Groot 1995, 39). The semantics of tense are discussed very superficially as the focus is on the outer hierarchy of tense and other operators. Grammatical components are minimal for the same reason.

Marion Johnson works with the same "reichenbachian" set of three points (S, R and E) in her paper *A Unified Temporal Theory of Tense and Aspect* (1981). But instead of just separating tense – the relation of S (speech time) and R (reference time) – from aspect – the relation of R and E (event time) – as some subsequent studies do, she adds a third, previously unestablished category of *existential status*, which she defines as the relation between S and E and which determines whether the event is a historical fact (1981, 157). She goes on to justify the necessity of the category of status with a case study of the Kikuyu language. The lack of examples from other languages means that while Johnson speaks of tense, aspect and status as "categories - - found in the - -  natural languages" (1981, 146), the importance of the latter is mainly made evident language-specifically.

Perhaps the most influential work on tense in the latter half of the 20th century is Bernard Comrie's book *Tense* (1985). Comrie's often-cited definition is that tense is a grammaticalized expression of location in time (1985, 9). While Comrie also works with the same "reichenbachian" set of S, R and E, he divides the three points into two separate relations: the relation between S and E the relation between R and E. The "complete" tenses include one or both of these relations (1985, 130). So while Comrie includes perfect and prospective to tense as does Reichenbach, he avoids the problem of redundant reference points. As Comrie allows the relation between R and E to be a tense in its
own right, he acknowledges anaphoric tense – tenses not (necessarily) anchored to the moment of speech. Comrie calls these tenses relative (1985, 56) other tense types being absolute (relation between S and E) and absolute-relative (S, R and E) (1985, 122-124). These types, however, do not correspond to separate tense oppositions as the markers cannot co-occur (see section 5.6.2.). While Comrie does not use the term comparative concept, he intends his work to serve all cross-linguistic studies on tense; he aims to take into account the range of cross-linguistic variation (1985, viii).

Comrie uses examples from a large number of languages to make sure his systematised set of facts (1985, viii) is typologically viable. Comrie also includes discussion of the grammatical components: the category of which element tense should be seen (left unsolved) (1985, 12-13) and how grammaticality in general could be defined (1985, 10-11). However, the focus of the work is on the semantics of tense.

Wolfgang Klein proposes a theory that offers a neat distinction between past, present and future, on the other hand, and perfect and prospective on the other, in his book Time in Language (1994). Klein sees tense as concerning the relation between the time of utterance (TU) and topic time (TT) (1994, 121), yielding past, present and future tenses, and the role of aspect (including perfect, perfective etc.) is to link the topic time to the time of the situation (TSit) (1994, 99). For Klein, tenses thus examine times, not situations. Klein’s theory is intended to be applicable to all natural languages (1994, 14). However, the number of languages used in the examples is small; the examples are predominantly from English with other languages – e.g. German – used only when they help to make a certain point or to shed light to an issue of which English is not a good example (1994, 173-176). While Klein makes a difference between tense as a meaning and tense as a form – thus not narrowing down the type of expression to e.g. only morphological expression (1994, 123) – Klein’s theory still places a lot of importance on certain grammatical components. Namely, Klein considers tense to be a part of the finite component of the expression (1994, 2). This finite component (that may for example contain the information ‘past tense’ and ‘assertion’) is what is linked with the infinite component (e.g. ‘John leave at ten’) of the expression yielding a finite utterance (e.g. John left at ten) (1994, 180).

Peter Harder introduces his concept of tense in his paper Verbal time reference in English: Structure and function (1994). His concept is intended as language-specific and many of the grammatical component values of his concept yield from focusing on English: Harder sees tense as consisting of three ordered binary choices (past/present, +/-future and +/- perfect, motivated by the English verbal system) instead of eight separate tense forms (1994, 63). Harder’s treatment is semantic and theoretical as he uses examples very scarcely. The semantics of tense are arrived at in
stages via the three choices, thus leaving behind only motivated points (trying to avoid the problem of Reichenbach’s redundancy) (1994, 64). The relevant points are the context of speech (S), an earlier context (P) (1994, 68), a time in the future (F) which is seen as being ahead the context established in the first binary choice (1994, 71) and the event time, which in the case of perfect precedes the time arrived to via the previous two binary choices (1994, 75). Harder thus treats future asymmetrically from past and present on semantic grounds (1994, 69-74) but also includes the notion of perfect under tense.

Rolf Thieroff’s treatment Inherent Verb Categories and Categorizations in European Languages (1994) does not as much focus on the semantic or grammatical components of tense but on the possible categorizations tenses can be arranged under. Thieroff underlines the distinction between categories (e.g. future) and categorizations (e.g. tense) (1994, 3) and goes on to show the possible hierarchies of separate tense categorizations anterior (corresponding to perfect) and posterior (corresponding to future) in European languages. Thieroff does not see past as a tense but rather as a category of (conceptual) remoteness under the categorization of distance (1994, 4-5). Thieroff’s account aims to at least have explanatory power over more than a dozen languages spoken in Europe and a plenty of examples are used. The hierarchies of categorizations are justified by examining which categories exclude each other (1994, 23).

Carl Bache’s monograph The Study of Aspect, Tense and Action (1995) introduces the notion of metacategory, a tool intended to help studying, describing and comparing grammatical categories in different languages. The central idea behind metacategories is that categories of individual languages may match them more or less – metacategories are thus idealized models (1995, 143). In other words, metacategories provide a model that is too strong and which therefore forces to identify language-specific deviation and peculiarities, whereas a lax model would allow too much variation and hide areas in which special attention is needed (1995, 311). Because of the idealized nature of metacategories the semantic and grammatical components of Bache’s concept are simple and straightforward – and they perhaps best represent the “stereotypical” view of tense (1995, 254-257). The model intends to be universal and the lack of examples (other than from English) is explained by the “too strong” nature of the model – supporting data is not needed as exceptions to the rules are expected.

The most exotic account is that of Theo Janssen, Tense in Dutch: Eight ‘Tenses’ or Two Tenses? (1994). Janssen’s claims are mostly made of Dutch language although it is probable that his account aims to challenge the “traditional” view of tense more generally. Janssen’s main claim is that – at least in Dutch – tense forms are not temporal but they rather express focal or disfocal referential
concern from a mental vantage point (1994, 109). Janssen’s analysis is based on the numerous “atypical” usages of tenses of which there are a good number of examples (1994, 111). However, the analysis is dependent on the fact that in Dutch the future is expressed periphrastically; this leaves Janssen the binary opposition of morphologically marked past and present to work with (1994, 116) allowing him to explain the meaning of this opposition as the opposition of focal and disfocal referential concern (which, as naturally binary, would not logically allow a third member).

Chronologically the last work included is Johan Nordlander’s monograph Towards a Semantics of Linguistic Time (1997). Nordlander studies the temporal structure of the expression and focuses on the dynamicity of the verbal nucleus as the determiner of the TMA interpretation of the situation (1997, 102-104). Tense operates on the level of verbal constituency and includes only past and present (1997, 120-122) – future is seen as placing a situation on an irrealis time line (1997, 119-120). Nordlander’s model focuses on the temporal semantics of the complete expression. His concept of tense is thus in close interaction with e.g. mood, aspect, verbal nucleus, and peripheric modification. The concept of tense is semantically quite compact: tense is basically seen as “- - no more than a sequential locator - -“ (1997, 121). It is, however, more outlined grammatically. The model also aims to be universal even though examples only come from English and Krio, a West-African creole language.

The concepts included in this study thus form a rather heterogeneous group which serves the purpose well: the more variation in the possible components and their values can be detected, the better. Despite the variation, however, it soon becomes apparent that even such concepts that appear very different at the first glance are describable with a very compact set of components and component values; it is just a matter of identifying which individual claims are actually different takes on one issue.

### 3.2.3. Identifying the Components and Their Values

The process of identifying the relevant components is rather straightforward. After selecting the concepts to be included in the data the concepts are contrasted with each other and wherever at least two of the concepts contradict with each other, a component (e.g. Future) and its relevant values (Future is a tense and Future is not a tense) are identified. Other concepts are then analyzed in regard to the component, which may lead in identifying additional possible values for the component. This results in the list of components and their values, which is presented below (table
3.1). This table is not yet the actual theoretical data but rather the tool with which the data is gathered. The theoretical data itself is presented in table 3.2. below.

A component is first identified when at least two of the concepts make an explicit, contrasting claim of the same issue (e.g. tense deals with situations vs. tense deals with times). Further examination may lead into identifying more possible values (e.g. tense deals with regions). After a component and most of its values are identified it becomes easier to spot the respective implicit values from other concepts. For example, after identifying the values of the component *The duration of the theme* (*The theme may be a point, The theme may be a span, The theme may be limitless and The theme may consist of multiple parts*) via explicit, contrasting claims, it can be analyzed whether another concept implicitly deals with pointlike or span-like themes even if the matter is not discussed. Explicitly expressed values are separated from implicit values in the theoretical data as they may have different consequences: implicit values are more “dangerous” as their effect on any data or results may not be sufficiently acknowledged.

The examination of the studies resulted into identifying the following components and their possible values. These components form the backbone of the analysis in chapters 4, 5 and 6. The list of components and their values is considered to be as exhaustive as possible – all such components are included the values of which serve to differentiate at least two concepts from each other. It is of course possible to discover additional components by examining concepts not included here. It is also possible to come up with new components simply by proposing them to be relevant for tense. For example, the concept of Theo Janssen (1994) is the sole reason for considering *Temporality* as relevant. All components have at least two values; otherwise they would not differentiate concepts. The components are listed below in Table 3.1. They are sorted into semantic and grammatical components for easier reference. The section in which a component is discussed is given under the name of each component.
### Semantic components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Temporality (Section 5.1.)</td>
<td>Tense in general is temporal</td>
<td>14. The formation of the semantics of tense</td>
<td>The semantics are formed statically</td>
</tr>
<tr>
<td></td>
<td>Tense in general is not temporal</td>
<td>(Section 5.8.)</td>
<td>The semantics are formed dynamically</td>
</tr>
<tr>
<td>2. Past (Section 5.1.)</td>
<td>Past is a tense</td>
<td>15. Non-past and non-future (Section 5.6.)</td>
<td>Non-past and non-future are supported</td>
</tr>
<tr>
<td></td>
<td>Past is not a tense</td>
<td></td>
<td>Non-past and non-future are not supported</td>
</tr>
<tr>
<td>3. Future (Section 5.1.)</td>
<td>Future is a tense</td>
<td>16. Binary oppositions (Section 5.6.)</td>
<td>Tense oppositions are necessarily binary</td>
</tr>
<tr>
<td></td>
<td>Future is not a tense</td>
<td></td>
<td>Tense oppositions are not necessarily binary</td>
</tr>
<tr>
<td>4. Symmetry between past and future (Section 5.2.)</td>
<td>Past and future are semantically symmetrical</td>
<td>17. Several tense oppositions (Section 5.6.)</td>
<td>There may be several tense oppositions</td>
</tr>
<tr>
<td></td>
<td>Past and future are not semantically symmetrical</td>
<td></td>
<td>There may not be several tense oppositions</td>
</tr>
<tr>
<td>5. The nature of the origo (Section 5.5.)</td>
<td>The origo is the moment of speech</td>
<td>18. Hierarchy between tense oppositions</td>
<td>Tense oppositions may have a hierarchy</td>
</tr>
<tr>
<td></td>
<td>The origo is a time of orientation</td>
<td>(Section 5.6.)</td>
<td>Tense oppositions may not have a hierarchy</td>
</tr>
<tr>
<td></td>
<td>The origo is a vantage point</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The duration of the origo (Section 5.5.)</td>
<td>Origo may be a point</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Origo may be a span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The nature of the theme (Section 5.4.)</td>
<td>The theme is a time</td>
<td>19. Grammaticality (Section 6.1.)</td>
<td>Grammaticality is required</td>
</tr>
<tr>
<td></td>
<td>The theme is a situation</td>
<td></td>
<td>Grammaticality is not required</td>
</tr>
<tr>
<td>8. The duration of the theme (Section 5.4.)</td>
<td>The theme may be a point</td>
<td>20. Morphosyntactic slot (Section 6.3.)</td>
<td>Tense can be a category of the verb</td>
</tr>
<tr>
<td></td>
<td>The theme may be a span</td>
<td></td>
<td>Tense can be a category of a nominal</td>
</tr>
<tr>
<td></td>
<td>The theme may be limitless</td>
<td></td>
<td>Tense can be a category of the sentence</td>
</tr>
<tr>
<td></td>
<td>The theme may consist of multiple parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The function of tense (Section 5.4.)</td>
<td>Tense locates something</td>
<td>21. Type of expression (Section 6.2.)</td>
<td>Only inflectional expression allowed</td>
</tr>
<tr>
<td></td>
<td>Tense examines something</td>
<td></td>
<td>Also periphrastic expression allowed</td>
</tr>
<tr>
<td></td>
<td>Tense points to a direction of something</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The relationship between the origo and the</td>
<td>Tense forms a relation</td>
<td>22. Finiteness (Section 6.4.)</td>
<td>Finiteness is required of the verb</td>
</tr>
<tr>
<td>theme (5.4.)</td>
<td>Tense is a vector</td>
<td></td>
<td>Finiteness is not required of the verb</td>
</tr>
<tr>
<td>11. Degrees of remoteness (Section 5.3.)</td>
<td>Degrees of remoteness are accounted for</td>
<td>23. The ability of the verb to stand alone</td>
<td>The verb has to be able to stand alone</td>
</tr>
<tr>
<td></td>
<td>Degrees of remoteness are not accounted for</td>
<td>(Section 6.4.)</td>
<td>The verb does not have to be able to stand alone</td>
</tr>
<tr>
<td>12. Universal truths (Section 5.7.)</td>
<td>Universal truths are explained as a separate meaning</td>
<td>24. Zero-marking (Section 6.2.)</td>
<td>Tense may be zero-marked</td>
</tr>
<tr>
<td></td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
<td></td>
<td>Tense may not be zero-marked</td>
</tr>
<tr>
<td>13. Perfect (Section 5.1.)</td>
<td>The meaning of perfect is included under tense</td>
<td>25. The principle of one form – one meaning</td>
<td>The principle of one form – one meaning is upheld</td>
</tr>
<tr>
<td></td>
<td>The meaning of perfect is not included under tense</td>
<td>(Section 6.2.)</td>
<td>The principle of one form – one meaning is not upheld</td>
</tr>
</tbody>
</table>

### Grammatical components

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. Grammaticality (Section 6.1.)</td>
<td>Grammaticality is required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Morphosyntactic slot (Section 6.3.)</td>
<td>Tense can be a category of the verb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Type of expression (Section 6.2.)</td>
<td>Only inflectional expression allowed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Finiteness (Section 6.4.)</td>
<td>Finiteness is required of the verb</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.1. The list of components and their values.
As can be seen from table 3.1, the component values may have different types of oppositions. The most straightforward type is the binary opposition e.g. between *Non-past and non-future are supported* and *Non-past and non-future are not supported*. These oppositions are exhaustive by default: they necessarily cover the whole range of possibilities (non-past and non-future either are or are not supported). However, it is always possible that a concept does not deal with the component at all. The second type of opposition between component values is such that forms an *ordinal* continuum – that is, the values can be arranged e.g. from smaller to larger or from narrower to wider. This is the case for example with the values of the component *The duration of the theme*: *The theme may be a point*, *The theme may be a span* and *The theme may be limitless* form a continuum from narrower to wider values (with the addition of the value *The theme may consist of multiple parts*). And finally, the third type of opposition is between *categorical* values; that is, the values are merely mutually exclusive with no clear order. This is the case with the component *The function of tense* with its values *Tense locates something*, *Tense examines something* and *Tense points to a direction of something*. The last type is necessarily the most unstable one; it is always possible that any new concept introduces new values to such a component.

Finally, it is possible to present the theoretical data in its entirety in table 3.2 below. In the table black stands for *explicit* component values while gray stands for *implicit* values. Shading means that the component is not dealt with or is irrelevant for the concept.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Temporality</td>
<td>Tense in general is temporal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense in general is not temporal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Past</td>
<td>Past is a tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Past is not a tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Future</td>
<td>Future is a tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Future is not a tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Symmetry between past and future</td>
<td>Past and future are semantically symmetrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Past and future are not semantically symmetrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The nature of the origo</td>
<td>The origo is the moment of speech</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The origo is a time of orientation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The origo is a vantage point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The duration of the origo</td>
<td>Origo may be a point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Origo may be a span</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The nature of the theme</td>
<td>The theme is a time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The theme is a situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The theme is a region</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. The duration of the theme</td>
<td>The theme may be a point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The theme may be a span</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The theme may be limitless</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The theme may consist of multiple parts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The function of tense</td>
<td>Tense locates something</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense examines something</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense points to a direction of something</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. The relationship between the origo and the theme</td>
<td>Tense forms a relation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense is a vector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Degrees of remoteness</td>
<td>Degrees of remoteness are accounted for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Degrees of remoteness are not accounted for</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Universal truths</td>
<td>Universal truths are explained as a separate meaning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Perfect</td>
<td>The meaning of perfect is included under tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The meaning of perfect is not included under tense</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. The formation of the semantics of tense</td>
<td>The semantics are formed statically</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The semantics are formed dynamically</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Non-past and non-future</td>
<td>Non-past and non-future are supported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-past and non-future are not supported</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Binary oppositions</td>
<td>Tense oppositions are necessarily binary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense oppositions are not necessarily binary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Several tense oppositions</td>
<td>There may be several tense oppositions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>There may not be several tense oppositions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Hierarchy between tense oppositions</td>
<td>Tense oppositions may have a hierarchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tense oppositions may not have a hierarchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Grammaticality</td>
<td>Grammaticality is required</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grammaticality is not required</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3.2. The concepts broken down to their components; the theoretical data.

As can be seen from table 3.2. the concepts included in the data indeed form a very heterogeneous group. While there are some component values shared by all or almost all concepts, there are also components under which there is a lot of variation. And if compared side to side, while there are certain groups of component values that tend to occur together (for example the components Several tense oppositions and Hierarchy between tense oppositions are linked as the “positive value” of the latter requires the “positive value” of the former), it is not possible to neatly separate the concepts into distinct groups. Indeed, all the concepts are linked to each other in several different ways and, as has already been speculated, it is the family resemblance rather than a certain set of component values that holds the concepts of tense together. The idea of family resemblance is further supported by the amount of black and gray squares in table 3.2.; if some of the concepts would have little or nothing to do with tense (as generally understood), it would show as a column of shaded squares as none or few of the components would be relevant for such a concept. However, table 3.2. clearly shows that we are dealing with a set of closely related concepts that still vary considerably from each other; this makes for an optimal theoretical data for the current study.

3.3. Typological Data

This section describes the guidelines in collecting the typological data. I will first describe the general nature of the data and the principles of narrowing down the object of interest so that the resulting data is meaningful and collectible (3.3.1.). Then I will discuss the language sample and the issues in relying on reference grammars as the primary source of data (3.3.2.).
3.3.1. The Nature of the Typological Data

Despite the fact that the current study combines theoretical analysis with linguistic data in a way that is not typical for a typological study, the linguistic data and the methods with which it is collected do not differ drastically from any typical typological study. The main differences are the great number of linguistic features that are analyzed and the quite unspecific nature of the working concept used in gathering the data (as explained below).

The main units of the data are individual temporal markers of individual languages. Each marker is analyzed with the help of a data sheet, which consists of two dozen components concerning the grammatical and semantic features of the marker and its linguistic environment. The components are mostly identical with the ones identified from the concepts while collecting the theoretical data, but in places it is possible to either collect more specific data (e.g. in addition to just grammaticality we may analyze obligatoriness and boundedness) or less data (many of the semantic components are impossible to analyze from typological data). The analysis of a great number of linguistic features is crucial as the interaction between actual, linguistic markers and the theoretical component values – the main issue of the current study – is addressed only after the data is collected. Several markers per one language are collected – to be exact, the number of entries is the number of temporal markers that differ in regard of their temporal value, whether they belong to one grammatical opposition or several. Excluded are combinations of marked members of oppositions (such as future-in-past and past-in-past, as these are analyzable as consisting of several markers). Zero-marking is also collected if it can be seen as having a clear temporal reference.

The obvious problem is what to count as markers of tense. The competing motivations are the necessity of keeping the data coherent but at the same time including as much grammatical and semantic variation as possible. But what is the essence of tense? The paradoxical thing is that while the nature of the semantics of tense is up in the air, some working concept must still be used to be able to collect any data. The working concept must have in its core a semantic notion, as we approach tense as a functional phenomenon: we are studying expressions of a semantic notion, not the other way around. The working concept also has to be such that it allows considerable semantic variation while still excluding clearly different phenomena such as verbal aspect or Aktionsart. The solution chosen is to build the working concept around generalizations made of the list of the relevant components and their values that was described in section 3.2.3. Thus, based on the dozen original concepts of tense, the semantics of the working concept are:
A tense marker – as one of its primary meanings – locates (examines, locates or points to the direction of) something (an event, a time span or a point or a region) with regard to time and thus forms (whether by a static configuration or by a dynamic process) a temporal relation (a relation or a vector) between two entities (time points or spans, situations or regions, which either can or cannot expand infinitely).

It is notable that the working concept excludes present perfect and past perfect by requiring the relation to be between two entities, not three. This is not a statement against their inclusion under the notion of tense but rather a decision made to keep the data semantically coherent. Perfect forms will be discussed separately whenever their properties are relevant. The data is also narrowed down grammatically to further ensure coherence and collectability. Only tense markers that occur in positive declarative clauses that are not arguments (complements) or adjuncts of any other clause are included: the clauses can thus have no matrix clauses. Neither can the marker be a part of a phrase that functions as an argument. Subordinate (e.g. conditional or relative) clauses are excluded but coordinate clauses are included. Transitive sentences with non-copular verbs are favoured in picking examples. All markers of such clauses that carry temporal information are analyzed, whether they are inflectional or periphrastic. Markers from more than one opposition are analyzed if they all express temporality as one of their meanings and are all part of the highest clause. This means that e.g. in (4) from English two tense markers will be identified. The auxiliary will expresses the future tense and the form of the auxiliary expresses the present tense.

(4)  I will paint the house.

Since one marker often has many different allomorphs (different forms representing the same set of meanings) and contextual variation is common (to the extent that different environments can have different strategies to express e.g. pastness) only the simplest strategy is analyzed. Furthermore, an environment that does not as easily force an untypical reading is favoured. For example, the meaning of present is inherently incompatible with the meaning of perfective (Bache 1995, 194), which means that e.g. a habitual reading may result (5). If this is the case then another environment should be selected, one in which present time reference remains – even if the environment was less optimal in the ways described above. This may be an imperfective environment (6) or an environment with a different type of situation – e.g. a state (7) as states are more readily compatible with perfective present than concrete actions. I will then favour the simplest expression, which in the case of English would be the latter alternative, (7) – even though it does not involve a concrete action.
(5) Mary paints houses.

(6) Mary is painting a house.

(7) Mary loves me.

Adverbials are excluded from the data even if their meaning is general enough to match the semantics of the working definition. The line between adverbials such as in the past or earlier and tense particles with roughly the same meaning is very thin. However, a judgement is made based on the treatment in the source material. Note that excluding adverbials (just as excluding perfects) from the main data is not a statement for or against their inclusion under the notion of tense. The decision is based purely on keeping the data coherent and collectible. In fact, it is exactly phenomena like these – including converbs and other non-finite verbal expressions as well as the adverbs that head adverbial phrases such as before last night – that are the most exciting and fruitful to analyze. They are, however, best analyzed separately and discussed whenever their properties are relevant. Including them would make the main data too heterogeneous and difficult to collect. All the example sentences containing the 193 tense markers in the typological data can be found in the appendix The Typological Data.

This work mostly ignores the constant process of grammaticalization that affects every linguistic marker. As languages are in a constant state of change, linguistic markers cannot in reality be neatly categorized into clear-cut groups. For every linguistic element that is characterizable as clearly having either property a or b, there are several that are somewhere in between: content words become grammatical words gradually, independent words become clitics and ultimately affixes gradually, the meaning of the element changes gradually and so on. For the purposes of this work, however, it is of no great importance whether an individual linguistic marker belongs to a certain group clearly or only barely. It suffices to identify the relevant groups (that correspond to component values) and to show that such markers exist that can be characterized as belonging to that group. Thus, while the markers that are hard to categorize in some respect are very interesting and serve the discussion very well – such markers enter the discussion with almost every component – grammaticalization is not in the focus of the current work. This becomes the most evident in section 6.1., which deals with grammaticality as a rather static notion. For a great treatment of grammaticalization of TMA markers, see Bybee, Perkins & Pagliuca (1994).
The sample is a variety sample consisting of 62 languages representing different genetic and areal groups. The primary criterion for a language to be included in the data is that the language has to have at least one tense marker — a marker that can be described using the working concept. Since a variety sample does not make statistical analyses possible, some language groups are over-represented if they yield more interesting and/or readily able data. So while some effort has been made to maximize linguistic diversity, as stressed e.g. by Desclés and Guentchéva (2011, 123), historical independence of the languages is not controlled. A variety sample suffices for the purposes of the current study as the main focus is not on the absolute distribution of certain linguistic features of tense but rather on the change of relative distribution in the data if certain component values are included in or excluded from the concept. Thus, while the sample is not representative from the perspective of typical typological methodology, I consider it adequate in order to give an overview of the phenomena and features under examination. The smallish number of languages is justified by the fact that each language is examined very closely and a great number of linguistic features are analyzed. The 193 markers from 62 languages, when analyzed in regard to two dozen components, yield more than enough material for meaningful comparison. The language family that is best represented in the data is Indo-European with 14 languages. Other well (or over-) represented families are Austronesian with 11 and Niger-Congo with 10 languages. Afro-Asiatic and Dravidian families are represented with three languages each. The complete list of languages is presented below in table 3.3. After each language the primary source of data is given.
Table 3.3. The list of languages in the typological data.
The primary source for each language is a reference grammar. The potential diversity of the sources is limited by the fact that many of the reference grammars are based on the typological questionnaire developed by Bernard Comrie and Norval Smith (1977). On the other hand, the extensive nature of the questionnaire makes the extraction of relevant linguistic features easier.

I will follow the analyses made by the authors of the reference grammars as much as possible. I will only make my own analyses when they are informed or when the terminology I am using clearly differs from that of the author. This becomes relevant when encountering concepts other than tense. The concept of finiteness, for example, is equally complex than tense, and as each linguist may use a different concept and as the relevant criteria of being a finite expression vary between languages anyway, the only sensible way is to take concepts other than tense as given and accept them as unavoidable elements of uncertainty when dealing with questions such as whether the marker is associated with only finite verbs in a certain language.

4. The Structure of Concepts

The following chapters 4, 5 and 6, contain the main analysis. The analysis is divided into three parts. Chapter 4 deals with the structure of concepts, chapter 5 deals with the semantic components and chapter 6 deals with the grammatical components. These chapters aim to show the variation in the concepts and in the linguistic reality and tie the two together in an attempt to stress the importance of building and using appropriate concepts.

This chapter thus deals with the structure of concepts. It will be shown that a concept is more than just a collection of component values; the structure of a concept may affect the outcome of a study as well. Structural variation exists in the form of how many of the semantic and grammatical components are present in the concept (section 4.1.), which of the component values are primary or defining in each concept (section 4.2.), are certain values of components more canonical than others (section 4.3.) and whether any components can be seen as more central than others (section 4.4.). Finally tense is contrasted with temporal adverbials and grammatical and lexical aspect in order to better understand the central "borders" of the phenomena (4.5.)
4.1. Grammatical and Semantic Specificity

This section deals with the *specificity* of the concepts. A concept is considered *semantically specific* if it has a large number of semantic components. Likewise a concept with a large number of grammatical components is *grammatically specific*. The division between semantic and grammatical components stems from two different research approaches for comparative research: A comparative study can be broadly classified as either formal (grammatical) or functional (semantic). In a formal approach the object phenomenon is a syntactic structure which is pursued independently of semantic considerations. This is true for example for studies in Generative Grammar as well as Greenberg’s classic word order typology. (Shibatani & Bynon 1995, 17). The functional approach to comparative linguistics, on the other hand, sees language as a problem-solving tool. This means that when formulating the object of the study, that is, when building the concept, semantics and pragmatics are given high value and the object of the study is mainly defined cognitive-conceptually (e.g. “possession” or “determination”) (Shibatani & Bynon 1995, 17).

All types of linguistic studies typically combine both grammatical and semantic components in their concepts. Semantic components form the backbone of a functionally oriented study, but grammatical components are necessary in order to increase the coherence of the language-specific phenomena that match the concept. The most basic grammatical component, often implicitly included, is that of grammaticality. Its role is to make sure that only the systematic, grammatical expression is included instead of all possible meanings extractable from discourse. Likewise, a formally oriented study may attempt to ultimately relate the syntactic variation to meaning and communicative intent. This is true for example for the Paris RIVALC group (Lazard 1995) who study actancy with an entirely morphosyntactic concept. (Shibatani & Bynon 1995, 18). The difference between the approaches thus lies more in the difference of orientation which is either from conceptual domains to the search of linguistic methods or from formal definition to pragmatic/semantic correlates. (Shibatani & Bynon 1995, 18).

The existence of these two types of approaches and components creates a lot of possibilities. Purely functional and formal approaches are only the (hypothetical) end points of a continuum of possible studies. A viable concept usually has at least a couple semantic components and one grammatical (minimally that of grammaticality) component. However, the concept may have several additional explicit semantic and / or grammatical components which make the concept more *specific* in those regards. A concept of tense that specifies several of the semantic components listed in Table 3.1. may be called *semantically specific*. The theory of Bull, for example, specifies among other things
that tenses are vectors (1960, 14), their semantics support degrees of remoteness (1960, 20) and that the semantics of future are asymmetrical to past (1960, 23). Likewise a concept of tense that specifies several of the grammatical components listed in the same table may be said to be grammatically specific. In the concept of Comrie, for example, tense is not restricted to just verbs but nominal and sentence-level expression is supported as well (1985, 13), finiteness is explicitly not required (1985, 16), periphrastic expression is allowed (1985, 12) and grammaticality is discussed in length (1985, 10). If a concept is specific in both of the above ways, it may be said to be a wide concept.

We can examine the concepts that form the data of the current study in this regard. By comparing the 12 concepts we can identify 25 components that differentiate the concepts from one another. Out of these 25 components 18 are semantic and 7 are grammatical. While in the main analysis of this study implicit components are also included as they affect the appropriateness of the concepts, they are excluded from this comparison. Four out of the 12 concepts can be said to be semantically quite specific. In the concepts of Comrie (1985) and Harder (1994) total of 15 semantic components can be recognized. In the concepts of Klein (1994) and Bull (1960) the number is 13. For Comrie these explicit components range from specifying what tenses "do" – defining that tenses locate situations (1985, 41) in regard to some time of orientation (1985, 16) – and dealing with the opposition structure of tenses by supporting binary and non-binary tense categories as well as non-future and non-past tenses (1985, 49) to discussing the symmetry between past and future (1985, 44). The most semantically vague concept is that of Janssen (1994) with 9 components. Janssen's concept focuses on the Dutch tense system, which may explain both the exotic nature of the concept and the lack of many components, such as degrees of remoteness, which would be more relevant in a typologically oriented study. Note that the notions of specificity and vagueness depend heavily on the number of components identified and they should therefore be seen as relative notions. It should also be stressed that vagueness is not a shortcoming; a concept of tense would be perfectly adequate even if it had only one semantic and one grammatical component – e.g. tense is a grammaticalized expression of temporality – if that is appropriate to the study in question.

The most grammatically specific concepts are those of Johnson (1981) and Janssen (1994) with 5 explicit components each. For Janssen, these include e.g. the requirements of morphological expression (1994, 116) and finiteness of the verb (1994, 116). Reichenbach's concept is the most grammatically vague as it only specifies tense to be a category of the verb (1947, 287). Comrie's concept can be said to be the widest as it is very specific in both of the above ways. The table 4.1. shows the number of explicit semantic and grammatical components as well as the total number of
explicit components in all twelve concepts included in the theoretical data. For the list of all components and their possible values, see table 3.1. For the explicit and individual component values of each of the twelve concepts, see table 3.2.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Semantic components</th>
<th>Grammatical components</th>
<th>Total explicit components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comrie (1985)</td>
<td>15</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td>Harder (1994)</td>
<td>15</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Klein (1994)</td>
<td>13</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Bull (1960)</td>
<td>13</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Thieroff (1994)</td>
<td>12</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Nordlander (1997)</td>
<td>11</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Johnson (1985)</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Janssen (1994)</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Bache (1995)</td>
<td>11</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Reichenbach (1947)</td>
<td>12</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Functional Grammar (de Groot 1995)</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Allen (1982)</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4.1. The number of explicit components by concept.

What remains is to discuss the relevance of this information. Perhaps the most visible way in which specificity and vagueness of the concept (should) affect a study is the collection and nature of the data. Namely, a concept that is grammatically vague should allow both a greater amount of data and a more grammatically heterogeneous set of data. As most concepts have several semantic components this makes a lot of data-internal comparison between semantics and expression possible: for example, not requiring inflectional expression makes it possible to compare the semantics by expression type (e.g. to what extent is future tense expressed inflectionally and to what extent periphrastically). A greater amount of data has self-evident benefits, but the drawback is that such a concept requires the semantic components to be especially well thought of: as a grammatically heterogeneous phenomenon the phenomenon must be semantically as justified as possible. The opposite, a grammatically specific concept, allows less data which is also grammatically more homogenous. This can be useful if the data should be tightly controlled and internally comparable for the purposes of the study. However, care should be placed in not making the concept unnecessarily specific grammatically: In a foremostly conceptual-semantic concept the grammatical components should support the semantic ones, not limit the phenomenon without careful consideration (e.g. limiting the expression of tense to suffixes has severe consequences to the size and nature of the data). Otherwise such critique is invited that considers the study to focus only on some sub-part of the phenomenon. While there is nothing wrong with different views, the differences should be intentional and carefully justified.
A semantically vague concept either deals with a very general phenomenon or the interest lies in some group of features and not in others: Whereas it is possible for a concept to be explicit e.g. in what do tenses do (do they e.g. locate pointlike situations or examine time spans) and in what sort of oppositions they may occur, a concept may be more or less vague in one of those areas. For example, Hans Reichenbach (1947) only examines the former and Rolf Thieroff (1994) heavily focuses on the latter. Studying a general phenomenon – e.g. seeing tense more or less just as expression of temporality – may mean that the focus is on exploring the variation inside a very general notion and not on trying to capture a well-defined phenomenon in its entirety. General semantics lead into semantically heterogeneous data and as the conceptual-semantic features are often seen as more decisive than grammatical features, a study that is using a semantically vague concept may be prone to criticism by those who prefer to see tense as a more restricted notion. This is the case e.g. in the discussion on nominal tense by Rachel Nordlinger and Louisa Sadler (2004 & 2008) and Judith Tonhauser (2007 & 2008) where the semantically vague concept used by the former invites strong critique from the latter. Nordlinger & Sadler justify calling several nominal markers tenses by stating that they provide temporal information local to the host (be it the nominal or the clause) just as verbal tense does (2004, 779). As the so-called independent nominal tenses deal with locating the time of a possessive relation (former friend) or a time in which a property holds (ex-soldier) (Nordlinger & Sadler 2004, 779), vague semantics are indeed needed in order to speak of the same phenomenon. Nordlinger and Sadler also deal with so-called propositional nominal tense – markers that are grammatically a category of a nominal phrase but contribute to the TAM information relevant to the whole clause (2004, 790). If they focused only on this type, a more semantically specific concept could have been used, one going beyond "temporal encoding". As it is, their vague concept invites criticism from Judith Tonhauser, who focuses solely on showing the crucial differences between independent nominal tenses and traditional accounts on tense completely ignoring the less controversial propositional nominal tenses (2007). See section 6.3.4. for the full discussion of nominal tense.

A study with general semantics should often be interpreted as seeking out variation and boundaries – not as claiming those boundaries to best represent the phenomenon. A semantically specific concept is used when the boundaries of the phenomenon are clear to the author. However, those boundaries should be well justified for the concept to be meaningful and useful: why does such a combination of semantic features best represent cognition and the linguistic reality? The danger is for the concept to be too specific in which case the phenomenon is too unique: existing meaningfully only for the author in the context of one particular work.
To sum up, whether a concept is semantically and grammatically specific or vague affects both the way previous studies should be interpreted as well as the realities for new studies. Instead of trying to see all studies dealing with a static notion of tense and treating them accordingly, it must be acknowledged that semantically vague concepts deal with more general and larger phenomena than semantically specific ones. Likewise, a concept may be grammatically specific to better control the data or grammatically vague to allow a lot of data-internal comparison. Table 4.2. illustrates the four basic possibilities (concepts that most closely match each combination are selected as examples). Placing any given study to the table helps identifying the nature of its object of interest and comparing its results with studies that differ from it in these respects.

<table>
<thead>
<tr>
<th>Grammatically specific</th>
<th>Semantically specific</th>
<th>Semantically vague</th>
</tr>
</thead>
<tbody>
<tr>
<td>e.g. Comrie (1985)</td>
<td>e.g. Reichenbach (1947)</td>
<td></td>
</tr>
<tr>
<td>e.g. Janssen (1994)</td>
<td>e.g. Allen (1982)</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2. The combinations of semantic and grammatical specificity and vagueness.

4.2. Primary and Secondary Component Values

Closely related to the type of approach and the specificity of the concept is the notion of primary component values. Primary components values are those that can be seen as the most defining part of the concept. There can be multiple primary component values and likewise multiple secondary component values. Their difference is that primary values arise with the research question – they're equal to the "essence" of the phenomenon – while the role of the secondary values is to support the primary values by completing a coherent phenomenon that is meaningful and possible to collect and to study. They do this by increasing the coherence of the language-specific phenomena that match the concept. The minimal supporting value in a study with a functionally motivated concept of tense is that of Grammaticality is required. The role of this value is not to add anything to the cognitive-conceptual notion under examination but rather to limit the object to include only the systematic expression in language instead of all possible meanings extractable from discourse. On the contrary, the minimal supporting semantic value of a concept of tense is that of Tense in general is temporal. That is, a marker is included to the data if it simply encodes temporality, with no insight into the details of the inner workings of tense. Grammatical values may in such a case limit the concept to include for example only inflectional marking of finite verbs.
The primary values of a more functionally oriented study are those which more closely reflect the cognitive-conceptual nature of the object. The primary values of Reichenbach's concept of tense, for example, are semantic and concern the relation of the point of the act of speech, the reference point and the point of the event (1947, 288-289) grammatical values being secondary at best – only grammatical value being *Tense can be a category of the verb* which is mentioned only in passing.

We can thus also say that Reichenbach's concept is semantically specific but grammatically vague. The primary values of a more formally oriented study may be such that belong to the morphosyntactic level of a language: the Paris RIVALC group defines *actants* as NPs which have a privileged relationship with the verbal predicate in a number of ways (Lazard 1995, 169).

The identification of primary component values is essential in understanding the *focus* of the study. For example, the concept of Rolf Thieroff (1994) describes the semantics in a rather straightforward way without discussing them in much detail: The meaning of future perfect, for example, is given as *E before R & R after O*, where E stands for event, R for reference point and O for orientation time (1995, 7). The focus of the study is clearly somewhere else, in this case in organizing tenses into oppositions and categorizations based on an analysis of actual markers in languages. The semantics are secondary and they do not seem to direct the study in any particular way. That is, (at least slightly) different semantics might have been used without any trouble. If we compare Thieroff’s concept and the concept of Bernard Comrie (1985), we may notice that Comrie describes the semantics of future perfect identically to Thieroff, as *E before R and R after S*, where S stands for the moment of speech (1985, 125-126). However, in Comrie’s study these semantics are the indisputable backbone and they are arrived to via detailed semantic discussion, while oppositions and categorizations (in the sense of Thieroff) are given very little attention. So, what is of importance here is that while the semantics are the *essence* of Comrie's concept, they are almost a side note in Thieroff's concept and while categorizations are essential for Thieroff, they play no role for Comrie. This difference is not adequately captured if one only looks at the list of component values, as the semantic values for both concepts are roughly the same and while there are differences in the values concerning possible oppositions, they do not indicate the difference in focus.

Appreciating the difference in focus, however, helps to interpret the studies as intended and to direct the critique to appropriate issues. It was already touched upon in the previous section that concepts with a different set of component values should be interpreted as dealing with what are technically different phenomena (as in what is *tense* to one author is different from what is *tense* to other authors) even though all the phenomena may be recognized as *tense* for two reasons – the
phenomena are always called tense and the concepts have a strong family resemblance. It can therefore be argued that some critique is not valid if the differences between concepts are not acknowledged: to claim that the finding X is not true for tense is erroneous if one does not truly grasp what the original author means by tense. It is another thing to criticize the concept itself, for example for being typologically unviable or too specific or general to be useful. In a similar fashion we may say that critique aimed at issues related to primary and secondary component values differs: even though the basic semantics in Comrie's (1985) and Thieroff's (1994) concepts are roughly similar, as explained above, to give semantic critique to Comrie is in practice to challenge his whole theory as well as his starting assumptions (as one would basically have to challenge several of the steps that lead to those semantics in his theory), while to give similar critique to Thieroff is "merely" to challenge whether such a view is optimal for his purposes or not. If the semantics proposed by Comrie follow from his analysis, they cannot be wrong or unsuitable. In that case they may merely represent a view one does not share. The semantics of Thieroff, however, may be challenged independently – they might be seen as unsuitable or inappropriate in the context of his study.

Identifying the focus is also related to identifying the direction of the analysis. Comrie arrives at his semantics (1985, 122-130) and Thieroff arrives at mapping the possibilities of tense oppositions and categorizations (1994, 42-44). Primary values may therefore be the findings of the study, which is typically the case in theoretical studies in which the nature of the phenomenon is the object of study, not just a tool for studying something else. In studies of this second type primary values direct the analysis in a different way: they are the starting point while secondary values do the dirty work of setting the boundaries to the data. The direction is from essential (primary values) to appropriate (secondary values), and ultimately back to the essential values when the data is analyzed in regard to issues related to the primary values. These two matters, focus and direction, lead to the insight of this section: the actual effect of component values is relative and is only evaluable in relation to other component values and the research question. Critique should be aimed to whatever is proper, and what is proper depends on whether the critique targets the nature of the phenomenon or the findings; and if the critique targets the phenomenon, whether it targets the essence of that phenomenon (what is being studied) or the appropriateness of the supporting values (how it is being studied).

The discussion on nominal tense between Nordlinger and Sadler (2004 & 2008) and Tonhauser (2007 & 2008) serves as a great example of the importance of making the primary and secondary values explicit, that is, of explicitly separating the central issues from non-central issues and
presenting the focus and the direction of the analysis: The critique by Tonhauser (2007) targets the findings of Nordlinger & Sadler (2004), and from her point of view the findings cannot follow from the concept. But, as discussed before, Tonhauser has a different concept in mind, one in which the value *Tense can be a category of the verb* is one of the primary values. However, Nordlinger & Sadler do not deal with the matter at all. Had they dealt with this component explicitly by stating that they see tense as not necessarily being a category of the verb, it would have made it easy for Tonhauser to target her critique appropriately: she could either have targeted the concept used by Nordlinger & Sadler (she could have argued for verbality to be a part of the essence of tense) or she could have focused on the findings that follow from the concept used. The lesson to be learned is that secondary values are important even when they do not restrict the phenomenon: *not* restricting the phenomenon may also be a marked and important choice, as the study may move in a very different direction from what is expected by readers who assume some "traditional" restrictions to apply. In such a case the (equally important) role of secondary values is to direct the critique to proper issues, be it the concept used or the findings arrived at.

As a further example of the importance of identifying primary values – figuring out the focus and direction of a study – we may examine the atemporal tense theory by Theo Janssen (1994). Janssen claims that the markers in Dutch traditionally called tense markers are not in fact temporal but they rather express focal ("present tense") or disfocal ("past tense") referential concern from a mental vantage point (1994, 109). His account is based on numerous atypical usages of tense that in his view cannot be explained in temporal terms (1994, 111). When trying to identify the primary values of Janssen's concept of tense it seems easy to focus on the semantics: that tenses signal referential concern. But Janssen's analysis is crucially dependent on a grammatical value: namely that he only accepts forms that are marked morphologically as proper tenses (1994, 116). Why is this significant? Because in Dutch the future tense is expressed periphrastically. This allows Janssen to only deal with two tenses – past and present – which conform nicely to the binary nature of referential concern (everything is either focal or disfocal). If periphrastic expression and therefore future tense were involved, Janssen would have a serious problem; how to add a third member to a necessarily binary category? If future tense was also seen as expressing disfocal concern, it would be totally redundant as past already covers that function. So, are the semantics (referential concern) primary in Janssen's concept or is the whole phenomenon – as seen by Janssen – equally dependent on the grammatical requirement of inflection? What is the focus and the direction of the analysis? Is the direction from examining inflectional markers to coming up with their semantics, or is it preceded by a step in which the idea of referential concern has directed the author to focus on just the inflectional marking? Are there two equal foci in his concept of tense? While certain answers to
these questions cannot be reached by examining the study, the notions of primary value, focus and
direction of analysis help to identify the problematic issues and therefore to better interpret
Janssen's study and to direct the critique appropriately.

This section has tried to show that even if two concepts share the exactly same component values
they might be used in ways that differ considerably from each other. A different focus of the study
can make a concept appropriate for very different types of studies with very different directions of
analysis. Likewise, a certain critique will have very different effect depending on whether it targets
a primary or a secondary value of the concept – and whether that concept is the starting point of the
study or the result of the study. So in a way while the previous section instructed in breaking the
concepts down into components and their values, this section instructed in putting those values back
in their context to better understand their relevance. And as with the previous section, this advice
also concerns both the readers interpreting previous research as well as the linguists constructing
their own concepts: the author must know what is primary to them.

4.3. Canonicity of Component Values

So far we have established that concepts may differ in how many semantic and grammatical
components they include and which component values may be seen as primary. All variation in
these two ways is subjective; that is, the number of components and the primary/secondary nature of
their values depends on the research question. We may then move on to investigate two phenomena
of different nature; whether certain values of the components or some components in whole are
somehow objectively more central, somehow better representing tense.

The first question thus is, whether the values of individual components may be analyzed as more
central than others. To approach the issue I will adopt the term canonical after Greville Corbett
(2007). According to the idea of canonical typology, the "best" instance of the phenomenon under
study is defined though a set of converging criteria. The criteria establish the dimensions along
which specific instances can be found (Corbett 2007, 8). That is, while it is likely that no actual
instance matches the canonical case, the canonical case serves as the logical end-point (2007, 9). In
my terminology, the criteria correspond to components (e.g. Type of expression) and their
dimensions correspond to component values (e.g. Only inflectional expression allowed and Also
periphrastic expression allowed).
Corbett points out that ideally any differences in the usage of terms (such as tense) could be specified in terms of how far out from the canonical point the term is seen to apply (2007, 9). However, this only applies to phenomena that can be in their entirety described in opposition to one other phenomenon. Corbett uses the method to examine the criteria of suppletion, which can be defined in opposition to regular inflection. What is left, then, is to map out all possible ways suppletion differs from regular inflection (criteria/components) and place the possible values on the dimension between the two phenomena. The closer the value is to suppletion – and the greater its canonicity – the greater is its distance to regular inflection. The main benefit of Corbett's method is that it allows the analysis of gradient phenomena: The criteria in play do not introduce conflicts; they rather make it possible to analyze any instance as being more or less canonical (2007, 35). The converging criteria are a necessary tool to cover the “middle” ground in the field such as study of suppletion, where examples such as go and went are perhaps so familiar that they discourage the closer analysis of borderline cases (Corbett 2007, 8).

The problem with applying the insightful method of Corbett – no matter how much it facilitates the study of certain difficult phenomena – directly to the study of tense is the lack of one opposing phenomenon and therefore the impossibility to pinpoint the logical end-point of the definition (or concept) of tense. We may of course approach the problem in stages and speak of centrality or canonicity of certain component values but whereas suppletion can be seen in total opposition with regular inflection, in the way that whatever is not regular in inflection is a step towards suppletion, the same cannot be done with tense because of the multitude of relevant adjacent semantic notions and grammatical constructions. With suppletion, each of the criteria (or dimensions) posited by Corbett is in the direction of regular inflection whereas with tense, there is no sense to speak of “non-temporal expression” or “expression of non-temporality”. Instead, tense is conceptualized in opposition (to use the term in a lax sense) to several semantic notions and grammatical constructions, some of which are illustrated in figure 4.1.: the dimensions of tense are in several directions and tense may or may not be an end-point of the continuums that are created.
The difference between suppletion and tense is illustrated in Figure 4.1. above. The phenomena – semantic notions and grammatical constructions – adjacent to tense in b are exemplary and not exhaustive. The arrows represent individual criteria (or components) in a and sets of criteria in b, as in the case of tense one criterion may affect the relation between tense and several other phenomena (e.g. the requirement of finiteness affects the acceptability of both converbs and nominal marking) and several criteria may affect the relation between tense and any one phenomenon (e.g. the acceptance of converbal expression requires not requiring finiteness or deicticity). In other words, the network is in reality multidimensional. Furthermore, the network is not a network of purely grammatical devices, nor is it a conceptual space. A conceptual space would be a network of linked conceptual values (Croft 2003, 134) whereas the current network comprises of both semantic and grammatical notions: it is a network of phenomena. In b tense can be seen as an end-point only in the sense that we can place it in the middle of the flattened figure as our object of interest. However, it cannot be maximally distant from all adjacent phenomena at the same time, as moving away from one phenomenon may bring tense closer to another one: for example, while dealing with the temporal locating of situations is (according to some concepts) what separates tenses from aspects, it could be argued that adverbials locate situations in an even stricter way – by using exact, calendaric expressions. So, there cannot be any logical end-point of tense (as a complete phenomenon), but we may still try to locate the place of canonical tense in the network of phenomena by shifting the focus to individual components.

The question therefore is whether individual component values may be more canonical than other values. Tense is no longer contrasted to other phenomena, rather it is examined whether there are individual component values that represent the nucleus of that component. A canonical value is
therefore defined as a value that can be seen as "best" representing tense. As tense is not the necessary end-point of any of the continuums (that is, even when the component values of a component form an ordinal continuum – when the values can be arranged e.g. from smaller to larger or from narrower to wider – tense as a phenomenon does not necessarily occupy one of the end-point values) the best way to analyze canonicity is frequency: the most frequent value (if frequent enough) can be seen as representing the nucleus of tense the other values representing the periphery. The nucleus of tense as a phenomenon (as seen in the theoretical literature) and therefore canonical tense is the collection of these canonical values. This nucleus may then be placed in the multidimensional network of phenomena, where its position is not defined in contrast to other phenomena (seeing tense as maximally distant from other phenomena) but rather on its own terms based on its own properties.

I will not analyze any of the values of a component as canonical unless one of them is frequent enough; if one of the values is not clearly dominant, such a component is best seen as not having a canonical value – at least based on the current data. The following table 4.3. lists the canonical values based on their frequency in the theoretical data. The threshold for a value to be considered frequent enough in the table is 75 %, meaning that the value should occur in three out of four concepts in which the component is present either explicitly or implicitly. This threshold is of course highly subjective.
So, the nucleus of tense as a complete phenomenon can be analyzed as the collection of canonical component values. Canonical values are those that are significantly more frequent in the concepts than non-canonical values, but using canonical values is not equal to having "the best" concept of tense; as was explained above, tense as a complete phenomenon has no logical end-point. Rather, the concepts of tense are linked and identified by family resemblance and their appropriateness can only be evaluated in relation to the study in which they are used. The question that remains is whether some of the components in whole can be considered more central than others. That is, are there components that can be considered to be more vital and decisive – central – in distinguishing tense from other phenomena. In other words, to what is tense most crucially opposed to, what is the "regular inflection" to its "suppletion"? This is the subject of the next section.

<table>
<thead>
<tr>
<th>Component</th>
<th>Canonical value – if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporality</td>
<td>Tense in general is temporal</td>
</tr>
<tr>
<td>Past</td>
<td>Past is a tense</td>
</tr>
<tr>
<td>Future</td>
<td>-</td>
</tr>
<tr>
<td>Symmetry between past and future</td>
<td>-</td>
</tr>
<tr>
<td>The nature of the origo</td>
<td>The origo is the moment of speech</td>
</tr>
<tr>
<td>The duration of the origo</td>
<td>Origo may be a point</td>
</tr>
<tr>
<td>The nature of the theme</td>
<td>The theme is a situation</td>
</tr>
<tr>
<td>The duration of the theme</td>
<td>-</td>
</tr>
<tr>
<td>The function of tense</td>
<td>-</td>
</tr>
<tr>
<td>The relationship between the origo and the theme</td>
<td>Tense forms a relation</td>
</tr>
<tr>
<td>Degrees of remoteness</td>
<td>-</td>
</tr>
<tr>
<td>Universal truths</td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
</tr>
<tr>
<td>Perfect</td>
<td>-</td>
</tr>
<tr>
<td>The formation of the semantics of tense</td>
<td>The semantics are formed statically</td>
</tr>
<tr>
<td>Non-past and non-future</td>
<td>-</td>
</tr>
<tr>
<td>Binary oppositions</td>
<td>-</td>
</tr>
<tr>
<td>Several tense oppositions</td>
<td>-</td>
</tr>
<tr>
<td>Hierarchy between tense oppositions</td>
<td>-</td>
</tr>
<tr>
<td>Grammaticality</td>
<td>Grammaticality is required</td>
</tr>
<tr>
<td>Morphosyntactic slot</td>
<td>Tense can be a category of the verb</td>
</tr>
<tr>
<td>Type of expression</td>
<td>Also periphrastic expression allowed</td>
</tr>
<tr>
<td>Finiteness</td>
<td>-</td>
</tr>
<tr>
<td>The ability of the verb to stand alone</td>
<td>The verb does not have to be able to stand alone</td>
</tr>
<tr>
<td>Zero-marking</td>
<td>Tense may be zero-marked</td>
</tr>
<tr>
<td>The principle of one form – one meaning</td>
<td>The principle of one form – one meaning is not upheld</td>
</tr>
</tbody>
</table>

Table 4.3. The canonical values of components.
4.4. Centrality of Components

While the separation to primary and secondary component values is subjective – that is, what is primary depends on the theoretical background – centrality may be examined objectively. It is the question of whether some components of tense can be considered the most vital and decisive. One way of tackling the question of centrality is frequency. Thus the more frequently a component is present in a concept of tense, the more central it can be considered to be. And furthermore, if one of the values of a central component is clearly dominant (like *Tense can be a category of the verb* in the component of *Morphosyntactic slot* as explained below), then the most central contrasts between tense and other phenomena can be found along those dimensions. We can examine the frequency of components in the twelve concepts of tense that form the theoretical data of the study at hand. To be counted as being "present", a component has to be dealt with explicitly. This is in contrast to the main analysis of the study, in which implicit components are also included as they affect the appropriateness of the concept.

There are three grammatical components that are more or less commonly explicit. Out of the 12 concepts in the theoretical data the component of *Morphosyntactic slot* is explicitly present in every single one. The value *Tense can be a category of the verb* is dominant, as it is part of each of the 12 concepts. Thieroff, for example, speaks of "categories of the verb" (1994, 3) and Johnson speaks of "verbal paradigms" (1981, 174). Other values of the component – *Tense can be a category of a nominal* and *Tense can be a category of the sentence* – receive support in 3 of the 12 concepts. For Comrie, for example, all three are a possibility (1985, 12-13). The component of *Grammaticality* is present in 9 out of 12 concepts. In some cases grammaticality in general is required – Bache, for example, speaks only of grammatical categories (1995, 337) – but in some cases the focus is on one or more specific features of grammaticality, such as obligatoriness (Nordlander 1997, 133), being bound (Comrie 1985, 10) or the varying degree of grammaticality (Thieroff 1994, 8). That grammaticality is not always explicitly required, even though it is at least an implicit component in each of the 12 concepts, is not all that surprising. It may be the case that grammaticality as a requirement is often assumed if the object of the study is a traditional, well-known group of expressions – such as the English tense system in the work of Harder (1994). Grammaticality as a separate component may also be redundant if the object is defined e.g. as the categories found in inflectional systems (Johnson 1981, 146), as any inflectional system is necessarily grammaticalized. Other grammatical components are less frequent (they are more likely absent or implicit) and they
must thus be seen as less central in this regard. These include for example *Finiteness, Type of expression* and *Zero-marking*.

A semantic component always explicitly included – in one form or another – is *Temporality*. It is either made clear that *Tense in general is temporal* – "The tenses determine time - -" (Reichenbach 1947, 287) or "Tenses are grammaticalized temporal relations" (Klein 1994, 120) – or that it is not: "- - I do not accept - - the temporal (interpretation) - - as the core meaning of tense forms" (Janssen 1994, 116). Likewise each of the twelve concepts make explicit both *The nature of the theme* and *The nature of the origo* (whether the theme is related in some way to the moment of speech, to a time of orientation or to a vantage point). Eleven out of 12 concepts are more or less explicit on *The duration of the origo*, that is, whether the origo is a point or a span. The same is made explicit for the theme by 8 out of 12 concepts. Another common semantic component is *The function of tense* (*Tense locates something, Tense examines something or Tense points to a direction of something*). The component is explicit in 11 out of the 12 concepts. This is because of practical reasons: when tenses are discussed, one verb or another has to be used to describe their function. The one concept which cannot be said to make this component explicit focuses more on defining the members of the relation ("E is the time where the event - - is happening" [Thieroff 1994, 7]). Finally, every concept is explicit in discussing *Past* (*Past is a tense or Past is a tense*) while only 10 concepts deal with the status of the future.

Table 4.4. lists all explicit semantic and grammatical components in the order of frequency. Not surprisingly it is the temporality, the origo and the theme that form the semantic backbone of tense. The most prominent grammatical component is *Morphosyntactic slot*. According to the criterion of frequency, these might thus be said to be central components in concepts of tense.
<table>
<thead>
<tr>
<th>Component discussed</th>
<th>Explicit in (/12 concepts)</th>
<th>Component discussed</th>
<th>Explicit in (/12 concepts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporality</td>
<td>12</td>
<td>Symmetry between past and future</td>
<td>7</td>
</tr>
<tr>
<td>The nature of the origo</td>
<td>12</td>
<td>Degrees of remoteness</td>
<td>6</td>
</tr>
<tr>
<td>The nature of the theme</td>
<td>12</td>
<td>Type of expression</td>
<td>5</td>
</tr>
<tr>
<td>Morphosyntactic slot</td>
<td>12</td>
<td>Non-past and non-future</td>
<td>5</td>
</tr>
<tr>
<td>Past</td>
<td>12</td>
<td>The principle of one form – one meaning</td>
<td>5</td>
</tr>
<tr>
<td>The duration of the origo</td>
<td>11</td>
<td>Zero-marking</td>
<td>5</td>
</tr>
<tr>
<td>The function of tense</td>
<td>11</td>
<td>Finiteness</td>
<td>4</td>
</tr>
<tr>
<td>Future</td>
<td>10</td>
<td>Several tense oppositions</td>
<td>2</td>
</tr>
<tr>
<td>The relationship between the origo and the theme</td>
<td>9</td>
<td>The formation of the semantics of tense</td>
<td>2</td>
</tr>
<tr>
<td>Perfect</td>
<td>9</td>
<td>Hierarchy between tense oppositions</td>
<td>2</td>
</tr>
<tr>
<td>Grammaticality</td>
<td>9</td>
<td>Binary oppositions</td>
<td>2</td>
</tr>
<tr>
<td>The duration of the theme</td>
<td>8</td>
<td>The ability of the verb to stand alone</td>
<td>0</td>
</tr>
<tr>
<td>Universal truths</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4. The frequency of explicit components.

There are benefits in identifying these central components and their central values. From the point of view of mapping linguistic phenomena on semantic spaces the benefits are clear: if such semantic maps were construed based on what distinctions authors of linguistic papers actually make and see relevant, it could result in interesting mappings. From the point of view of a linguist studying tense the benefit is knowing what distinctions are potentially crucial to make in order to differentiate the object of study from other phenomena; as said several times above, none of the components or component values are necessary for a concept, but going through such a list as in table 4.4. above helps ensuring that no central component is overlooked by accident. The other benefit for a linguist is that knowing what the central components are helps anticipating and even preventing certain critique: The central components represent distinctions that are often the focus of debate. If an author fails to take a stand on them, it may invite critique that either questions the concept or does not properly recognize the concept that the author is using. This means that if the author wishes to stay neutral e.g. on whether tense can only be a category of verbs or not, stating this explicitly helps the readers to orientate to the mindset of the author.

To sum up, the central components are "where the action is". It is around their values that the so-called nucleus of tense is built over and over again. It is also where the disagreements arise – both the fruitful ones and the misinformed ones. Knowing where the action is helps to interpret previous studies, to create new concepts and to make new studies easy to interpret for the readers. That being
4.5. Tense and Other Phenomena

The previous sections have established that the components and their values in a concept of tense may vary in almost every conceivable way. Some of this variation is subjective, some more objective, but in any case it is clear that tense does not exist in a vacuum; including a component and selecting an appropriate value both creates and takes down borders between tense and other phenomena. An important step in understanding the limits of tense beyond unproblematic cases is to examine some of the phenomena – those that are linked to the central components of tense identified above.

This section is dedicated to properly introduce three phenomena that in one way or another share such a central border with tense. After discussing this network of phenomena in general (4.5.1.), I discuss temporal adverbials (4.5.2.) that differ from tense at least in verbality, grammatical aspect (4.5.3.) that differs from tense at least in what members does the temporal relation concern and lexical aspect (4.5.4.) that further differs in its grammatical status.

4.5.1. The Network of Phenomena

It is best to start by discussing this network of phenomena in general. Semantically, tense belongs to a conceptual network which constitutes a conceptual semantic map (Desclés & Guentchëva 2011, 125). The surrounding phenomena form a conceptual space (Croft 2003, 134) or a conceptual domain (Dietrich & Perdue 1995, 6) around (and beyond just) the expression of time. This description may be extended to concepts as well: concepts form a similar network, describable with semantic and grammatical components and their values. Both the semantic, conceptual network and the network of concepts are more or less subjective, depending on the components involved. A part of this network – the phenomena dealt with in this section – is shown in Figure 4.2. The arrows represent sets of components. The notion of tense is contrasted in one way or another with each of these phenomena – by applying different semantic and grammatical components – and depending on the concept some of these phenomena may be included under the notion of tense either fully or
partially. And, in some cases, some of these phenomena may inadvertently slip through loose concepts.

Figure 4.2. A partial network of phenomena

The adjacent phenomena should be seen more as a possibility to adjust the scope of tense than as a potential source of confusion. After all, together all these and other phenomena form a network of temporal expressions and sometimes there are benefits in examining it in its entirety: focusing only on tense is harmful if one is interested in the expression of time in general, as there are many languages that lack tense marking altogether or that lack past or future tense; a language lacking the future tense, for example, is nevertheless capable of referring to future events (Bertinetto 1994, 114). And even if a language has a tense category the expression of time is not restricted to just that (Klein & Li 2009, 1). In any case it should not be assumed that time is primarily coded with tense (Dietrich & Perdue 1995, 6) as this would lead to “gaps” in a study in which languages are analyzed from a communicative perspective. When studying the acquisition of temporality in the second language, for example, the best approach is to start with the temporal relations themselves – the semantics – and to then study all linguistic devices (including discourse rules) that encode them (Klein 1995, 18). After all, the semantics of many of these related phenomena deal with similar entities (time points, time spans or situations).

Wolfgang Klein proposes a model in which complex, clause-internal temporal structure (instead of a single "situation time") can be accounted for with a set of time spans that are temporally related to each other and which are characterized by descriptive properties such as the time of mowing or the posttime of planning (Klein 2009b, 73-75). The model is intended to account for the "wealth of means to express various aspects of time" (2009b, 72) including tense, aspect, Aktionsart, temporal adverbials and temporal properties such as duration and frequency (2009b, 73). Klein's model results in a complex clause-internal temporal structure which can be related to clause-external temporal structure with the deictic tense marking of the finite verb (Klein 2009b, 76). Such a model cannot be without ambiguities and the details are necessarily language-specific; in a language that
lacks deictic tenses or tense marking altogether the available set of expressions is different and the nature of interplay between e.g. tenses and time adverbials varies. However, to "reconstruct classical notions such as tense, aspect and Aktionsart in a systematic and precise way" (Klein 2009b, 77) in this manner is a concrete step towards understanding the network of temporal expressions in its entirety. This aim is also accentuated in typology: Shibatani and Bynon emphasize that the aim of partial typologies should be to organize their domains of investigation into an interrelated network for the typologies to be able to coordinate on a higher level (1995, 16) and The Prague school speaks of predictive power of typologies and the scope of clusters of properties: the bigger the scope of the cluster, the better predictive power does the typology have (Sgall 1995, 71).

The study of temporality can thus aim to have predictive power over all temporal expressions but to arrive at such a stage requires a lot of work on establishing comparability between different phenomena. This includes at least mapping the extent to which these phenomena may be described with the same components and studying the (language-specific) interplay between them. However, it should be noted that any variation in the data caused by different concepts of tense increases exponentially when introducing multiple concepts and interplay between phenomena. Thus while the more ambitious goal of predicting the behaviour of the holistic group of temporal expressions may be unfeasible, temporal expressions can at least be described with the same terms making it possible to examine the semantics of all these phenomena simultaneously.

4.5.2. Temporal Adverbials

4.5.2.1. What are temporal adverbials

Temporal adverbials may occupy several syntactic positions, their inner structure varies and their functions may be further classified. In addition to modifying the sentence, the verb phrase or the verb they may also occur e.g. as subjects (8) or, more commonly, as predicates (9) (Klein 1994, 143).

(8) *Yesterday was nice.*

(9) *The party was yesterday.*
A temporal adverbial may consist of a single lexeme such as the adverb *yesterday*, they may be clauses consisting of a noun phrase and an adposition as in the example from English (10) (Haspelmath 1997, 2) or a noun phrase plus case marking as in the example from Finnish (11) (1997, 13). They may even be "bare" noun phrases as in (12) (1997, 3) or full clauses with a subordinating conjunction (13).

(10) *I visited my uncle in the spring.*

(11) *helmikuu -ssa*  
February - -INESS  
'In February'

(12) *Most trees bear fruit every year.*

(13) *Until we meet again, I will write to you every day.*

Temporal adverbials may be classified by their function: positional/locational temporal adverbials such as *much later* or *in the night* specify time spans in relation to other time spans, adverbials of frequency such as *once in a while* or *often* indicate the frequency of temporal entities and adverbials of duration such as *briefly* or *for a while* specify the duration of temporal entities (Klein 1994, 149). Other functions may also be identified, such as anterior-durative ('until') and posterior-durative ('since') which combine positional and durational functions (Haspelmath 1997, 32), and temporal distance (14) (1997, 37).

(14) *Vivaldi lived three centuries ago.*

Locational (or positional) adverbials can further be divided at least into deictic (*today*) (Klein 1994, 152) anaphoric (*two weeks earlier*) (Haspelmath 1997, 98), calendaric or clock-calendaric (*on Sunday*) (Smith 1981, 219) and lexically determined (*before the war*) (Klein 1994, 156).

### 4.5.2.2. Similarities between Tense and Temporal Adverbials

Not every language has tense but every language has temporal adverbials. They can thus be said to be in a way more basic to the expression of temporality (Klein 1995, 25) and indeed they appear very early on when acquiring a second language – earlier than tense (Klein, Dietrich & Noyau 1995, 265-266). Semantically, positional/situational temporal adverbials may be analyzed as forming a relation similar to tense. They have an origo and a theme: the origo may be deictic as with *yesterday*.
or anaphoric as with earlier that day. Their theme is a time span – either one explicitly narrowed down (from 3 pm until 4 pm) or an undetermined interval within the maximal scope of the lexical content: In I ate yesterday the theme covers a part of the day that precedes the time of utterance (Klein 1994, 152), not the whole day. The origo and theme form a temporal relation that can be further characterized by a time unit (two days ago) not unlike degrees of remoteness of tenses, only with more specificity.

Modifying temporal adverbials are typically non-obligatory but so are some grammatical tense markers. Adverbials typically do not have the main finite verb in their immediate syntactic scope (their scope is typically a larger structure), but yet again, neither do all markers that are analyzable as tense markers. Adverbials may, on the other hand, include a verb, whether a fully inflected finite one in the case of adverbial clauses or the verb stem in the case of converbs (verbal adverbs). There are thus occasions where the expression contains two verbs even though they occur in syntactically asymmetrical positions: it is then left to the analysis to decide whether the subordinate verb serves as the background or whether the another event is given equal importance.

4.5.2.3. Proposed differences between tense and temporal adverbials

Temporal adverbials may be used to modify the temporal frame that already includes tense marking or alternatively they may be the only temporal expression in the clause. In the latter case the line between tenses and adverbials can be thin. In fact it is possible for tense markers to develop from adverbials through semantic generalization and other mechanisms (Bybee, Perkins & Pagliuca 1994, 6). Bybee, Perkins & Pagliuca list four languages in which the source of a future marker is a temporal adverb: in the languages of Trukese, Bari, Chepang and Tok Pisin one of the future markers of the language has developed from an adverb meaning 'then'/thereafter', 'then'/'afterwards', 'just now' and 'soon' respectively (1994, 270).

Tenses are in some sense "more" grammatical than adverbials; they may have undergone fusion with the verb or lost their autonomy in other ways (Bybee, Perkins & Pagliuca 1994, 110-111). They are typically an accidence category; the lack or presence of some tense opposition in a language says nothing about the cognition of a speaker and the semantic features of tenses are typically not a part of the intended message (Dahl 1985, 15). Temporal adverbials, on the other hand, are all about specifying the message. Thus, no matter how specific the temporal structure of
an English clause is, it is still ungrammatical without finite tense: *I eat porridge when you call me yesterday at 11:43:21.

However, to say that tenses are more grammatical than temporal adverbials is necessarily true only if the external obligatoriness of the adverbial to the whole clause is examined. Haspelmath points out that at least prepositions in adverbials such as in the spring must be seen as grammaticalized (Haspelmath 1997, 6), not to mention the structure of full subordinate clauses functioning as adverbials. So while in one end of the continuum adverbials consist of a single lexical item in the other end they consist of clauses with several grammatical elements that have internal requirements of obligatoriness. Yet all of these are not obligatory in their entirety and are therefore easily analyzable as less grammaticalized.

Temporal adverbials do not form a closed class and they can typically co-occur with other temporal adverbials that further specify the temporal frame or serve in a different function. They are thus not organisable into oppositions and are infinite in number. They are furthermore structurally a very heterogeneous group. The semantics of positional/situational temporal adverbials resemble tense the most as they deal with a theme and an origo. Their semantics differ from tense, however, in that they (generally) presuppose additional structuring of time: they may deal with nanoseconds, minutes, days, seasons etc. (Klein 1994, 151) – culture-specific structures that are beyond those utilized by tense.

4.5.2.4. Interplay between tense and temporal adverbials

The type of interplay that is relevant for tense and adverbials is referred to as a concord relation – that is, one choice of form is determined by interdependencies within the sentence (Bache 1995, 326). There are three possible ways to see temporal interplay between tense and temporal adverbials. The interplay can be seen either as hierarchic (one governs the other), equal (compatibility between tense and adverbials) or nonexistent (if temporal adverbials deal with time but tense does not; see Janssen's account in the end of this section).

Wolfgang Klein proposes a hierarchic explanation (1994). In Klein's theory the expression consists of two components: The infinite component is a selective description of a situation (1994, 2), for example the light be on. The finite component includes tense, which is seen as a temporal constraint on the assertion; tense narrows down the time on which the assertion is made (1994, 3). If the above
A description of a situation was constrained to the past, the result of linking the finite and infinite components (ignoring aspect) would be *The light was on*. Adverbials may be a part of both the finite and the infinite component. In their typical readings, the adverbial in (15) specifies the time of which the assertion is made (that he had already left was noted at ten) whereas in (16) the adverbial specifies the situation itself (the leaving took place at ten) (1994, 163-164). The time of the finite component is projected – and must fall – into the time of the infinite component: this is called *temporal congruency* (1994, 166). The finite verb is said to govern the infinite component (1994, 172) and any clash between the times results in deviant utterances (1994, 173). The interplay between tense and temporal adverbials – as well as the interplay between adverbials in different functions – is therefore hierarchic in the sense of governing relations.

(15) *At ten, he had left.*

(16) *He had left at ten.*

Harder proposes that we should talk about *compatibility* of forms, not limitations of distribution (Harder 1996, 408). Harder proposes a distinction similar to Klein, to topic adverbials (that set the topic time, the time spoken of) (17) and to adverbials of temporal specification "that indicate the temporal location as a property of the state-of-affairs itself" (18) (Harder 1996, 411-412). However, instead of applying the adverbials (and tense) in stages he merely speaks of compatibility: the topic time specified by context, the topic adverbial, tense and the adverbs of specification must all be compatible (1996, 412).

(17) *On the third night, the waiter wept throughout the dinner.*

(18) *On the third night, the waiter wept throughout the dinner.*

Janssen's atemporal theory of tense (1995) accounts for seemingly clashing usage of tense and temporal adverbials such as in a newspaper caption (19) (1995, 248). The contrasting values of present tense and a temporal adverbial with a (contextually determined) past time reference are explained with the fact that tense does not, in fact, signal time but referential concern – in this case focal referential concern (1995, 246). In the temporal sense, then, tense and adverbials would be independent from each other; there would not be interplay.

(19) *Reddingsploegen met honden zoeken vrijdagavond in de puinhopen van een woonhuis in Tel Aviv naar overlevenden.*

'Rescue parties with dogs look for survivors in the heaps of rubble of a private house in Tel Aviv on Friday night.'
4.5.3. Grammatical Aspect

4.5.3.1. What is Grammatical Aspect

Grammatical aspect is a notion the exact nature of which has been debated for a long time. The study of aspect necessarily faces the same challenges as the study of tense – that is, there cannot be any one true concept of aspect – but with aspect the situation is perhaps even more complicated; It has proved difficult to find a suitable semantic description for even the intended nucleus of the phenomenon. Languages differ greatly in the number of categories that are considered aspectual as well as in the functions that the markers have. While for tense the functions vary only in relation to the timeline, for aspect they vary in several different ways. As a common denominator has often been searched in order to group a majority of these cases under aspect (while of course the opposite, focusing on the individual nature of certain categories or types of categories, is also done), grammatical aspect can include very heterogeneous categories across studies and languages.

So, for the above reasons, the semantic "nucleus" of aspect has proved to be elusive. One of the best known definitions is by Bernard Comrie, who famously defines aspects as *different ways of viewing the internal temporal constituency of a situation* (1976, 3). He contrasts verb forms that make reference to the internal temporal constituency of situations – *was reading* in (20) focuses to an internal portion of John's reading without reference to the beginning or to the end of reading (1976, 4) – and verb forms that present situations as whole without reference to their internal constituency, such as *entered* in (20) (1976, 3).

(20) *John was reading when I entered.*

However, as suggested above, finding a common denominator for the semantics of aspect has proved to be problematic. Comrie's definition, for example, has been considered inadequate: Dahl notes that in an imperfective (progressive) clause such as “*John was sitting in a chair*” we are not particularly interested in the inner structure of the situation (Dahl 1985, 76). Furthermore, while Comrie calls perfect (21) (1976, 52) and prospective (22) (1976, 64) aspects (even though he notes the problematic status of perfect [1976, 6]), he says himself that perfect is different from perfective and imperfective – *other* aspects (1976, 52) – as it tells us nothing about the situation itself but rather relates some state to a preceding situation (1976, 52). This highlights the two main issues; the heterogeneity and the uncertainty of the included phenomena and the quite unattainable common denominator.
(21) I have lost my penknife.

(22) The ship is about to sail.

A quite approachable definition of aspect is offered by Wolfgang Klein, according to whom aspects concern the particular way in which the description of a situation, e.g. John sleep, is linked to the topic time – the time of which the assertion is made and which is specified by tense and possible adverbials (1994, 99). In the following examples from (23) to (26) the topic time is restricted to the past with the past tense. In the four most common aspects the topic time may either fully precede the situation (prospective) (23), be included in the time of situation (imperfective) (24), include the conclusion of the time of situation (perfective) (25) or be completely after the time of situation (perfect) (26) (1994, 108). These (somewhat simplified) relations are illustrated in table 4.5., in which the duration of the situation is marked with hyphens and the topic time is marked with brackets.

(23) John was going to sleep.

(24) John was sleeping.

(25) John slept.

(26) John had slept.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>The relation between the topic time ([    ]) and the situation (--------)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prospective</td>
<td>[     ] --- -------</td>
</tr>
<tr>
<td>Imperfective</td>
<td>---[----]--</td>
</tr>
<tr>
<td>Perfective</td>
<td>------[---   ]</td>
</tr>
<tr>
<td>Perfect</td>
<td>-----------  [      ]</td>
</tr>
</tbody>
</table>

Table 4.5. The semantics of aspects according to Wolfgang Klein (1994).

Klein’s definition is intuitive and approachable in that it manages to reduce the semantics of aspect into very concrete terms – that “aspects are definable in terms of temporal relations between time spans” (1994, 119). A somewhat similar definition is offered by Marion Johnson who states that verb aspect involves reference to one of the temporally distinct phases in the evolution of an event through time (1981, 152). These definitions are worded more neutrally than that of Comrie; they don’t speak of focusing/not focusing on the inner structure of situations but rather the moment that is examined may or may not coincide fully or partly with a specific portion of the time of the situation. What is common, however, to all the definitions above, is that aspect represents a viewpoint of a sort to a situation. Whereas e.g. future tense is simply incompatible with events
located in the past, the same situation can be referred to with different aspects depending on the viewpoint or situational focus (Bache 1995, 269) giving the speaker more freedom. Aspect can therefore be used e.g. to provide information about the situation's completion status: after an imperfective aspect the situation is more likely considered still on-going – even overriding world knowledge about the usual duration of situations (Magliano & Schleich 2000, 98).

While the above definitions include perfective and imperfective as well as perfect and prospective, the latter two are often seen as an independent phenomenon while aspects such as progressive, habitual, continuous, iterative, frequentative, semelfactive, completive etc. can be seen as possible subdivisions of perfective or imperfective (see e.g. Comrie 1976, 25). The distinction between perfective and imperfective (and their possible subdivisions) has been characterized in many ways: As perfective and imperfective are often used as the names for individual grammatical categories, Boulle suggests a cover terms closed and open aspect for the respective groups of closely related aspectual meanings (1995, 207). Lindstedt sees boundedness as the basic notion of perfectivity: perfectives denote situations in which some kind of limit, bound or end-point is attained (1995, 96). Different languages conceptualize this bound as either material (a natural end-point of a situation) or temporal (something that even an atelic situation can have) (1995, 97). Note that the term boundedness is used in the current work in a different sense: to refer to the distinction between bound and free morphemes.

Occurrences of imperfective, on the other hand, have been argued to denote stativity (Gebert 1995, 90). Finally, Dee Ann Holisky sees all traditional aspect oppositions as subsumable under the opposition of punctuality (perfective etc.) and linearity (nonperfective etc.) (1981, 128).

Even if dealing with only aspects of perfectivity and imperfectivity – which is typologically the most attested aspectual opposition (Dahl 1985, 69) along with perfect if included (Madden & Ferretti 2009, 220) – the decisive features of this opposition vary from one language to another – or even language-internally. This can be exemplified with Bulgarian in which there are two separate oppositions both characterizable as perfective-imperfective that co-occur (Thieroff & Budde 1995, 57): for example, the form pročete, 's/he read' – from the verb četa, 'read' – has both a perfectivizing prefix (pro-) and Aorist Past (zero) inflection in the third person singular (Rivero & Slavkov 2014, 235).

There are several reasons why perfect and prospective are often considered not to be included under aspect. First, perfect can often co-occur with other aspects, e.g. with non-progressive and progressive in English (I had slept. / I had been sleeping) forcing the analysis under two distinct
oppositions in those languages (Thieroff & Budde 1995, 53). It is then up to the concept whether both of these are seen aspectual categories or whether perfect is seen to be semantically more distant. In those cases perfect may be seen as belonging fully under the notion of tense – e.g. in Reichenbach (1947, 290) – or partly; Comrie treats pluperfects as tenses (1985 65) but perfects as a separate phenomenon (1985, 77-82). Alternatively, perfects may be seen as "tense-aspects" (Thieroff & Budde 1995, 53).

Second, the semantic nature of perfect and prospective differs from other aspects in that in the case of perfect and prospective the viewpoint is completely distinct from the situation – it either follows it or precedes it (Comrie 1976, 52) – while with other aspects (perfective, imperfective and their subdivisions) the viewpoint is more "in touch" with the situation. The perfect thus deals with a relation of a separate state and a situation, making it possible e.g. for the state to be located in the present and the situation in the past; which may lead to syntactic and morphological repercussions such as the forms of present perfects incorporating expressions of both presentness and pastness (Comrie 1976, 52-53) further differentiating perfect from other aspects.

To sum up, grammatical aspect is typically seen as consisting of at least the opposition between perfective and imperfective, for which a great number of semantics have been proposed. Perfect and prospective are also sometimes included under aspect, adding to the already challenging issues of semantic heterogeneity and multitude of aspectual categories in languages and the difficulty of finding a common denominator.

4.5.3.2. Proposed Differences between Tense and Grammatical Aspect

In the simplest of terms it might be said that tense concerns the placement of times or situations while grammatical aspect concern the situations in more detail. However, the difference may be put into words in many different ways. While Bernard Comrie would perhaps say that the difference is between external time (tense relates the time of situation to some other time [1976, 1-2]) and internal time (aspect is concerned with internal temporality of the situation [1976, 3]), Klein would argue that tense examines a time and aspect links that time to the time of a situation (1994, 6) – tense having nothing to do with the situation itself. Carl Bache considers tense and aspect to be properties of different entities; he sees tense to concern the referent of an expression, which means that temporality would be a property of the situation itself. Aspect, on the other hand, concerns the reference; it is a property of the expression over which the locutionary agent (speaker) has control
(1995, 223). In other words, while the situations take place in the past, in the present or in the future – a fact that the speaker cannot escape – they may be referred to in a desired way using grammatical aspect.

Even if we can establish clear criteria of separation between tense and aspect such as the ones above, the problematic nature of perfect (whether it is a tense, an aspect or neither, as discussed in the next section) might invite a description in the form of a continuum. Such a general (and flexible) way to describe the difference might be that while both tense and aspect are temporal in a way, tense is generally not as sensitive or not sensitive at all to the boundaries of the situation – that is, whether the situation extends before or after the time / part of it that is examined, whether it explicitly comes to the end etc. – as aspect. And the other way around; aspect is not as sensitive to the relation between the situation and the moment of speech (or some other origo) as tense is. This description leaves perfect some comfortable space between the two ends of the "scale".

4.5.3.3. Similarities between Tense and Grammatical Aspect

Tenses are typically described as forming a relation between the theme (a time point, a time span, a situation or a region) and the origo (a point in time or a time span). Likewise, the meaning of perfect can also be described to form a relation; between a situation and a following state (Comrie 1976, 52). As a situation is comparable to the wider notion of a theme and as the following state is more or less comparable to a time of orientation (the origo of an anaphoric temporal expression), the similarities are enough for perfect to often be included in one way or another under the notion of tense. Thus e.g. Bernard Comrie deals with pluperfect as combining absolute (deictic) and relative (anaphoric) time reference (1985, 65).

If perfect is accepted as a part of the tense system, tenses consisting the meaning of perfect may either be analyzed as one tertiary relation, e.g. as the relation between the moment of speech, the reference point and the event (Reichenbach 1947, 290) or as two binary relations, e.g. as the relation between the present moment and the reference point and the relation between the reference point and the situation (Comrie 1985, 125). In these concepts the relation behind perfect is seen as that of a situation and a reference point and the complete semantics are considered to express a complex tense. This approach has old and deep roots in grammatical description of languages; complex tenses such as Present Perfect, Future of/in the Past etc. are often the object of interest whenever the grammatical focus is on complete verbal expressions (e.g. when comparing tense systems of
English and Danish [Davidsen-Nielsen 1990, 55]) or the semantic focus is, for example, on how a
narrative is constructed (e.g. when pragmatic functions of tenses are studied [Fleichman 1990, 15-
17]).

The meaning of perfect may also be kept separate from tense even if its semantics are described
somewhat similarly to the concepts above; Klein defines tense as the relation between the time of
utterance (TU) and the topic time (TT) (1994, 5) and aspects – including perfect – as a relation
between the topic time and the time of the situation (TSit) (1994, 100). Tense is thus not concerned
with the location of the situation. This results in a description that shares properties with both
Comrie’s and Reichenbach’s descriptions, but nonetheless keeps perfect separate and strictly
aspectual (1994, 108). All three concepts described here are illustrated with the English Pluperfect
in Figure 4.3. below: For Reichenbach Pluperfect is a tense the semantics of which consist of one
tertiary relation, for Comrie it is a tense the semantics of which consist of two binary relations, and
for Klein it is a combination of a tense and aspect, the semantics of which consist of two binary
relations.

Perfective and imperfective are traditionally not described with similar terms – that is, as a relation.
(The exception is the treatment of Klein, in which perfective and prospective are described similarly
to perfect, as a relation between the topic time and the time of situation [1994, 108]). Nonetheless,
perfective and imperfective are also included under tense from time to time. Fleischman, for
example, discusses the pragmatic functions of tenses such as the preterit, a form which includes the
semantics of past tense and the perfective aspect (1990, 24). In these cases instead of speaking of a
tense-aspect system the term tense is typically taken to cover the whole system. Klein proposes that
this is because in most languages tense and aspect are not independent of each other (the same
aspectual contrast cannot be found in all tenses) and the two categories are therefore often
combined to a simpler inflectional system (Klein 2009b, 40). However, the heterogeneity of the

\[
\text{I had seen John}
\]

Reichenbach (1947, 290)

\[
E \quad R \quad S
\]

Comrie (1985, 125)

\[
\text{E before R and R before S}
\]

Klein (1994, 131)

tense: \(TU \text{ after TT}\)

aspect: \(TT \text{ after TSit}\)

Figure 4.3. English Pluperfect in three concepts of tense.
semantics of such inflectional systems draw a clear line between tense as a shorthand for such a system and tense as a semantically coherent and typologically viable concept; no attempt is usually made to treat the previous as the latter.

To sum up, tenses such as past, present and future are semantically distant from aspects such as perfective and imperfective. Dealing with only these would result in a neat distinction between tenses and aspects describable as in section 4.5.3.2. However, the problematic nature of perfect brings these two notions closer together as perfect may be more or less comfortably analyzed as either one – or neither.

4.5.3.4. Interplay between Tense and Grammatical Aspect

Above I have discussed the possible inclusion of perfect and perfective / imperfective under the notion of tense and in the tense system. However, aspects – at least others than perfect – are typically treated as a phenomenon separate from tense. They form a grammatical category (or several) of their own and there is thus categorical interplay (Bache 1995, 174) between tense and aspect. The following discussion is just as valid, though, if aspects are included in the tense system. If that is the case, the interplay is merely internal to the system in question.

Perfectivity does not – by definition – go well together with presentness, as perfectivity deals with temporal or material bounds and present tense is necessarily a view from "the middle of the action". As Bache puts it, "a truly present situation cannot be expressed by a truly perfective predicator" (1995, 288). If the perfective and present forms nonetheless co-occur, this may result in e.g. a future reading as in Russian (Klein 2009b, 54), (Dahl 1985, 80) or in a habitual or generic present reading as e.g. in English (Comrie 1976, 68). The previous can be interpreted so that aspect and tense would not be completely independent in most languages that have both categories – if independence means total freedom in combining meanings from separate categories. However, such independent systems also exist. Östen Dahl describes the tense-aspect systems of "a number of languages spoken in the eastern part of Europe" (Dahl 2000, 17) as in Figure 4.4. In these languages the meaning of perfective would indeed combine with the meaning of non-past.
In most other languages, however, tense and aspect are dependent. But how are they dependent from each other? We may speak of a hierarchy of the categories. Hierarchy is understood as limiting the freedom of choice; that some opposition is restricted to only one member of another opposition. In other words there are two basic possibilities; aspect may be differentiated only under one of the tenses or vice versa, that tense is only differentiated under one of the aspects.

The first possibility is thus to analyze aspect as differentiated only in the past tense – as Klein argues for Russian (2009b, 40), Comrie argues for many Indo-European languages (1976, 71) and Thieroff e.g. for Italian (1994, 29) and Lezgian (1994, 35). According to this view, only in the past context do imperfective forms have a truly imperfective meaning while in other contexts the opposition is neutralized (Thieroff 1994, 23). Thieroff exemplifies this with French Imperfect and Aorist: in past there is an aspectual opposition as in Jean lisait quand Pierre entra, 'Jean was reading (Imperfect) when Pierre entered (Aorist)', while in non-past contexts such as S'il pleuvait, je resterais à la maison 'If it rained I would stay home' the Aorist would be ungrammatical – the aspectual opposition therefore being neutralized (1994, 22). Figure 4.5. illustrates this view with two binary categories and three corresponding form labels; "Aorist" (a form having the meanings of past and perfective [Thieroff 1994, 22]), "Imperfect" and "Present".

Figure 4.5. Aspect differentiated only in the past tense.
The reverse analysis, that tense is only differentiated in imperfective aspect, is proposed by Dahl for Indo-European languages (1985, 82). Dahl sees the aspectual opposition as primary in these languages. Dahl points out that this view is supported by the fact that in many Indo-European languages the Imperfect and Present forms are formed from the same stem (1985, 82). Dahl also refers to Classical Arabic where subject marking is suffixed in the Perfect/Perfective *kataba*, 'he wrote' and prefixed in both Imperfective *yaktubu* 'he is writing' and Imperfective Past *kaːna yaktubu* 'he was writing' (1985, 83). Figure 4.6. illustrates this possibility.

![Figure 4.6. Tense differentiated only in the imperfective aspect.](image)

We may also approach the interplay between tense and aspect with the notion of *centrality*. Carl Bache defines centrality as having to do with the situation-referring ability of the categories; the more central a category is, the greater its importance for conveying information about a situation in the projected world (1995, 219-220). Bache argues that out of the three categories action (Aktionsart), aspect and tense, the most central would be action, as the situation expressed by a natural language is inevitably related to the type of situation (1995, 221). Tense is less central than action as a situation may be recognized in terms of type independently of time but not vice versa (1995, 222). Furthermore, the temporal location of the situation may be conceptualized independently from the aspectual value of the expression, but the opposite – e.g. visualizing the situation of kissing as "imperfective" or "perfective" without considering its temporal location – is harder (1995, 223). Bache argues that this is because tense concerns the referent (the situation itself) while aspect concerns the reference (the expression) (1995, 223); to change the aspect doesn’t affect the situation, just the viewpoint, but the change of tense always affects the viewpoint as well (1995, 224). For these reasons, he analyzes tense as more central than aspect (1995, 223). The idea of tense as more central than aspect may also be supported by a study of the acquisition of temporality among second language learners, in which it is shown that tense is acquired before aspect, if aspect is acquired at all (Klein, Dietrich & Noyau 1995, 270).
However, the notion of centrality may also be used to support the opposite view; that aspect is more central than tense. A theory in which tense is seen as less central as it is applied later on is Functional Grammar. In the core of Functional Grammar are different levels of the clause structure. Different TMA categories are seen as operators that operate on certain levels – some on a deeper level than others. They thus have a different scope (de Groot 1995, 32). Tense is an operator on the level of core predication (level 2) (de Groot 1995, 39), before which operators such as imperfective/perfective and progressive are applied (1995, 40). According to the theory the scope hierarchy of the operators is also reflected in the order of the grammatical morphemes so that the lower level operators are located closer to the verb (de Groot 1995, 40). Further evidence for the centrality or priority of aspect has also been proposed: Pier Marco Bertinetto speaks of aspect having "some kind of (both ontogenetic and phylogenetic) priority over temporal reference" based on the fact that in many current languages as well as in Proto-Indo-European aspect seems to be (have been) the dominant factor in that temporal relations are inferred from it and not the other way around (1994, 124). Furthermore, it has been claimed that more languages ‘have’ aspect than tense (e.g. Lyons 1977, 705) and that if a language marks both, then aspect is closer to the stem than tense (Bybee 1985, 34).

The typological data gathered for the current study offers little evidence for either view, yet some general trends may be observed. As expected, past tenses are more naturally compatible with perfective aspect and present tenses with imperfective aspect. In Fyem the tense distinction – of three different past tenses – is said to occur under the perfective aspect (Nettle 1998, 31), while in several languages the present tense is said to occur with imperfective or a similar meaning: in Koyra Chiini the only tense marker, future, occurs with imperfective or subjunctive marking (Heath 1999, 162) (1999, 163), in Serbo-Croatian present tense signals absolute present tense only with imperfective verbs (Kordić 1997, 36), and in Dhivehi the present tense occurs with progressive (Cain & Gair 2000, 26). In some cases the issue is not explicitly dealt with but only the imperfective/progressive form is given (or compatibility with imperfective/progressive marker is described) for the present tense while other tenses also occur with perfectivity. This is the case for example in Manx (Phillips 2004, 36) and Tajik (Ido 2005, 56-57). In Manx the present auxiliary only has an imperfective form as in (28), whereas for the future both imperfective (29) and perfective (30) forms are given (Phillips 2004, 37).

(27) Nda hirri dam kul i -i har 'woo go ta kaa hew'
    if thunder be.done all 3PL.SBJ -IMPF say 'DEM IMPF FUT become wind'
    'When thunder occurs, they say, ‘that will (soon) turn into a windstorm’.'
(28) Ta mee goll dy kionnagh ollagh yn kied traa nee mee geddyn dy
PRES 1SG go to buy cattle the first time FUT 1SG get to Rhumsaa
Ramsey
'I am going to buy cattle the first time that I get to Ramsey.'

(29) Bee shin foast goll dy jeeaghyn son ben y pheesh nane jeh 'n
FUT 1PL yet go to look for woman the piece one of the
laghyn shoh
day.PL PROX
'We'll (perhaps) be going again to look for a woman each one of these days.'

(30) Nee ad freayll ayns shen
FUT 3PL keep in DIST
'They will survive there.'

The possible hierarchies of the two categories are affected both by concrete linguistic evidence and the theoretical framework which may consider one category more central than the other. While in some languages one of the above analyses may represent the linguistic reality more accurately, in others there may be more room for theoretical discussion (and hence variation in explanations). This means that it is also possible to just note the incompatibility between perfectivity and present tense without interpreting it as demonstrating a hierarchy and thus considering the two categories as otherwise independent of each other. This possibility, as illustrated in table 4.6. below, is also the approach selected for the current work. The incompatibilities that emerged from the typological data do not suffice – nor was it the intention – to support either of the hierarchical views.

<table>
<thead>
<tr>
<th>perfective</th>
<th>imperfective</th>
</tr>
</thead>
<tbody>
<tr>
<td>past</td>
<td>&quot;Aorist&quot;</td>
</tr>
<tr>
<td></td>
<td>&quot;Imperfect&quot;</td>
</tr>
<tr>
<td>non-past</td>
<td>- - -</td>
</tr>
<tr>
<td></td>
<td>&quot;Present&quot;</td>
</tr>
</tbody>
</table>

Table 4.6. Tense and aspect as independent categories.
4.5.4. Lexical Aspect

4.5.4.1. What is Lexical Aspect

Aspect, or grammatical aspect, as discussed above, refers to a grammatical category which represents a viewpoint to a given situation. Grammatical aspect is often considered to be under the control of the speaker, who may choose to focus on different phases of the situation at will. Lexical aspect, Aktionsart or verb type, on the other hand, refers to the aspectual information that is contained in the lexical part of the verb or the verb phrase. The classic treatment of Zeno Vendler proposes the following four basic classes: activities (run), accomplishments (run a mile), achievements (find) and states (want) (1957, 149). One of the most central distinctions made is basically in every account of lexical aspect is that between so-called "unbounded" expressions that do not involve a terminal point – in (31) no reference is made to the beginning or the end of the cup standing on the table – and "bounded" expressions which involve a terminal point – in example (32) the moment when putting is over (Klein 2009b, 60-61). However, just as grammatical aspect, lexical aspect does not concern actual real-world situations but rather a partial lexical description of them as every real-world situation has some duration and borders even if they are presented as punctual or borderless. (Klein 2009b, 61). I will first examine the different views on what grammatical elements lexical aspect actually concerns (verbs or larger units). I will then discuss the actual semantics of lexical aspect.

(31) The cup stood on the table.

(32) Eva put the cup on the table.

The concept of lexical aspect (henceforth an umbrella term including the terms Aktionsart and verb type) has had a variable focus in literature. Some accounts focus on classification of the bare verb lexemes, in which case the object of study is the inherent aspectual meaning of the verb (Dahl 1985, 26). Dee Ann Holisky, for example, proposes that each verb root in Georgian is marked for (lexical) aspect and that the initial aspect may be altered via derivational or inflectional processes (1981, 140). Madden and Ferretti note that sub-groups of verbs can be identified that overlap more specifically across traditional verb classes (2009, 231). However, a verb is still considered to have a single meaning and thus a single classification.
The problem of speaking of types of verbs instead of types of verb phrases or verb predication is the semantic multivalence of verbs. One verb can easily have several "senses" – even without taking the possible arguments into account; know typically denotes a state but in Suddenly I knew! it has a sense of an achievement (Mourelatos 1981, 196). The temporal characteristics associated with lexical aspect often result from the combination of verbs and other elements such as their arguments: the lexical aspect of to write differs from to write a letter (Klein 1994, 17). Bache states that even though verbs have certain propensity towards certain actional values (1995, 253), instead of "punctual verbs" etc. we should speak of "punctual potential"; the choice of lexical verb is only the first approximation of the type of the expressed situation (1995, 231). Thus, many accounts – in addition to Bache (1995) – focus on the lexical semantics of a larger unit. In his classic treatment Zeno Vendler discusses "species of verb" but it is obvious that the object of interest is the verb phrase as running and running a mile are differentiated (1957, 146). Carlota Smith proposes an account in which the focus is on situation type, conveyed by the verb and its arguments – differentiating an activity such as walk in the park from an accomplishment such as walk to school (1995, 105) – and modified even further by a derived level: differentiating a stative Kim knew the truth from an achievement Suddenly Kim knew the truth (1995, 106). Carl Vikner likewise classifies eventualities (entities described by sentences) in types (1994, 139-140). While the previous terms may refer to somewhat different units (the details are not relevant here), what is common to all these views is that the focus is on a unit larger than just the verb.

A lot of different accounts have been proposed of what the actual semantics of lexical aspect would be. The account of Vendler formulated the "stock" inventory of four basic classes: activities (run), accomplishments (run a mile), achievements (find) and states (want) (1957, 149). Madden and Ferretti propose that the traditional verb classes introduced by Vendler and tweaked by others can be further broken down to several semantic dimensions: that is, whether the situations expressed by verbs in a certain verb class can be described e.g. as durative or momentary, homogeneous or heterogeneous, existing or happening or as telic or atelic. They address the problem that the meanings of single verbs can overlap with the properties of multiple verb classes (2009, 218-219) and suggest that the answer lies in the prototype theory, namely that the membership of the verb classes may be a matter of degree (2009, 222). This means that while some verbs may be describable with all the semantic dimensions associated with a given verb class (therefore representing a prototypical case), many verbs differ in regard to one or more of these dimensions and are therefore both less prototypical instances of that first verb class and at the same time more characterizable as representing some other verb class as well.
Carlota Smith sees semelfactives (*tap, knock*) to constitute a fifth situation type in addition to states, activities, achievements and accomplishments (1995, 107). She arrives at these distinctions by breaking the types down to three binary feature pairs of state/dynamic, durative/instantaneous and bound/not bound (1995, 121). Carl Vikner likewise breaks eventuality types down to three binary features of +/- durativity, homogeneity and stativity (1994, 140). He then arrives at seeing homogeneity as the crucial factor differentiating the continuities (states and processes) from events (protracted and instantaneous events) in French (1994, 140). Anthony Kenny on the other hand combines achievements and accomplishments under the type of *performances*, thus resulting in three-way distinction between performances, activities and states (1963, 172).

Alexander Mourelatos proposes a hierarchic set of oppositions: the basic opposition is between states and occurrences, occurrences may then be divided into processes and events and events even further into developments and punctual occurrences (1981, 201). Mourelatos continues to show that the crucial factor behind event predications is the quantifiability of occurrences. Event predications are count-quantified (“There were three/at least one eruptions/capsizings of a boat”) whereas states and processes are not. (Mourelatos 1981, 202-206). Carl Bache argues that the category of action (lexical aspect) consists of binary feature oppositions +/-actional, complex/simplex, punctual/durative, telic/atelic and directed/self-contained (1995, 251) and these result in different, specific actional values (1995, 234). It is thus the features of actionality that are hierarchically ordered, not the resulting "complete" values.

To sum up, the concept of lexical aspect in the theoretical literature varies quite considerably both in regard to the grammatical scope (whether it concerns with just verbs or with verb phrases) and the semantics (whether the broader classes or some finer dimensions or features are seen as the main unit of analysis). What is common to all the above views is that the semantics of lexical aspect always deal with one large or several binary oppositions: the semantics of lexical aspect are in that sense quite complex when compared to those of tense or grammatical aspect, with the latter two often seen as consisting of only one opposition of two or three members. What's more, the semantic notions behind lexical aspect are rather heterogeneous, as lexical aspect deals with semantic dimensions that may have as much or little do with each other than e.g. with tense. This means that whereas the semantics of tense or grammatical aspect are quite easily reducible to simple formulas and illustrations, the same is not true with lexical aspect.
4.5.4.2. Proposed Differences between Tense and Lexical Aspect

Lexical aspect, no matter what it is seen as consisting of, is not usually a regular morphosyntactic category in languages. Bache argues that this is because unlike tense and aspect, they lack natural minimal pairs (a pair of examples that differ only in the relevant value) (1995, 232). Semantically lexical aspects differ from tenses the same way that grammatical aspects do: they do not form a relation between the origo and the theme but rather focus on the representation of the situation. Also, both grammatical and lexical aspects do have a "bridge" for making the gap between them and tense a bit vague: for grammatical aspect that bridge is the meaning of perfect, for lexical aspect the bridge is the status of the lexical verb in determining the origo of an anaphoric tense in some languages.

4.5.4. Interplay between Tense and Lexical Aspect

Compatibility restrictions between tense and lexical aspect are very typical; Present and non-past tenses are commonly considered to be compatible with only states (stative verbs) as in Santali, in which non-past can signal present time reference only with states (Neukom 2001, 68). This incompatibility may result in change of meaning as in Lingala, where the use of present tense (33) (Meeuwis 2010, 128) with dynamic verbs results in present perfect meaning (34) (2010, 129).

(33) Ba -yéb -í ngái.
   3PL.ANIM -know -PRES(1) 1SG
   'They know me.'

(34) A -pés -í ngái mokandá.
   3SG.ANIM -give -PRES(1) 1SG letter
   'She has given me a letter.'

However, perhaps the most intricate – and interesting to our purposes – case of interplay between lexical aspect and tense can be found in some creole languages. Many creole languages have a set of three tense-mood-aspect markers: markers for past tense, potential mood and durative aspect (Muysken 1981, 183). In a number of these languages the value of the lexical aspect – namely the difference between action and state – of the verb is a part of determining the temporal value of the sentence and thus arguably a part of the tense system. Derek Bickerton, who examines Sranan,
Guyanese, Haitian and Hawaiian creoles, proposes that in these languages the zero form marks simple past for action verbs and non-past for state verbs and that the marker for anteriority (in my terminology the marker of anaphoric past) expresses past-before-past with action verbs and simple past with state verbs (1974, 5). A similar system is described in Krio language of Sierra Leone by Johan Nordlander. In Krio a sentence with a non-stative verb has past time reference (35) unless imperfective marking is present (36), whereas a sentence with a stative verb has present time reference (37) unless anterior (anaphoric past) marking is present (38) (1997, 1-2).

(35) Di tin den we apin no bin de apin fostem.  
    the thing PL rel happen. ANA.PAST NEG ANA.PAST IMPF happen first.time  
    'The things which happened weren't happening before.'

(36) Di tin den we de apin naw no bin de apin fostem.  
    the thing PL REL IMPF happen now NEG ANA.PAST IMPF happen first.time  
    'The things which are happening now weren't happening before.'

(37) A no se yu bin gud.  
    1SG know CMP 2SG ANA.PAST good  
    'I know that you were good.'

(38) A bin no se yu bin gud.  
    1SG ANA.PAST know CMP 2SG ANA.PAST good  
    'I knew that you were good.'

The case of Nigerian Pidgin is identical for the anaphoric past: the marker bin may be analyzed as an anaphoric past tense as its origo stems from the dynamicity value of the verb: With stative verbs the origo is the present moment (39) and with non-stative verbs it is a situation in the past (40) (Faraclas 1996, 197). Nigerian Pidgin additionally has a deictic future marker go – which also marks irrealis modality – which signals simple future with both stative (41) and non-stative (42) verbs (1996, 197-198).

(39) A bin de haws.  
    1SG PAST COP house  
    'I was at home.'

(40) A bin go haws.  
    1SG PAST go house  
    'I had gone home.'
In such languages the verbs cannot be seen to merely have potential for a certain lexical aspect; verbs have a fixed value regarding the opposition of action/state and this opposition is also a part of the grammar as its interplay with tense and aspect marking clearly shows. The grammaticalization of the action/state opposition has lead, in these languages, to the grammaticalization of the implicature that stative verbs are imperfective and the situation they express is thus in progress unless otherwise stated and vice versa; that the situation expressed by action verbs is over unless otherwise stated. Thus, the grammaticalized lexical aspect can also be analyzed as expressing deictic tense in its own right making the borderline between tense and lexical aspect vague in these cases.

The existence of the anaphoric past marker adds to the complicated nature of the system. Grammatically the anaphoric past marker – a particle in these languages – is more prototypically expressed than the lexical aspect, which does not have overt marking; the opposition is located in the semantics of verbs. Semantically, on the other hand, anaphoric tense is less prototypical than deictic tense. The anaphoric past marker is temporally oriented to the time specified by the verb (its origo is determined by the actionality of the verb). If it is analyzed as the sole tense marker, then the tense system would be deemed (fully) anaphoric and the role of the lexical aspect would be merely to provide an origo. It is also possible to acknowledge that both the opposition of action/state and the marker of anaphoric past express tense. In this case there would be two co-occurring tense oppositions, a deictic one and an anaphoric one.

The question amounts to whether the lexical aspect in these cases "merely" serves to provide the origo for the "proper" anaphoric tense or whether the establishment of the origo is a tense relation in its own right. It certainly is one semantically, as it does not differ from the semantics of any other past/present opposition. Grammatically – as grammaticality is one of the key components of concepts of tense – there is not one, but two, big issues: the grammaticalization of lexical aspect in the first place and the grammaticalization of the temporal implicature behind actions and states. So,
while semantically lexical aspect in itself does not and cannot express tense, it is possible that the temporal implicatures it conveys may be seen to grammaticalize alongside the lexical aspect.

This section of temporal adverbials, grammatical aspect and lexical aspect has hopefully illustrated the central ways in which these phenomena are linked to tense – that is, the ways in which they interact with, are similar to and different from tense. The discussion has shown that the selection of each component value brings the concept of tense closer to or farther away from these adjacent phenomena as the semantic space between and around them is not clearly divided; in fact, of the components that may be used to describe these phenomena several are roughly similar. Building concepts is therefore choosing to erect walls in one place and to take them down somewhere else. Examining the problematic middle ground – for example the notorious no man’s land that is perfect – is necessary in deciding where the limits of tense, the walls, should be.

5. The Semantic Components

In Chapter 4 I examined the structure of concepts. I shall now discuss the semantic and grammatical components. This discussion is divided into two chapters: in the current chapter, Chapter 5, I will discuss the semantic components, and in the next chapter, Chapter 6, I will discuss the grammatical components. The sections are not strictly organized around a single component; rather, they are organized around themes, some of which correspond to one component, while others correspond to several components. Each section has the following structure, whenever applicable; First I introduce the relevant component or components and their possible values. Then I analyse the theoretical data and the grammatical data in the light of the components. For some components either the theoretical or the typological data is not relevant, and in some sections additional issues are discussed; in section 5.5. special attention is paid to the terminology of the reference grammars, and in section 5.6. the notion of strategic categories is discussed in detail. In the concluding segments I discuss the advantages and disadvantages of including a certain component value, as well as the appropriateness of each component value for certain types of studies and research questions.

This chapter focuses on the semantic components identified in section 3.2.3. The components and the values under discussion are therefore those that surfaced when existing concepts were contrasted with each other. In other words, these components are the respects in which the concepts differ from each other. The components are discussed in an order of complexity so that each section
builds on the previous discussion. The first three sections (5.1., 5.2. and 5.3.) deal with notions (such as past or remote future) without fully diving into their exact semantics. I will first look into which notions – such as past, present, future, perfect and prospective – are included under tense in the first place (5.1.). I will then take a closer look at the symmetry between past and future (5.2.), as well as the degrees of remoteness (5.3.). The next two sections deal with the semantics in more detail: in section 5.4. I discuss the function of tense as well as the theme and in section 5.5. I discuss the origo and the type of temporal relation. I will then examine the way tenses are organized into oppositions and categories (5.6.), followed by a discussion of universal truths (5.7.). The chapter closes with a discussion of a fairly abstract phenomenon: the dynamic versus static formation of the semantics of tense (that is, whether the semantics of tense can be arrived to in stages or not) (5.8.). This last issue is mainly relevant for studies that deal with language processing.

5.1. The Notions Included Under Tense

5.1.1. The Components

Before reaching deeper and asking, for example, what do tenses such as past, present and future really mean, we must acknowledge that there is huge variation in which semantic domains are considered to be included under the notion of tense in the first place. The semantic notions in question are past, present, future, perfect and prospective. Tense is minimally seen to include past and present (e.g. Nordlander 1997) and maximally all five of the domains (Reichenbach 1947). What is interesting is that none of the semantic notions is included under tense in every concept. Other relevant questions are whether past and future are considered temporal in the first place and whether it is tense or some other mean that is used to refer to them. The components under discussion in this section are Past, Future, Perfect and Temporality. The discussion is more naturally structured, however, around the following questions: which semantic notions are included under tense, are past and future (as segments of the timeline) temporal, and can they be referred to with tense. Before tackling the theoretical data I will introduce the relevant semantic domains.

By semantic domains I refer first of all to those that can be seen as occupying a segment of the timeline – that is, past, present and future (including the possible degrees of remoteness such as close past or remote future). This is illustrated in figure 5.1.
It may seem that with past, present and future taking up the whole timeline – and the degrees of remoteness being able to cut it up even further – there would be no room for additional semantic domains under tense, at least if the notion of temporality is to be maintained. It is true inasmuch that the semantic domains proposed next, perfect and prospective, are not strictly temporal as they cannot be placed on the timeline on their own. They are rather describable in terms of order: in the case of perfect, something is examined from the point of view of an origo that is located in the posterior, and in the case of prospective, something is examined from the point of view of an origo that is located in the anterior. This is illustrated in figure 5.2.

```
perfect:                object of examination ←→ origo of examination
prospective:           origo of examination → object of examination
```

Figure 5.2. The simplified meaning of perfect and prospective.

However, when perfect and prospective occur with an expression of past, present or future, their combined meaning can be placed on the timeline, and this meaning may be seen as a valid semantic domain of tense by some concepts. So while it is true that past, present and future make up the whole timeline, the inclusion of perfect and prospective is possible by adding a layer of complexity. The combination of meanings past and perfect is illustrated in figure 5.3. As the terminology of the phenomena varies between concepts, the definition of perfect and prospective provided above is intended to cover any such case that matches the semantics illustrated by figure 5.2. Thus, a concept of tense includes the notion of prospective if e.g. future in the future or future in the past are dealt with (Comrie 1985, 74-75) or if future tense is referred to in a such a way that it matches the semantics above; as in the vector system of Bull (1960, 25).

```
object of examination ←→ origo of examination
```

Figure 5.3. The simplified meaning of past perfect.
As already touched upon, the following discussion is built around three separate questions: First, which segments of the timeline are considered temporal – that is, are the segments of past and future considered to be equal and symmetrical temporal dimensions or is one of them, namely future, considered to be irrealis or somehow nonexistent? The meaning of present is not included in the following discussion, as it systematically follows the treatment of past. Second, which linguistic notions are included under the notion of tense: past and future, only past or only future, or additionally the more complex meanings that include the meaning of perfect or prospective? While the first question concerns the nature of time, the second one concerns linguistic notions: that is, whether a concept includes e.g. the notion of future, not whether future is temporal. And third, are both past and future referable with tense? Future time, for example, may be considered temporal, yet it may be referred to in a different way than past: that is, while future time is seen as existing, a future event could e.g. only be referred to as a projection from the present moment.

The questions of temporality and referability only concern the notions of past and future – not perfect and prospective – as, as discussed above, past, present and future correspond directly with segments of timeline, while perfect and prospective only relate to the timeline when combined with the aforementioned notions.

5.1.2. The Theoretical Data

Out of the 12 concepts in the theoretical data, in six the complete timeline of past, present and future is considered to be temporal and referable and (at least) the corresponding linguistic notions are analyzed under tense. These concepts are the concepts of Reichenbach (1947), Comrie (1985), Klein (1994), Functional Grammar (de Groot 1995), Johnson (1981) and Bache (1995).

In three of the concepts future is seen as temporal, yet non-referable and its expression does not fall under the notion of tense. Robert Allen calls both the (English) perfects and futures time relationships (in opposition to tenses) and states that future signals anticipation (1982, 257); reference to an identified time in the future (1982, 257). Future is not equally referable when compared to past and present (which refer to events). William Bull’s concept (1960) can be analyzed similarly to Allen’s. Bull treats future asymmetrically from past in that he states that the anticipated point does not stand for actual events but is projected from the point present (1960, 23). Similar to Allen he considers the English will + infinite verb construction to be in an opposition with perfect and to signal a meaning similar to prospective (1960, 31). Theo Janssen’s concept
(1994) also falls under this type. Janssen considers the meanings of tense markers (in Dutch) to be those of focal and disfocal referential concern instead of present and past (1994, 111). Furthermore, he does not treat (Dutch) future as a tense but as a marker of epistemic modality (Janssen 1994, 102). So while past and future (as segments of timeline) are temporal for him – he speaks e.g. of ambiguity between future time reference and epistemic modality (1994, 102) – neither of these are referable with tense. Past tense is a notion (albeit an atemporal one) in his concept but future is not.

Peter Harder considers future to be asymmetrical to past, as with future the context referred to cannot be identified and reference to a time ahead of now is still a way of talking about the present context: when describing future events, he speaks of aheadness (1994, 69-70). Future is thus not equally referable, even though it is considered temporal. However, the linguistic notion of future is still a part of Harder’s tense system (1994, 62). In one concept future is considered to be atemporal, not equally referable and not a linguistic notion under tense, either. This is the concept of Johan Nordlander, in which future time is considered irrealis and the situation that takes place in the future must be seen from the perspective of the present moment (1997, 119-120).

The status of past deviates from the “norm” in two concepts: in addition to the concept of Janssen, dealt with above, Rolf Thieroff considers the past segment of the timeline – despite its temporality, which is made evident by the mention of past time reference (1994, 9) – to be non-referable with tense and outside the notion of tense altogether. Thieroff treats the categories traditionally labeled past as categories of (conceptual) distance (Thieroff 1994, 5). This means that he considers the seemingly temporal meaning of past to be only an implication.

So far we have discussed the semantic space of past, present and future, but some concepts extend the notion of tense to the notions of perfect and prospective (note that, as discussed earlier, these notions may go by many names but their semantics match the definition given in the beginning of this section). Thieroff (1994) and Harder (1994) treat perfect as an independent and binary temporal choice. Reichenbach (1947), Bull (1960) and Comrie (1985), in addition to perfect, also allow prospective to contribute to tense distinctions.

On the first glance it would seem necessary to exclude any concept in which neither past or future is seen as referable with tense: in other words, a concept in which tense does not express temporality. After all, a concept of tense could be thought to collapse if the concept would not include the component value of temporality. This problem is evident with Janssen’s concept, in which tense is seen as a matter of referential concern (Janssen 1994, 116). Each event is seen as having either focal (roughly corresponding to the present tense) or disfocal (roughly corresponding to the past tense)
referential concern (Janssen 1994, 111) or none at all (infinite verb forms). Temporal values are only implications. It is nonetheless fruitful to fall back on the concept of family resemblance – that is that some entities can be grouped together by a number of similarities instead of one or more features common to all. As it is, Janssen’s concept can be equally well analyzed with regard to the same grammatical and semantic components than the rest of the concepts. And since the components are mostly studied in isolation, Janssen’s concept can contribute to most of the discussion without neglecting the importance of the component value of temporality.

In the same way we can arrive at understanding that Janssen’s concept of tense is not unique in suggesting non-temporal reference for (traditional) tenses – it is just the only concept that makes the claim for the whole tense system and thus explicitly equals tenses with non-temporality. In several other concepts, as we saw above, some subpart of the “generally accepted” semantic domain of tense is treated as non-temporal or non-referable. The difference between such concepts and Janssen’s concept – while still significant – can be simplified into continuums illustrated in Tables 5.1. and 5.2. Table 5.1. illustrates the continuum of notions which are included under the notion of tense in various concepts. The most striking thing to note is that none of the semantic notions is included under tense in every concept. Past and present are the most central (common) notions, followed by future, perfect and prospective. Apart from the concepts of Bull (1960) and Thieroff (1994), which introduce “gaps” in the continuum, the presence of a less central notion implies the presence of the more central notions. In the case of perfect and prospective this is expected as they cannot be placed on the timeline on their own.
Table 5.1. The acceptance of various semantic domains under the notion of tense by concept.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Past &amp; Present</th>
<th>Future</th>
<th>Perfect</th>
<th>Prospective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reichenbach (1947)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Comrie (1985)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bull (1960)</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Harder (1994)</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Thieroff (1994)</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Johnson (1981)</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bache (1995)</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Klein (1994)</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>de Groot (1995)</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nordlander (1997)</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Allen (1982)</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Janssen (1994)</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 5.2. Temporality and referability of past and future by concept.

<table>
<thead>
<tr>
<th>Concept</th>
<th>Past</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reichenbach (1947)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Comrie (1985)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Klein (1994)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>FG (de Groot 1995)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Johnson (1981)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bache (1995)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Thieroff (1994)</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Bull (1960)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Allen (1982)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Harder (1994)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Janssen (1994)</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Nordlander (1997)</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
three. It is thus important to note that the type and number of oppositions cannot be “selected” individually – they are tied to some degree to the semantic domains included under tense.

The inclusion of perfect and prospective also affects the semantics of tenses. While the semantics of past, present and future can be described (minimally) with two members – an origo (the moment of speech or some other time) and the theme (which is located or examined) – the inclusion of the meaning of perfect (and prospective) necessarily introduces a reference point as in the concept of Reichenbach (1947, 288). It may possibly also invite the need to divide the semantics to several relations with two members each as in the concept of Comrie (1985, 130).

5.1.3. The Typological Data

The inclusion/exclusion of different semantic domains affects the typological data in various ways. The most straightforward effect is the number of markers in scope. For the purpose of this example, we leave out the non-tenses (a term that is selected to cover both non-past and non-future, not to be understood as "something which is not tense") as their behaviour is not completely symmetrical. This leaves a total of 170 markers in the data out of which 48 % are markers of some kind of past tense (general or a tense with a degree of remoteness) and 34 % are markers of some kind of future. Not recognizing past or future leads into not recognizing these markers. As perfect and prospective are outside the scope of the typological data, the effect of including/excluding them cannot be exemplified in the same way.

In many of the languages there are either no past or no future tenses. This means that such languages would completely fall out of the scope of a study if their only domain of tense is not recognized by the concept. There are 62 languages in the data, all of which have tenses according to the very general concept used in gathering the data. Two of the languages, Mosetén and Fyem, have no future or non-past tenses. These languages would appear tenseless if future was the only semantic domain included in the concept. Eight languages, including for example Tyvan and Toratán, don’t have a pure future tense but do have non-past tense. As non-past by definition includes the future segment of the timeline, these languages could be analyzed to have tense marking even if future was the only accepted semantic domain. In four languages, Ogbronuagum, Lavukaleve, Koyra Chiini and Kwamera, there are no past tenses or non-futures and in two languages, Mapudungun and Tauya, there are no past tenses but there is a non-future. The former
languages would appear tenseless if past was the only accepted semantic domain, in the latter languages the semantic domain of past is represented, even if not with a separate marker.

5.1.4. Discussion

We can now discuss how the research question should affect the choice of component values; what are the motivations behind and the potential advantages and drawbacks of each choice. The advantages of considering the “complete” timeline of past, present and future (without perfect and progressive) as temporal are clear: The semantics of tenses would only deal with two members – the origo and the theme – forming just one relation with possible further specification with degrees of remoteness. Perfect and prospective – as well as imperfective and perfective – can be thought of as neatly separate phenomena with different semantics and inner workings; the relation of tense and these phenomena is discussed e.g. by Klein (2009, 52ff.). This is perhaps the most neutral approach selected for example by Gerjan van Schaaik in his treatment of periphrastic TMA in Turkish (2001). He provides an explicit concept of tense (2001, 64) borrowed from Simon Dik: that temporality locates the State of Affairs at some interval along the time axis (Dik 1989, 202). Van Schaaik then gives Turkish examples of past, present and future (2001, 64-65) and discusses the importance of separating aspect and Aktionsart from tense (2001, 66-67).

To include the meanings of perfect and prospective is a step towards analyzing a larger system, even if this system would still be called tense and not TMA. Perfect and prospective often fall somewhere between tense and aspect anyway, as the term aspect may be reserved for meanings such as perfective and imperfective. Such an approach might be favoured for example when the focus of the study is on the conditions of usage of actual markers, on discourse functions, or on anything else that favours the “bigger picture” and the function of temporal expressions in their linguistic environment over the more theoretical interest in “purest possible” tense meanings.

Davidsen-Nielsen, for example, compares the tense systems of Danish and English focusing on verb forms such as Present Perfect and Future of the Past (1990, 56). The verb forms (that include the meaning of perfect) are a natural unit of comparison, especially in a study of two related languages, in which insights on semantics may be reached by examining subtle differences in usage. Another example of a study that benefits from a "bigger picture" is Marita Ljungqvist Arin's study on the Mandarin Chinese particle le (2003). She uses the "reichenbachian" concept of tense which includes
the meaning of perfect (2003, 3). This seems appropriate as her aim is to map the meanings of a particle for which there has been suggested many different TMA-related functions (2003, 1).

Studies may even go further and consider the complete tense-mood-aspect system (or at least the tense-aspect system) simply as the "tense system". Suzanne Fleischman, for example, studies the pragmatic functions of tense in narrative, and calls the preterit (which includes the perfective aspect) and the imperfect (which includes the imperfective aspect) the tenses appropriate to the activity of narrating (1990, 24). Likewise, Carl Veters speaks of tenses such as passé simple, plus-que-parfait and the conditionnel in his study of free indirect speech in French (1994, 215-216).

However, in these cases the usage of the term tense as a loose synonym for verb form is more due to the tradition than to actually seeing asp ectual oppositions as temporal in the same sense as past or present. This becomes evident as Fleischman describes e.g. the preterit tense to include past tense (1990, 24).

To limit tense to only concern past and present (or present and future) requires careful justification as it involves “cutting” the complete timeline. There are two basic ways to justify the exclusion of future: First, the capability of the speakers to refer to the future can be seen as asymmetrical with past; future would deal with epistemic modality instead [Janssen 1994, 102]). Second, the nature of future time may be seen as asymmetrical (the irrealis timeline in Nordlander’s concept [1997, 119-120]). In the latter case tense cannot deal with the commitment of the speaker (I will be the president one day) as much as the actual obtaining or having obtaining of states of affairs in the real world or its mental representation. In other words, tense is tied to the objective reality. This is the approach of Kyung-Sook Chung in his study of tense, aspect, evidentiality and speech acts in Korean (2012). He defines tense as a deictic phenomenon (2012, 2) and as he considers ostension (identification by pointing) as the basis of deicticity, he argues that tense only deals with factual situations that exist at or before the utterance time and tense therefore includes past and present but excludes future (2012, 3).

If we turn the tables and exclude past from the notion of tense, the justification must be just as explicit. For Thieroff past is not temporal because of its multiple, seemingly non-temporal usages that suggest that it is a category of (conceptual) distance (1994, 5). This sort of individualization of oppositions – more or less like the exclusion of future – means that the study focuses on the distinct nature of each (binary) opposition, which stem from the actual usage (or many usages) of markers. Tense is thus not an umbrella term under which several phenomena are forced, but rather a term reserved for whatever oppositions that cannot be said to have a more specific (or a different altogether) meaning. It is however not necessary to adopt a non-temporal view of past tense even if
its modal usages are acknowledged. Adeline Patard considers pastness to be the basic meaning of the English and French past tense morphemes based on three arguments: the temporal interpretation is considered to be the default, modal interpretations often require other modal marking (such as *if* or *would*) to co-occur and the modal readings tend to be irregular and idiosyncratic (2011, 282). Yet she embraces the modal meanings and offers an array of examples from the two languages (2011, 279-281).

The last two views (excluding future or past) are instances of the same basic idea: treating past and future separately and individually. It has the advantages of being more sensitive to language-specific meaning nuances and avoiding presumptions (if the oppositions are labelled as representing “tense”, “distance”, “modality” etc. after looking at the data and constructing relevant oppositions and categories). On the other hand, if the exclusion of certain semantic notions from tense is done beforehand – as is often done e.g. for an ontological reason – it places a huge emphasis on that particular view, which may be very restricting for the descriptive power of the study. The major drawback would thus be the lack of descriptive power for languages in which tense is best analyzed as consisting of one opposition with past and future tenses. Such languages could not be properly analyzed as the mutual exclusivity – as they belong to the same category – of the past and future markers could not be explained.

The above can be summed up as follows: The more semantic domains the notion of tense incorporates (the larger the scope of tense), the more the focus is on the usage of (often complex and semantically heterogeneous) verbal expressions: the focus might be on discourse functions, on the distribution of markers or on language comparison. The more the semantic domain of tense is separated/individualized, the less emphasis there is on the notion of tense and more on the specific meaning of separate oppositions. Incorporating past, present and future without perfect and prospective is neutral in this respect and implies focus on “pure”, theoretical notion of tense and its semantics.
5.2. Symmetry Between Past and Future

5.2.1. The Component

Future is not always treated as an equal and/or symmetrical part of the tense system as already discussed in section 5.1. While in section 5.1, I focused on the separate questions of temporality, referability and whether a certain notion belongs under tense, this section focuses on the (in)equality between past and future in more detail – its justifications and the evidence offered by the typological data. The component under examination is therefore Symmetry between past and future.

The reason for not treating future as a tense is basically an epistemological one. Namely, it can be argued that future facts have truth conditions that can only be resolved with facts that are located in the present or past (Le Poidevin 1998b, 20). Dahl states that because future differs epistemologically from present and past, it has linguistic consequences (1985, 103). He says that when talking about future we are talking about intentions, obligatoriness or plans and that is why a sentence referring to the future will also differ modally from other sentences. This basically means that future events can only be examined from the perspective of the present moment. It has also been found out that children acquire contrasts involving the future tense before they can differentiate past from present. This has been seen to suggest that the irrealis/realis-distinction is salient for children (Wagner 2011, 474-475). It is, however, not necessary to place such limitations for semantics of tense systems. First of all, both of these ideas are not without counter-evidence: It can be argued that events have truth values independent of the present moment (Le Poidevin 1998a, 1). And while future might differ epistemologically from past, as Dahl states, past can also be said to carry modal values: if future has the modal values of prediction and volition, then past can be seen to be related to certainty and inevitability (Bache 1995, 267). The choice to exclude future on epistemological grounds is thus a somewhat arbitrary one.

The important point is that philosophy does not have to play a part at all. Leaving philosophy aside, why couldn’t the mind conceptualize the world symmetrically – if just for the purpose of linguistic tense? The important thing is the possibility of the speaker to commit to the future statement. Just as we can say There is a table in the room without having to resort to discussion about the existence of objects, we must be able to communicate future facts if we so please. We must be able to take responsibility of future if we so desire. As Comrie puts it, if a statement in future tense does not come to be, then it is simply false – it has no modal properties (1989, 53).
Limitations emerging from philosophical/modal grounds must not be seen as necessary. As Bache states, it reflects our intuition that situations may be represented as taking place in the future; according to him, future has conceptual reality (1995, 266-267). To back this up, we may consider the language of Caddo: In Caddo there are separate markers for futurity and the realis/irrealis. Future tense appears in combination with the realis, not irrealis, marker, which makes it an obvious future (and tense) (de Haan 1999, 455). The speakers thus can (and will) conceptualize future as real and existing. Likewise, future often co-occurs with morphologically realized modals, such as necessity and possibility, as in the language of Rukai (43) (Chen 2011, 102), which provides evidence for morphosyntactic division between future and modality (2011, 91).

(43) *Lri -tara -kela kai ka Takanau.*
    FUT -NEC.MOD -come DEM NOM Takanau

'Takanau will certainly be here.'

In this section I will offer some justification for treating past and future symmetrically: as referring to past and future time, respectively, in a modally neutral way (reducing modality to the role of an implication stemming from extra-linguistic, ontological reasons). I do this by examining the oppositions and categories found in the typological data. I will then weigh the advantages and disadvantages of including and excluding future, as even though it cannot be necessary to leave future out, it is nonetheless a possibility if properly justified.

### 5.2.2. The Typological Data

If we turn to the typological data, we can first of all see that (tentatively) future marking does exist. The markers are described as temporal (e.g. "- future - refers to activities or states in the future -" in Dhivehi [Cain & Gair 2000, 27]) and they co-occur with future adverbs as in Mapudungun (44) (Zúñiga 2000, 43). In total, 58 markers out of 193 can be analyzed as either a general future or a future with a remoteness distinction.

(44) *Kīdaw -ün wiya ka kīdaw -a -n wüle.*
    work -1SG yesterday and work -FUT -1SG tomorrow

'I worked yesterday and will work tomorrow.'
The future markers can be a part of different types of oppositions. These are presented in Table 5.3. We can see that the most common type of opposition consists of past tense(s), present tense and future tense, either with or without degrees of remoteness. This amounts to almost half of the cases (24 out of 51). In eight cases future is in the same opposition with past but not present (which in these cases is typically abstract: it is a possible but not a necessary interpretation of one or more of the TMA markers). There are also some cases in which future is in opposition with only the present or non-future tense and even cases in which there is overlap: Future is in the same opposition with past(s) and non-past in four languages. In Catalan (Hualde 1992, 303-309) I have even analyzed future to be in opposition only with non-past (although the opposition is also said to include an uncommon preterite marker, which is not included in the data). There is also overlap in languages in which future is in the same opposition with past(s) and non-future. There are ten cases in which future is in opposition only with the abstract non-future. In seven out of these ten languages this is not the only tense opposition of the language – in Danish, for example, there is also the opposition of past and non-past (Herslund 2002, 63-67) – but in three languages, Koyra Chiini, Kwamera and Ogbonnuagum, there are no concrete tense markers other than future.

<table>
<thead>
<tr>
<th>Future in the same opposition with</th>
<th>No degrees of remoteness in the future</th>
<th>Degrees of remoteness in the future</th>
<th>Percentage of the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past(s) and present</td>
<td>20</td>
<td>4</td>
<td>47 %</td>
</tr>
<tr>
<td>Past(s)</td>
<td>8</td>
<td></td>
<td>15 %</td>
</tr>
<tr>
<td>Present</td>
<td>1</td>
<td></td>
<td>2 %</td>
</tr>
<tr>
<td>Non-past</td>
<td>1</td>
<td></td>
<td>2 %</td>
</tr>
<tr>
<td>Non-future</td>
<td>2</td>
<td></td>
<td>4 %</td>
</tr>
<tr>
<td>Abstract non-future</td>
<td>10</td>
<td></td>
<td>20 %</td>
</tr>
<tr>
<td>Past(s) and non-past</td>
<td>3</td>
<td></td>
<td>6 %</td>
</tr>
<tr>
<td>Past(s) and non-future</td>
<td>1</td>
<td>1</td>
<td>4 %</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>5</td>
<td>100 %</td>
</tr>
</tbody>
</table>

Table 5.3. The occurrence of future in different types of oppositions.

The data supports the symmetrical treatment of past and future at least in the sense that they often belong to the same opposition in actual languages. The cases in which there is semantic overlap between future and other tenses (mostly non-past) could be used as counter-evidence – but then again there are also cases in which past and non-future belong to the same opposition.
5.2.3. Discussion

If we examine the findings of this section and the findings of section 6.2. – in which it will be shown that future and past are both commonly expressed inflectionally and periphrastically – we can see that there is a considerable amount of symmetry in the expression of future and past. This is not a new finding, as the symmetry is also noted e.g. by Haspelmath (1997, 24). In the light of the discussion in the beginning of this section – that there are not linguistically relevant reasons for asymmetrical treatment – this is however not as surprising as Haspelmath makes it sound.

It would support the asymmetrical treatment if the expression of future would be dominantly periphrastic while past would be dominantly inflectional. But, as we will see in section 6.2., the numbers are not so strict: 30 occurrences of inflectional future against 25 periphrastic ones (and 50 inflectional pasts against 32 periphrastic ones) do not authorize such a conclusion. Note that these numbers include tenses with degrees of remoteness but do not include zero-marking or clitics.

Another way to examine the possible primary nature of past over future is to examine whether past is more likely to be the sole “non-present” tense (or, if there are degrees of remoteness, a sole “non-present” segment of timeline represented by temporal markers) in a language than future. Once again, there does not seem to be a significant difference. Out of the 62 languages in the data, in eight there are past tenses but no future tenses but in six there are future tenses but not past tenses.

Because the actual typological data reveals considerable symmetry between past and future, the possible decision to exclude future from a concept of tense has to be made on other grounds. As stated above, it is not necessary to see future as obligatorily modal, but in individual languages it may be the case that the future "tense" is best analyzed as a modally "tweaked" non-past, which may make future time reference at best an implication. If a study focuses on such a language or languages – and analyzes the situation as above – then the future tense is not relevant. For example, in her study of Norwegian modals Kristin Melum Eide acknowledges the existence of past, present and future as possible tenses (2005, 288) and further notes that in some languages there is an explicit future/non-future distinction (2005, 349), but she does not consider the auxiliary ville to be a marker of future tense but rather a modal auxiliary denoting intention and prediction – while it still "requires a future reading of its complement" (2005, 349). Such an analysis is easily arrived to in languages in which there are several verb forms with a future meaning or a future implication that differ modally from each other. This is the case in Norwegian where there are burde ('should'), kunne ('can'), måtte ('must'), skulde ('will') and ville ('want to'/will') (Eide 2005, 16) and English,
where will and shall have modal counterparts such as might, ought to, should, could and would. The existence of these syntactically similar morphemes is one of the reasons that has lead to treating will as modal, as discussed e.g. by Raphael Salkie (2010, 195-196), even though non-temporal usage of will is quite rare (2010, 191).

Another advantage of leaving future out of temporal system would be that it forces to recognize the individual nature of separate language-specific oppositions. If, in any language, past and future belong to different oppositions, they have possibly accumulated a number of other meanings (senses, usages etc.) as well. If temporality is seen as the governing meaning, the only one with significance, these might be lost. But by forcing to analyze future in such an "open-minded" way it is easier to do the same with past. Thus for example in his description of the Swedish tense system Östen Dahl is hesitant to label any of the periphrastic futures a true future (1995, 62) while he meanwhile describes in length the nuances of the *preterit* (which include the consideration of the point of view of the speaker, the moment of obtaining the information and the phenomenon of reported thoughts called 'erlebte Rede') (1995, 60).

Future may also be left out from the study even if its status as a tense is not questioned. This is done in the study of tense in natural language database interfaces by Ion Androutsopoulos (2002). The choice is made to focus on questions about the past and present. Predictions – and consequently future tense – are left out to simplify the content and the linguistic phenomena concerned (2002, 16).

Not including future often goes hand in hand with having binary tense categories, as in Nordlander's (1997), Janssen's (1994) and Allen's (1982) concepts. This is mainly due to the fact that if degrees of remoteness are not relevant, a concept is left with only past and present tenses which then necessarily form a binary category. Likewise, the concepts that treat future as temporal but still as asymmetrical from past – Harder (1994) and Thieroff (1994) – also resort to binary paradigms.

Note that if a language does not have a future tense but it is analyzed as having a non-past tense (which may have a future reading if either a suitable adverbial is present or when the conversational principles so dictate), the semantic domain of future is not excluded from the concept – the language in question just does not happen to have a separate marker for future. This is the case in North-Western Karaim as analyzed by Éva Ágnes Csató. The language is said to have two non-anterior forms. Their distinction was originally that of focality, but in the present-day usage one of the forms, called the *R-nonpast* (or Aorist in earlier literature), is "mostly used to express that the
event will take place in the future" (45) or to express modal shades of meaning (46) (2000, 731-732).

(45) \textit{Tanda uzax yulkərm.}

tomorrow long sleep.NPAST.1SG

'I will sleep longer tomorrow.'

(46) \textit{Ür'an's'ak, b'il'ib'iz'.}

learn.COND.1PL know.NPAST.1PL

'If we learn it, we'll know it.'

5.3. The Degrees of Remoteness

5.3.1. The Component

This section deals with the component \textit{Degrees of remoteness}. In the case of temporal remoteness it is not just the relative order of times and events that matters, but also the temporal distance of said entities. Thus, the general past tense is neutral to whether it refers to a time or an event earlier the same day or a time or an event thousands of years ago, while past (or future) tenses with a degree of remoteness may make several distinctions. The most typical basis for making a distinction of temporal distance concerns the hodiernal interval, that is, earlier today for past and later today for future. This may be called \textit{hodiernal grounding} (Botne 2011, 537). A hodiernal past, for example, may be contrasted with \textit{hesternal past} (yesterday) and \textit{distant past} (earlier than yesterday) as in Fyem (Nettle 1998, 36-41). In many languages hodiernal past or future is simply contrasted with remote past or future (earlier or later than today) (Botne 2011, 540). Other typical distinctions (cut-off points) are close, recent and remote (past tenses of Goemai [Hellwig 2011, 329-333]) and immediate (versus general) (past and future tenses of Toqabaqita [Lichtenberk 2008, 677-718]). Some of the more exotic cut-off points outside the data are this year and before this year in Kiksht and the tense for last night in the Mabuiag dialect of Kalaw Lagaw Ya (Comrie 1985, 88) as well as the tenses for long time ago but in the lifetime of the speaker or his/her parents and before his/her time in Maidu (Shipley 1964).

Cut-off points may be more or less rigid, and while in some languages it is ungrammatical to combine e.g. adverbials of recency with a remote past tense, in some languages it is acceptable as distance is considered more subjective (Comrie 1985, 90-91). This means that selecting a tense may
be a stylistic choice available for the speakers of these languages. Robert Botne speaks of this phenomenon and suggests that while in some languages the default interpretation of the temporal distinction may be e.g. that of earlier today and yesterday, it might be more appropriate to speak of currently relevant and adjoining time units (2011, 541-542). If this were the case, the use of these remoteness forms would not be a stylistic choice but it would follow from the conceptualization of "what is current" by the speaker.

The relevant features of remoteness are similar for the theoretical and the typological data: In the theoretical data it is analyzed whether remoteness distinctions are acknowledged. In the typological data it is analyzed whether a marker can be seen to have as its meaning some sub-segment of the past or future segments of the timeline without it being an implication or due some other meaning component (e.g. aspectual) of the marker.

5.3.2. The Theoretical Data

Not all concepts recognize the existence of degrees of remoteness in past and future tenses. The concepts can be divided into three types: Six concepts explicitly deal with the degrees of remoteness and either include them in their formulation of tense ("- - it will be necessary to have the mechanism to specify the magnitude of the relations before and after - - magn - -" [Comrie 1985, 129]) or state that they could be included if necessary (e.g. Klein 1994, 122). Five concepts are not capable to express remoteness. This is the case with all of the concepts that treat temporal oppositions as strictly binary, such as Harder’s (1994) and Thieroff’s (1994). Naturally the degrees of remoteness (as they are defined as expressing temporal remoteness) would not be possible in Janssen’s non-temporal concept (1994). Finally, in the concept of Reichenbach (1947), the question is not treated at all even though tenses with remoteness distinctions could be added to the formulation quite easily.

5.3.3. The Typological Data

Out of the 193 markers in the typological data 49 can be analyzed as tenses with a remoteness distinction (that is, their semantics cover a segment of past or future, not past or future in entirety). Out of the 62 languages in 21 there is at least one remoteness marker. All the remoteness markers in
the data are deictic. There is no theoretical reason why the time reference of remoteness markers could not be anaphoric (e.g. *earlier that same day / the day before that day*), but in practice – because of their semantic complexity – such markers are not found. The most common case is that the language has remoteness distinctions only in the past. This is the case with fourteen languages. There are no languages in which there would be remoteness distinctions only in the future, but in seven languages there are remoteness distinctions in both past and future. The past is divided either in two, three or four segments, while the future is never divided in more than two segments (even though such languages exist outside the current data, see e.g. Comrie [1985, 86-88]).

Remoteness in past is organized in one of two basic ways. The more common case is that there is both a general past tense (covering the whole past segment of the timeline), which may always be used, and one or several past tenses with a more specific meaning, which may be used if a specific temporal distance is stressed. This means that there is semantic overlap between general past and past tenses with a degree of remoteness. Examples of languages with one general past and one marked for remoteness are Chingoni, in which there are markers of a general past (47) (Ngonyani 2003, 59) and remote past (48) (2003, 58), and Toqabaqita, in which there are markers for non-future (equal to a general past in this respect) (49) (Lichtenberk 2008, 692) and immediate past (50) (2008, 693).

(47) \[N \ -aha \ -hamb \ -ili.\]
    \[1SG \ -PAST \ -go \ -PFV\]
    'I went.' (in past)

(48) \[N \ -a \ -hamb \ -ili.\]
    \[1SG \ -REM.PAST \ -go \ -PFV\]
    'I went.' (in remote past)

(49) \[Kera \ uufi \ -a \ -agaa \ qi \ roqo.\]
    \[3PL.NFUT \ blow \ -3.OBJ \ panpipes \ LOC \ yesterday\]
    'They played the panpipes yesterday.'

(50) \[Nau \ ku \ biqi \ fula \ boqo.\]
    \[1SG \ 1SG.NFUT \ IMM \ arrive \ ASRT\]
    'I have just arrived.'
Languages with a general past as well as two tenses with a remoteness distinction include Marathi, which has a general past (51) (Pandharipande 1997, 407), as well as remote (52) (1997, 413) and proximate (53) (1997, 412) pasts.

(51) Anū mhanā -l -ī
Anu say -PAST -3SG.FEM
'Anu said - -'

(52) Anek warsānpūrwī mī amrāwatī -lā rāh -l -o hoto.
many years.ago 1SG Amravati -DAT stay -PAST -3SG.MASC was
'Many years ago, I had stayed at Amravati.'

(53) Mī patra lihi -l -e āhe.
1SG letter.3SG.NEUT write -PAST -3SG.NEUT is
'I have written the letter.'

The other possibility is that past tenses necessarily have a degree of remoteness – in other words, there is no general past tense. This means that the past tenses with remoteness distinctions usually cover the whole past segment of the timeline. Typically, the meaning of the remote past – or its equivalent – in these languages is that of “rest of the past” – used in expressions that do not qualify for more specific past tenses that have a smaller temporal scope. Thus in a language with a hodiernal (earlier today) past tense the remote past may also be called pre-hodiernal past, as is done in the data of Bybee, Perkins and Pagliuca (1994, 99). An example of a language in which tenses marked for remoteness cover the whole past is Ndebele, in which there is no general past but tenses of remote (54) (Bowern & Lotridge 2002, 36) and recent past (55) (2002, 37).

(54) Nga -funda.
1SG.REM.PAST -study
'I studied.'

(55) Ngi -fund -è.
1SG -study -REC.PAST
'I have studied.'

In Nkore-Kiga past is divided into remote past (56), hesternal past (yesterday) (57) and hodiernal past (earlier today) (58) (Taylor 1985, 153), while in Babungo the system is otherwise similar but there is an additional tense for events from a few days ago to a few months ago called the middle past (59) (Schaub 1985, 213).
A -ka -gyenda.
3 SG -REM.PAST -go
'He/she went.' (in remote past)

A -gyenz -ire.
3 SG -go -HEST.PAST
'He/she went.' (Yesterday)

Y -aa -gyenda.
3 SG -HOD.PAST -go
'He/she went.' (Earlier today.)

Ŋ wəjwá jwíŋkúsə.
he MID.PAST come.PFV Nkuusə
'He came on Nkuusə (name of weekday).'</n
In the language of Pima Bajo the past tenses do not completely "take up" the past segment of the timeline. The only purely temporal past marker is that of remote past (60) (Estrada Fernández 1996, 14). Non-remote past can be referred to for example with the completive (61) (1996, 13), which is not analyzable as carrying the proper meaning component of (past) tense.

Okis tikpaan -im -tad.
woman work -CONT -PAST
'The woman was working.'

Aapim ga'i gai -va.
2PL meat roast -COMP
'You just finished roasting meat.'

The most common past tense with a remoteness distinction is the marker of remote (or distant) past with 20 occurrences – almost half of the 39 remoteness markers of past. Recent (or close or proximate) past tense accounts for ten occurrences the rest being markers of hesternal and hodiernal past with just one occurrence of the middle past.

Future marking has the same two basic possibilities. In the first case there is both a general future and one or two futures with a degree of remoteness. In three languages in the data there is a general future (or non-past) and a close (or immediate or near) future – illustrated by examples (62) and (63) from the language of Bilua (Obata 2003, 112, 115) – and in one language, Evenki, there is a
general future (64) (Bulatova & Grenoble 1999, 11) as well as two futures with a remoteness
distinction. According to Nedjalkov, these tenses express immediate (65) (1997, 244) and near (66)
(1997, 244) future, while according to Bulatova and Grenoble – conversely – they express
respectively more distal and close future (1999, 34-35). For the purpose of the interpretation of the
data, Evenki is analyzed to have markers of close, remote and a general future.

(62) Tu a =da keu =vou Gizo.
be.long 1SG =SIT be.long =FUT Gizo
'I will be in Gizo for a long time.'

(63) Me =ba mujor =o.
1PL.INCL =PROS fish.bonito =NEAR.FUT
'We will go and fish bonitos.'

(64) Bi: nadalla: -li: muču: -žiža: -β.
1SG seven.day -PROL return -FUT -1SG
'I will return after seven days.'

(65) Tygde -l -d'elle -n.
rain -INCH -FUT -3SG
'It will rain in a moment.'

(66) Bi sin -e ngene -b -d'e -m.
1SG you -ACC.DEF go -CAUS -FUT -1SG
'I shall take you away.'

The other possibility is that there is no general future but the future tenses necessarily have a
remoteness distinction. This is the case in two languages, Babungo and Nkore-Kiga, both of which
have tenses for close (or near) (67) and remote (68) future as the examples from Nkore-Kiga
(Taylor 1985, 154) illustrate.

(67) N -a -ija ku -gyenda.
PRES -3SG -come INF -come
'He/she will come.' (Most likely today.)

(68) A -rya -gyenda.
3SG -REM.FUT -go
'He/she will go.' (Later than today.)
The case of Goemai is symmetrical to the case of Pima Bajo in that the only temporal marker for future in Goemai is that of close future (tomorrow) (69) (Hellwig 2011, 331). However, in Goemai (unlike in Pima Bajo) all tense markers are optional, thus the complete future segment of the timeline can be referred to with sentences with e.g. aspectual or modal marking (70) (2011, 343).

(69) BIT lá d'á lin t'ong mües.
   day COND FUT.CL dry.SG sit.SG beer
   'When the day dawns tomorrow, (it) becomes beer.'

(70) T'ong göe =ná göe -têp t'ong göe =ná
   IRR 2SG.MASC =see NOMZR.SG -INCH.black IRR 2SG.MASC =see
   göe -pyá...
   NOMZR.SG -INCH.white
   'You will see bad (times), you will see good (times)…'

Table 5.4. illustrates the distribution of meanings of the remoteness markers. We can see that the most common meaning is that of remote (or distant) past with 20 occurrences – a finding consistent with the data of Bybee, Perkins and Pagliuca (1994, 98) – while close (or near or immediate) future is more common than remote (or distant) future. The table also shows that these two tenses have the greatest potential to occur as the only tense with remoteness marking in past and future respectively. This means that if the language has a general past and one tense marked for remoteness, it is typically the remote past, and if there is general future and one tense marked for remoteness, it is typically the close future.

<table>
<thead>
<tr>
<th></th>
<th>Past</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remote Distant</td>
<td>Middle</td>
</tr>
<tr>
<td>Only remoteness</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>marker in past</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>/ future</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Other remoteness</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>markers in past</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>/ future</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Total past</td>
<td>39 past markers</td>
<td>10 future markers</td>
</tr>
</tbody>
</table>

Table 5.4. The meaning of tenses marked for remoteness.
The small number of close pasts that would occur as the only remoteness markers in past is not as surprising when considering that in several languages it is possible that the marking with a former meaning of present perfect has undergone a reanalysis into a marker of close past, and as this is often obligatorily expressed, it has made the meaning of the previously general past to become that of remote (or “non-close”) past. The process of the present perfect developing into a hodiernal past (and the former general past developing into a pre-hodiernal past), common in e.g. many Romance languages, is described by Bybee, Perkins and Pagliuca (1994, 101), and is reflected for example in Spanish, Catalan and Occitan (Dahl 1985, 125).

The difference between close and hodiernal past is not easy to make. Dahl refers to the Catalan tense as hodiernal past (1985, 125) whereas Hualde calls it present perfect and says that it is used for past actions that took place in the same unit of time as the moment of speaking (1992, 304) – time reference clearly stemming from the former present perfect sense of the marking. While this unit can be “today”, it is not said to be the only possibility (in the words of Bybee, Parkins and Pagliuca the current day is common as the frame for current relevance [1994, 102]) and the analysis of recent or close past over hodiernal past can be justified – just as well as the tense could be said to be a hodiernal past with a subjective cut-off point. All this is to say that what applies to the evolution of present perfect to hodiernal pasts can be expected to apply to the evolution of present perfect to close pasts.

That remote past occurs more often as the only past tense that is marked for remoteness – along with a general past tense – hints of a tendency that when a remote past evolves into a language which previously only has a general past, it does not force the general past to change into close (or “non-remote”) past. This may be due to the two different basic senses of “remote past”: In discussing the emergence of close or hodiernal past to a language, it was said that the previous general past changes its meaning into remote or pre-hodiernal past. If this is the case, the scope of remote past is wide: everything prior to the current day or whatever the unit of time is considered “remote”. Remote past is seen as the “norm” and close or hodiernal past as the exception. The clarity of the cut-off points today / earlier than today or even recently / earlier than recently facilitates the obligatoriness of the use of close/hodiernal past thus forcing the previous general past into a remote past. This is the case for example in Catalan described above. But the scope of remote past may also be considerably narrower. In this case the language typically has a general past tense that can always be used while the remote past tense is used if the great temporal distance (however it is subjectively decided) is stressed. The general past tense is the norm and the remote past is the exception. So, if a language that previously only has the general past tense develops a remote past
tense the temporal scope of which is narrow and distant, the cut-off point is necessarily highly subjective, leaving the general past tense as a choice that is always possible. Thus in languages such as Dolakha Newar, there is a general past tense (71) (Genetti 2007, 361) as well as remote past (72), which denotes events that have occurred at a time considerably prior to the time axis (2007, 365).

(71) At baje syät -cu.
     eight o'clock kill -3SG.PAST

'(They) killed (them) at eight o'clock.'

(72) Ji mucā tākku thi -pul pokhara onŋ -guŋ.
     1SG child time one -time Pokhara go -1SG.REM.PAST

'When I was a child, I went to Pokhara one time.'

There are also cases that contradict the above in that a remote past with a wide scope co-occurs with a general past. In Kobon, the remote past indicates that the situation took place before the day of utterance (73) (Davies 1981, 167) and while the general past (74) (1981, 167) is typically used to indicate recent situations, it can also be used to indicate situations further in the past, (Davies 1981, 166-167).

(73) Ral -be.
     harvest -2PL.REM.PAST

'You harvested.'

(74) Yad au -ín.
     1SG come -1SG.PAST

'I have come.'

Turning to examine all the tenses in languages which have remoteness marking, in all but two of these twenty-one languages there is at least one tense that is not marked for remoteness. The exceptions are the languages of Fyem and Goemai. In Fyem there is a basic aspectual distinction between imperfective and perfective (Nettle 1998, 31). Past may be non-obligatorily expressed with marking of either distant past (75) (1998, 36), hesternal past (76) (1998, 40) or hodiernal past (77) (1998, 41). In Goemai, there is likewise a primary distinction between several aspects and the tenses of remote, hesternal and hodiernal past as well as the close future are non-obligatory.

(75) Tì söö -rá daal.
     1PL.PFV go -REM.PAST war

'We went to war.'
A marker with a remoteness distinction is marked inflectionally in 24 cases, periphrastically in 22 cases and with a clitic in three cases. If we compare this distribution to the distribution of markers without remoteness distinctions (excluding zero-marked tenses) (in Table 5.5.), we can see that former are more likely expressed periphrastically than the latter. They are therefore grammatically more marked (if periphrastic expression is seen as more complex than inflection), which could be argued to mirror their semantically more specific (Dahl 1985, 19) nature. Another explanation could be the relative age of remoteness markers: If a remoteness distinction arises in a language previously lacking them (for example from completives, anteriors or temporal adverbs [Bybee, Perkins & Pagliuca 1994, 101]) the existing marker of general past or future has naturally had more time to undergo grammaticalization processes (in that syntactic role) making it more probably inflectional than the new remoteness marker. For example, in the seventeenth century French the newly developed Passé Composé – formed with an auxiliary and the past participle – became a hodiernal past leaving the older, inflectional Passé Simple as a pre-hodiernal past (or in practice, a general past) (1994, 101). It should be noted, though, that remoteness markers may also be older than markers of general past or future. This seems to be the case e.g. in Mwera (Bybee, Perkins & Pagliuca 1994, 101).
5.3.4. Discussion

If a concept is not able to handle degrees of remoteness it would have two choices if confronted with a language that has them: it could ignore markers that carry such a meaning altogether or it could analyze them as carrying the meaning of simple past or future tense. This is a problem that would be faced e.g. by such concepts that are based on English and require binary nature of tense oppositions (if the English tense system is analyzed to consist of one or two binary oppositions), even if such a concept was intended to be universal. Ignoring remoteness markers would lead into accepting only 124 markers (out of the 193) in the data and as the marking of remoteness is much more frequent in past than in future (39 markers vs. ten markers), leaving out markers with a remoteness distinction would mean that future would actually emerge as the most frequent tense. However, this is not the route of any sensible linguist.

The latter choice – to analyze these markers as general pasts or futures – leads into a deceivingly complete picture in which a language can simply be said to have a past and/or future tense. There would thus not be any apparent “gaps” and therefore no reason to suspect that finer distinctions would have been possible. The effect of this can be examined by analyzing whether the languages have at least one past, present and/or future tense. If non-pasts and non-futures are once again left out of the picture (for the sake of comparability and the ease of analysis), out of the 62 languages 56 have at least one past tense marker, 31 have a present tense marker and 52 have at least one future marker. This statistics, according to which languages “have past” or “have future” equally often, is thus deceivingly neat ignoring possibility to further analysis.

Table 5.6. sums up the previous discussion. Leaving out remoteness markers would make future the most frequent tense with the share of 40 % of all tense markers. The proliferation of past tenses marked for remoteness (80 % of all remoteness markers) means that if remoteness distinctions are accounted for, past emerges as the most frequent tense with the share of 48 % – a percentage understood properly only if the effect of remoteness markers is accounted for. And finally, if remoteness distinctions are not recognized but these tenses are “simplified” into general past or future, the vast majority of the languages of the data have past (90 %) and future (84 %) and the possibility for finer distinctions might be left unnoticed. The most accurate picture emerges when the separation of remoteness and non-remoteness markers is possible – thus by appropriately recognizing degrees of remoteness. Non-pasts and non-futures are not included in the table.
Table 5.6. The distribution of meaning of remote markers versus non-remote markers.

<table>
<thead>
<tr>
<th></th>
<th>Non-remoteness markers</th>
<th>Remoteness markers</th>
<th>All markers</th>
<th>At least 1 past / present / future per language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>35% (44)</td>
<td>80% (39)</td>
<td><strong>48%</strong> (83)</td>
<td>90% (56)</td>
</tr>
<tr>
<td>Present</td>
<td>25% (31)</td>
<td>-</td>
<td>18% (31)</td>
<td>50% (31)</td>
</tr>
<tr>
<td>Future</td>
<td><strong>40%</strong> (49)</td>
<td>20% (10)</td>
<td>34% (58)</td>
<td>84% (52)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (124)</td>
<td>100% (49)</td>
<td>100% (172)</td>
<td>-</td>
</tr>
</tbody>
</table>

The aim of the previous discussion was to show that if a concept aims to have proper explanative power over languages with tenses with degrees of remoteness, it simply has to support degrees of remoteness. In this sense supporting degrees of remoteness is not an individual choice but it necessarily follows from the set of languages the concept is meant to cover. Dealing with such languages, and with degrees of remoteness, poses additional requirements to the concept:

Supporting degrees of remoteness means that temporal oppositions cannot be restricted to binary oppositions which either have a negatively defined “non”-member (such as past / non-past or future / non-future) or which consider tense to be a binary opposition between past and present. Likewise temporal remoteness requires that tense in general is seen as temporal and the existence of remoteness forms in the future – such as the remote future of Nkore-Kiga (78) (Taylor 1985, 154) that “inevitably refers to something beyond the coming night’s rest” (1985, 153) – means that the concept should treat past and future symmetrically (at least in that they are both seen as temporal).

(78) A **-rya** -gyenda.

3SG -REM.FUT -go

'He/she will go.' (Later than today.)

As discussed above, supporting degrees of remoteness is not a matter of choice but rather a matter of which languages are under study. Therefore the following advantages of supporting them are actually advantages of properly recognizing them – there being no real alternative. Anyway, the advantages of properly supporting remoteness include the possibility to study asymmetry between past and future temporal expressions and the proliferation of remoteness forms and cut-off points in the past versus the future.

Remoteness marking also presents more subjectivity to the usage of tenses. While the usage of general tenses varies only in whether they are obligatory or not, with remoteness marking it is possible to study the flexibility and subjectivity of the cut-off points (e.g. the combinations of tenses and temporal adverbials) and the alternation between general past or future and remoteness forms.

One language in which these kinds of questions are relevant is South Baffin Inuktitut. As described
by Hayashi and Oshima, the language has four separate past tenses – recent, hodiernal, pre-hodiernal and distant – the relation of which is not purely linear: there is overlap in the semantics of the past tenses (making fine-grained and subjective specification possible, not necessary) and the pre-hodiernal past is chosen in cases of remoteness indeterminacy (2015, 801).

Remoteness marking also adds nuances to the study of the relationship between temporality, modality and aspectuality. Future markers of a language may differ e.g. in their level of certainty and in their co-occurrence with markers of irrealis (de Haan 2011, 459-460). If a language has temporally differentiable future markers – degrees of remoteness – the interplay is more complex and fruitful to analyze. The languages of Rugeiriku, Kesukuma and Ewondo (as discussed by Botne 2011, 546) are good examples: in Rugeiriku there are two futures, remote and immediate. The remote future denotes events that occur somewhere in the future and are rather speculative while the events denoted by immediate future are expected to occur (Möhlig 2005, 82). In Kesukuma the remote and near futures are described to behave in the same way (Batibo 1985, 270). In Ewondo one future expresses definiteness and implies immediacy, another future expresses that something is probable and implies not-too-distant future and a third future expresses low probability and implies remote time (Redden 1979, 95).

Likewise, the study of the relationship between past tense, aspect and mood gains from examining languages with degrees of remoteness in the past. It is, for example, speculated that the meaning of the markers generally understood as “past tenses” would not be temporal at all, but rather that of conceptual remoteness (Thieroff 1994, 9) or disfocality (Janssen 1994, 116), the question boiling down to whether it is the temporal or the modal distance that can be seen as primary (Harder 1996, 343-344). Studying the behaviour of remoteness markers could be insightful in such cases. An example of a study in which the interplay of remoteness and mood in the past is of special interest is the treatment of the so-called double tense construction in the language of Matses by David Fleck (2007). In Matses "the speakers specify both (i) how long ago an inferred event happened and (ii) how long ago the evidence upon which the inference was made was encountered"; portmanteau verbal suffixes mark both evidentiality and tense (2007, 589). In (79) "a recently made hut was discovered by the speaker a long time ago" and in (80) "an old hut was discovered by the speaker a short time ago" (2007, 589-590).

'Non-Matses Indians (had) made a hut.'
5.4. The Theme and the Function of Tense

5.4.1. The Components

So, what does tense do – as in what is the verb in the very nucleus of every definition or concept of tense? And what does it do it to – as in what are the entities involved? These questions can be broken down to several components: The function of tense (Tense locates something, Tense examines something or Tense points to a direction of something), The relationship between the origo and the theme (Tense forms a relation or Tense is a vector), The nature of the theme (The theme is a time, The theme is a situation or The theme is a region), The duration of the theme (The theme may be a point, The theme may be a span, The theme may be limitless or The theme may consist of multiple parts), The nature of the origo (The origo is the moment of speech, The origo is a time of orientation or The origo is a vantage point) and The duration of the origo (Origo may be a point or Origo may be a span). All these questions are illustrated in figure 5.4. below.

These are perhaps the most central semantic components of any concept of tense. Yet, these are the ones that are mostly impossible to examine typologically with empirical data. This is because it is possible to arrive at many different conclusions even when examining just one language, English –

Figure 5.4. The semantics of tense.
the native or working language of all the linguists behind the concepts treated here. A semantic survey to native speakers could not be carried out even for English with clear and satisfactory results. Answers cannot thus be reached by examining example sentences and their translations taken from reference grammars. The closest we can get is to examine the definitions of tense and single tenses used by the authors of said grammars. These definitions are influenced by the theoretical presuppositions of the authors, but also by the linguistic reality of the language they are describing. So while the definitions cannot be said to exhaust all possible analyses of semantics of tense in the language – the definitions are typically traditional and vague, as reference grammars are not the place for theoretical discussion of semantics of tense – they are based on knowledge of what is possible and probable in the language. They can thus be seen as sources of possible hints.

So, we are left with mainly theoretical tools: comparing the concepts with each other and with the definitions used in (and hopefully influenced by) the description of individual languages. The components discussed in this section are of no great importance for actual typological study – because as long as the semantics of actual tense markers of languages may merely be speculated each set of component values is equally adequate in capturing desired data – but they are of great importance for theoretically inclined studies. Furthermore, examining the theory behind meaning of tense helps creating comparability between theories and concepts resulting in more fruitful discussion – and possibly even in such semantics that better capture the linguistic reality. In this section I will examine the components The function of tense, The relationship between the origo and the theme, The nature of the theme and The duration of the theme. The discussion is purely theoretical – the typological data is not relevant in this section for the reasons stated above. The components dealing with the origo (and therefore with the type of temporal reference [deictic versus anaphoric]) are discussed in the next section.

5.4.2. The Theoretical Data

I will first examine the component The function of tense. There are always at least two relevant entities involved in the semantics of tense: the origo and the theme. There are three possibilities (found in the theoretical data) for the way the relation of these entities may be seen, illustrated in Figure 5.5. below. Tense may either be seen as locating the theme, examining the theme or pointing to the direction of the theme. Majority of the concepts see tense as either locating or examining the theme with the sole exception of William Bull (1960), for whom tenses point to a direction of an
action (situation): Bull sees tenses as vectors which ultimately only say whether actions are anterior, simultaneous or posterior to the point present or one of the other points (1960, 18). Even in cases where the action is situated at point present, this is expressed with a zero vector (1960, 23). Bull has additional reference points (in theory an unlimited amount of them) (1960, 22), but the ultimate temporal reference is nonetheless a vector, and what his tenses therefore do is point to a direction. In Figure 5.5. pointing to the direction of the theme (Theme 2) is illustrated by a fat arrow on the third line: the arrow does not point explicitly at Theme 2 but rather indicates that a suitable theme is found in that direction (the past).

Figure 5.5. The difference between locating, examining and pointing to a direction.

All other concepts in the data see tense as either locating or examining the theme. The best way to advance the discussion is to include the component The nature of the theme at this point. Thus, tense can either be seen as locating or examining its theme, which can be a situation, a time or a region (the term situation includes all terms such as situation, action, event and states of affairs, which are considered identical for the current purpose). The components are related, as the difference between locating and examining can best be explained in relation to what is located or examined: locating more naturally deals with identifying entities that are “on” the timeline while examining more naturally deals with a section of the timeline (or any other structure) itself, that may or may not coincide fully or partly with the time or region examined. In other words locating concerns the pattern while examining concerns the background. This leads to the connection that situations are more naturally located while times and regions are examined, even though we will soon see that these are not the only possible combinations. These connections are illustrated in Figure 5.5. above: on the first line Theme 1 is located (“identified”) whereas on the second line Theme 2 partly coincides with the time examined.
Eight concepts in the theoretical data consider tense to locate the theme whereas three concepts consider it to examine it. The concepts that consider tense to locate its theme consider the theme to be a situation in most cases, as expected: “- - tense simply locates the situation in question” (Comrie 1985, 41) and “States of Affairs can be located in the time interval - - “ (de Groot 1995, 39). There is only one exception as Johnson considers tenses to locate times: “- - the function of a tense category is to locate the position of the speaker’s reference time - -“ (Johnson 1981, 151). The concepts that consider tense to examine its theme vary in what they consider the theme to be. Klein considers the theme to be a time (1994, 6), Nordlander considers it to be a situation (1997, 121) and Janssen considers it to be a region of referential concern (1994, 111). This difference in what is examined is not trivial as it is reflected in the respective treatments in many ways, for example in the way how for Klein tense has nothing to do with situations but it is the job of grammatical aspect to link the situations to the time examined (1994, 99). Likewise, the whole premise of the concept of Janssen (tense as non-temporal) is dependent on the idea of dividing the mental "field of vision" strictly into two separate regions, those of focal and disfocal referential concern, one of which is examined at a time and in which a salient entity then lies (1994, 108). As Bull sees situations (rather than times) as something tenses point towards to (1960, 18), we can conclude that nine concepts deal with situations, two with times and one with regions. The findings are repeated in Table 5.7., which shows that locating situations is by far the most common case with all other combinations only having one occurrence.

<table>
<thead>
<tr>
<th>Locating</th>
<th>Situations</th>
<th>Times</th>
<th>Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pointing to a direction</td>
<td>Bull (1960)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.7. The relationship between the origo and the theme and the nature of the theme.

Before continuing to other components we can examine the definitions used by the reference grammars. Total of 37 grammars out of 60 offer a non-trivial definition for tense (either an explicit one or one that can be constructed from the definitions of individual tenses). The picture that emerges from these definitions is similar to the above analysis – and even more uniform: In every single definition in which it is made explicit (27 out of 37) tense is considered to deal with situations rather than times or regions. The term situation is once again defined to include all related terms (that contrast with times or regions). Thus, tense is described to deal with situations in
Santali (Neukom 2001), actions in Catalan (Hualde 1992), events in Goemai (Hellwig 2011) and states of affairs in Kwaza (van der Voort 2004) – all treated synonymously for the current purpose. In a few cases the nature of the theme is left unclear as the definitions only speak of “time specification” (Punjabi, Bhatia 1993), the expression of “temporal reference” (Mosetén, Sakel 2004) or “coding of temporal distinctions” (Hdi, Frajzyngier 2002). Likewise some definitions speak of tense as “referring to” past, present or future (Daur, Wu 1996), which is more likely a case of vagueness of the definition than a case of actually dealing with times. Even though dealing with situations is more typical in concepts, as discussed above, it is still surprising to find a total lack of alternative views, as at least Klein with his idea of topic times (1994, 6) would have been expected to have more influence on the authors of grammars. Likewise, in every definition that offers an explicit, non-vague description of what tense does, some variant of locating is used. The term locate once again includes related terms (that contrast with examining and pointing): thus in Tokelauan situations hold (Hooper 1996), in Zulu they occur (Poulos & Bosch 1997), in Kobon they take place (Davies 1981), in Goemai they are located (Hellwig 2011) and in Latvian they are posterior or anterior (Nau 1998).

Whether the theme is considered to be a situation, time or a region, it can be thought to have varying internal structure: Namely, it can be considered to be a point, a span or to even be limitless or to consist of multiple parts. Most concepts accept the span-like nature of the theme. If the concept deals with situations, they can be said to occupy an extended time period (Comrie 1985, 41) or to have length (Bull 1960, 17). If the concept deals with time, the span equals to time span, as in Klein’s concept (“- - time span to which the speaker’s claim is confined” [1994, 6]), or to an interval of time (Johnson 1981, 150). Regions (that are neutral to time) are not conceivable as neatly one-dimensional entities – as Janssen describes them as parts of the mental field of vision (1994, 108) – but they are still best classified as spans, even though two-dimensional ones. Altogether span-like nature is accepted by ten out of the twelve concepts. The exceptions are the concepts of Reichenbach (1947, 289) and Nordlander (1997, 120) who only accept pointlike themes; situations that are represented as punctual. It is important to note that despite the non-punctual nature of most real world situations any situation can freely be conceptualized as a point if the concept decides to do so. A concept that accepts span-like themes may also accept punctual themes. This is the case with Comrie, according to whom tense is neutral to whether the situations occupy a single point in time or an extended time period (1985, 41), Johnson, who says that the reference time may be a moment or an interval of time (1981, 150) and Functional Grammar, in which states of affairs may or may not be momentaneous (de Groot 1995, 33).
A special case of the theme as a span is the possibility of the span to be infinite, covering all time. This is one possible explanation for tenses that express universal, timeless truths (the other explanation being that the tense in question – most often the present tense – is used in an atemporal or a -TEMP sense). Thus, a theme for Klein may “- - be not restricted at all - -“ (1994, 6), a theme for Allen “- - if extended far enough, may include ‘all time’- -“ (1982, 158) and for Bull the event that is called the point present is “the act of contemplating all time” (1960, 21). Some concepts also allow the theme to occur in several parts, be they points or time spans: Hans Reichenbach argues that a tense may indicate repetition, meaning that something "is true for a great many instances". He demonstrates this with the English Extended Present in *Women are wearing larger hats this year* and with the Turkish tense marker of repetition and duration (1947, 291). The semantics of the Turkish tense are illustrated in Figure 5.6.; according to Reichenbach the moment of speech (S) and the reference point (R) coincide and there are multiple events (E) involved. In a similar way Wolfgang Klein argues that in an example such as *Very often, Chuck was sitting in his chair and dreaming of the past* the claim is made about a number of themes (topic times), each of which is contained in an instance of Chuck sitting (1994, 7). The matter of whether themes can be punctual, spans, limitless or multi-part is not discussed in the reference grammars at all.

\[
\begin{array}{cccccccc}
E & E & E & E & E & E & E \\
S, R
\end{array}
\]

Figure 5.6. The Turkish tense of repetition according to Reichenbach (1947, 291).

### 5.4.3. Discussion

For the reasons outlined above – the difficulty or impossibility of examining the nature of the theme and the acts of locating, examining and pointing with the help of actual linguistic data – the components discussed in this section have no practical effect in gathering typological data. There is no reason to assume that a concept that deals with tense as examining times would not be just as appropriate or inappropriate in describing tenses of any one language than a concept that deals with tense as locating situations. Even more so as typological data is often extracted from as neutral a linguistic environment as possible, whereas it is the atypical environments which often give explanatory power to different semantic theories. In other words, contrasting semantic views works better on the level of theoretical, semantic discussion. In the end some views might emerge as
having more explanatory power or otherwise more likely to represent either universal or languagespecific linguistic realities, but as long as any one sentence can be more or less adequately explained by widely different frameworks of tense, we cannot speak of their crucial relevance for typological study.

The previous being said, the choices of whether tenses locate, examine or point at situations, times or regions are not cosmetic either, as they belong to the central semantic components of tense. So while their selection is not crucial for a study that focuses more on the comparison of linguistic strategies, they are of importance for the more theoretically inclined studies, for which gathering of linguistic data is more for exemplary purposes. For example, in his study of the development of tenses from Late Latin to old French Howard Garey considers the function of tense to be locating the reference period (R) in relation to the moment of speech (S) (1955,12) while the actual event (E) is located (in relation to R) by a relationship he calls tempus (1955, 13) (which more or less corresponds to the treatment of perfect and prospective in the work of Klein [1994]). The third relevant relation for Garey is called action (whether the event is prelocutory, collocutory or postlocutory; the relation between S and E) (1955, 13) and together these three relevant relations form a chronicle: the relationship of all three elements – S, R and E (1955, 13). Garey sets out to compare the frame of temporal reference in Late Latin and Old French, the division of labour between verbal forms and other elements as well as the systems of temporal categories in general (1955, 12). Thus for him it is of crucial importance to define explicitly what it is that tenses – as a semantic notion – do when compared to other semantic notions. Any element that does not locate a reference period represents a relation other than tense.

The choice of the component values discussed is often intertwined with the treatment of perfect. If the concept includes the meaning of perfect under tense, tenses (ultimately) locate the situation – this is the case for example with Reichenbach (1985) and Comrie (1985) – whereas in a concept such as Klein’s (1994), where tense excludes perfect, locating situations is considered an aspectual matter (concerning meanings such as perfect, perfectivity and imperfectivity). A concept of tense which includes perfect often focuses on identifying and ordering referents from the linguistic context – in other words, locating situations. Thus for example Gerd V.M. Haverling in her study of actionality, tense and viewpoint in Latin considers perfect to be a tense (2010, 279) and defines tenses to refer to situations and events (2010, 345). She also emphasizes a central feature of the tense system in Classical Latin: to underline the relative sequence of events with precision. In example (81) the subordinate clause has an absolute-relative tense instead of having two simple past tenses follow each other (2010, 342). Tense is thus seen as weaving a precise web of events in
which the relations between situations are as important as the relations between situations and the moment of speech.

(81) **Cum ceciderat, surgebat.**

'Whenever he had fallen, he got up again.'

A concept of tense which does not include perfect, on the other hand, is used when tense is seen more like a tool that reveals referents ("... events are placed in a time which is itself placed with reference to S" [Garey 1955, 12]). This time may be considered a temporal setting (Garey 1955, 12).

5.5. The Origo and the Type of Temporal Relation

5.5.1. The Components

In the previous section I examined whether tense is seen as locating, examining or pointing to a direction. I also examined the theme (which can be a time, a situation or a region) and its nature (whether it can be seen to have duration or not). We may now turn our focus on the origo. The origo is the reference point on which the tense relation is based: more precisely, the point or stretch of time or a point in a mental “field” the point of view from which the theme is located, examined or pointed at.

There are two components that deal with the origo; **The nature of the origo** (**The origo is the moment of speech, The origo is a time of orientation or The origo is a vantage point**) and **The duration of the origo** (**Origo may be a point or Origo may be a span**). If the origo is seen as the moment of speech, it means that the theme is compared to the point or stretch of time that includes or coincides with the moment of speech. If the origo is seen as a time of orientation, it means that the theme is compared to some point or stretch of time, which may, but also may not coincide with the moment of speech.

The nature of the origo corresponds to the type of temporal relation. The temporal relation between the moment of speech and the theme can be called *deictic* or *absolute*. The temporal relation between a time of orientation and the theme can be called *anaphoric* or *relative*. (In this work I will use the terms deictic and anaphoric.) In an anaphoric relation the time of orientation is established in the discourse and it may be for example the time of a situation already referred to. In any case,
with the knowledge of the discourse context the time of orientation can typically be easily resolved. In (82) from Ndyuka, for example, the time of orientation is a previous context established by the narrative (Huttar & Huttar 1994, 493). However, the time of orientation may also remain more or less ambiguous. Such a claim is made for example by Bernard Comrie of the English anaphoric present tense expressed by the participle *awaiting* in (83). Comrie argues that while in the typical interpretation the time reference of *awaiting* is simultaneous to that of *proceeding* (the time of orientation of *awaiting* would be established by the time of *proceeding*), it is only one of the possible interpretations – one of the others being that the passengers who are currently awaiting the flight proceeded to the gate at some earlier time (in which case the time of orientation of *awaiting* would be the present moment) (1985, 57).

(82) *Kitikooma, ne a o teli en nen.*

hawk CON 3SG FUT recount 3SG.OBL name

‘Falcon, then he was about to proclaim his name.’

(83) *The passengers awaiting flight 26 proceeded to departure gate 5.*

The second component that deals with the origo is the duration of the origo, namely whether it is necessarily a point or whether it can be a span. A span-like nature is easy to picture for a time of orientation, as the time of orientation may coincide (even fully) with the time of some situation already referred to, but even the moment of speech may be seen as a span: even though the actual present moment may be punctual (if it exists at all), the linguistic notion of moment of speech may indeed have duration depending on the limits of what is considered to be the present context. I will first go through the theoretical data, after which I will examine the treatment of origo in the reference grammars in some detail. Finally I will look into the typological data.

5.5.2. The Theoretical Data

We can start by examining the nature of the origo, after which we can look into the duration of the origo. Eight out of twelve concepts consider the origo to be the moment of speech and thus deal with deictic tenses. The moment of speech goes by many names. For Reichenbach it is the point of the act of speech (1947, 288), for Klein the time of utterance (1994, 121), for FG the moment of speaking (de Groot 1995, 39), for Johnson the time of speaking (1981, 151), for Allen the moment of coding (1982, 151), for Bull the point present (1960, 17), for Harder the time of speech (1996,
Three concepts accept origos other than the moment of speech and thus anaphoric time reference. While in section 5.6.2. we will come to the conclusion that for Comrie every tense is describable with the same formula (1985, 130) and that we cannot strictly speak of separate categories of absolute and relative tenses (as he deals with complete expressions rather than grammatical categories), the moment of speech is nonetheless irrelevant for tenses he calls relative, and his concept includes complete expressions that correspond to deictic and anaphoric tenses. While for Comrie the time of orientation of relative tenses is not resolvable, for Nordlander it generally is. When Nordlander speaks of relative time reference in contrast to absolute time reference (1997, 120), he speaks of the temporal reference point which is in the guise of the discourse focus – and which is resolvable. The third concept which accepts anaphoric time reference is that of Thieroff, who speaks of orientation time (1994, 7). Once again the concept of Janssen is an exception. As he does not see tense as temporal, his origo cannot be temporal either. For him, the origo is a mental vantage point (1994, 93), which resembles the moment of speech in that its location with respect to the speaker is constant – albeit in terms of “mental spatiality” rather than temporality.

While the theme is predominantly considered to be a span, the origo is more widely considered to be a single point. This is due to the conceived pointlike nature of the present moment but the idea also extends to the concepts which speak of times of orientation instead of the moment of speech. Thus, for Comrie the origo may be other than the present moment but he still assumes it to be a single point in time (1985, 17). Carl Bache, however, speculates that the present may stretch over minutes or even decades and centuries, making a span-like origo a possibility (1995, 263).

5.5.3. Treatment in the Reference Grammars

In the majority of the reference grammars the nature of the origo is not explicitly given. In those grammars in which it is given, the origo is clearly considered to be the moment of speech and the temporal reference of the tenses is considered to be deictic. Altogether, explicit information can be found only in thirteen of the 37 definitions. Out of these thirteen languages the origo is considered to be the moment of speech (or more accurately, one of the terms included under the umbrella term) in six cases. In Imbabura Quechua the origo is called the present moment (Cole 1985, 142), in Punjabi simply the present (Bhatia 1993, 241), in Kodava a speech act time (Ebert 1996, 20), in Koyra Chiini the moment of speaking (Heath 1999, 159) and in Latvian and Santali a moment of...
speech (Nau 1998, 32; Neukom 2001, 68). The tense systems of these six languages are correspondingly analyzable as deictic.

While the notion of the moment of speech always corresponds to deictic tenses, time of reference does not always correspond to anaphoric tenses. In seven languages the origo is considered to be either a reference point as in Dolakha Newar (Genetti 2007, 354), Fongbe (Lefebvre & Brousseau 2002, 90) and Tuvaluan (Besnier 2000, 478), a temporal point of reference as in Ndnyuka (Huttar & Huttar 1994, 490) or a reference time as in Bilua (Obata 2003), Tokelauan (Hooper 1996, 17) and Toqabaqita (Lichtenberk 2008, 677). While in rest of these languages the tense system (or a part of the tense system, as in Fongbe) is analyzable as anaphoric, in Dolakha Newar and Toqabaqita the systems are analyzable as deictic: The reference point in Dolakha Newar is said to be established in the discourse context (Genetti 2007, 354), yet it commonly corresponds to the “time of the speech event” (2007, 354) and the origo gets an anaphoric interpretation only in specific uses; e.g. in the non-past use of past tense in clauses which denote events upon which other events are contingent (84) (2007, 363). The behaviour of the origo in Dolakha Newar is thus similar to many other languages with a deictic tense system. The only difference is that the description of the origo of Dolakha Newar is such that it includes atypical usages such as historical present (Genetti 2007, 357).

(84) U hat -mun harsa=uri thijita bāmala -ku ju -en.
    this say -2SG.PAST if =INDV 1PL.INCL.DAT bad -NOMZR  be -PCPL

'If you say this, bad things will happen to us.'

In the reference grammar of Toqabaqita the tenses themselves are defined as relative (or anaphoric) (Lichtenberk, 2008, 677) even though such an analysis is not in the line with the data of the current work. This matter is further discussed under the typological data. In no reference grammar is the origo considered to be a (time) span. The origo is either conceived as a point or the matter is not discussed at all.
5.5.4. The Typological Data

The vast majority of tense markers in the typological data can be considered to be deictic. This is the case with the tense markers of 57 languages. For example, in Imbabura Quechua the tenses are relative to the present moment (Cole 1985, 142) and the past, present and future (85) (1985, 145) tenses are labeled absolute (deictic) tenses.

(85) *Shamu* -ngui.
come -FUT.2SG
'You will come.'

Even though the nature of the origo is not always made explicit in reference grammars, the deictic nature of the tenses is often clear. In the reference grammar of Kwaza the tenses are described as expressing future, non-future, past and remote past (van der Voort 2004, 390). The translations of the examples, such as that of the past tense (86) (2004, 388-391), offer further temporal specification confirming the deictic nature of tenses.

(86) *Nũ'ri* -xa -ky -hỹ -re.
satiate -2SG -PAST -NOMZR -INT
'Were you full?' (this morning up to three days ago)

Only in five languages the tenses can be considered to be anaphoric. These are the languages listed above in which the origo is clearly described as a time of reference: as deictic tenses are the norm, the anaphoric nature of tenses is typically made explicit. In addition to a deictic future marker the language of Fongbe has the marker *kọ*, which is defined as a marker of anteriority with respect to a reference point (Lefebvre & Brousseau 2002, 90). Clauses containing *kọ* are interpreted as expressing past or pluperfect depending on the aspectual class of the situation: an activity triggers the pluperfect reading (87) whereas achievements and states may trigger either reading (88) (2002, 91).

(87) *Bayi* kọ ḍà wọ.
Bayi PAST prepare dough
'Bayi had prepared dough.'

(88) *Bayi* kọ mọ ãjọtọ ọ.
Bayi PAST catch.sight.of thief DEF
'Bayi caught sight of the thief.' / 'Bayi had caught sight of the thief.'
In Ndyuka there is a three-way opposition between relative past, relative present and relative future (Huttar & Huttar 1994, 489). The tenses are relative to a temporal point of reference established in the context. For example, for the future tense expressed by the marker *o* this point of reference may be the time of speaking as in (89) (1994, 492) or the time of some other event as in (90) (1994, 493).

(89) *Goontapu o taanga fu tan.*
    world  FUT difficult for stay
    'The world will be a difficult place to live.'

(90) *Kitikooma, ne a o teli en nen.*
    hawk  CON 3 SG FUT recount 3 SG.OBL name
    'Falcon, then he was about to proclaim his name.'

In Bilua the tenses are said to locate situations with regard to a reference time which typically – but not always – coincides with the speech time. The tense system is called both absolute and relative depending on which interpretation is relevant (Obata 2003, 116). In Tokelauan each marker is defined as "absolute or relative" (Hooper 1996, 17) and in Tuvaluan all tense categories can be used to denote either absolute (91) (Besner 2000, 474) or relative (92) (2000, 479) tense (2000, 478) as demonstrated here with the non-past marker *e*. As speech time is basically just a special case of "any reference time", the tense systems of these three languages may be analyzed as anaphoric given that the grammatical environment of these two interpretations is identical.

(91) *E tagi me e mataku i te kulii.*
    NPAST cry because NPAST afraid at the dog
    '[He]'s crying because [he]'s afraid of the dog.'

(92) *Kaafai koo oko koe ki Nukufetau,*
    when INC reach you to Nukufetau
    *e sili kee mua koe o faipati ki ei.*
    NPAST superior SBJV first you CMP speak to ANA.PRON
    'When you reach Nukufetau, it will be best that you speak to him first thing.'

The tenses of Toqabaqita are also described as relative: their reference time may be the time of the speech act or the time of some other situation. In the latter case the reference time is usually signalled in another clause (Lichtenberk 2008, 677). However, the cases in which the reference time
differs from the time of the speech act seem to be limited to syntactically subordinate clauses such as the future in (93) (2008, 678),

(93) Qe sore -qe kai raa.
    3SG.NFUT say -DETR 3SG.FUT work

'He said he would work'

While this analysis is not wrong, it brings up an important question: whether the usage of tense markers in different syntactic environments is seen as contributing to the semantics of the marker in general or whether their behaviour in those environments is seen as a special case. Several other reference grammars treat tenses in subordinate clauses as anaphoric – or behaving anaphorically – but they do not make such a claim for the tense system in general. If anaphoric usage such as in (93) would lead into analyzing markers and tense systems in entirety as anaphorical, the number of deictic tenses cross-linguistically would drop dramatically. Therefore I do not analyze the tenses of Toqabaqita as anaphoric as they do not seem to show anaphoric behaviour in main clauses. While it is of course arbitrary to exclude subordinate environments from the data, such a restriction ensures the comparability of the remaining data. The behaviour of tense in subordinate environments and the relation between the two "sets" of markers remain interesting questions in their own right.

5.5.5. Discussion

If we sum up the findings of this and the previous section, we can say that according to the definitions used in reference grammars tenses locate situations with regard to the moment of speech or some reference time or point. Situations presumably have duration while the origo does not.

The question of whether the origo is defined as the moment of speech or as any point of reference equals to whether tense is seen as a strictly deictic phenomenon or not. The decision is relatively independent, as the acceptance of anaphoric tenses does not require for example the acceptance of non-finite or nonverbal environments. The choice of the type of origo is intertwined with (albeit still relatively independent from) the components of the nature of the theme and whether tense examines, locates or points at. These components form the backbone of the semantics of tense.

If anaphoric tenses are accepted, the notion of type of temporal relation becomes relevant and the tense systems of different languages can be compared on these grounds. The separation of deictic and anaphoric origos also draws attention to the cases in which deictic and anaphoric tenses co-
occur in similar environments in one language: like in Fonbe, in which there is a particle for anaphoric past and for deictic future (Lefebvre & Brousseau 2002, 89-94).

The notion of anaphoric (or relative, using the alternative term) tense may also be necessary for studying the usage and behaviour of tenses in a single language. This is the approach e.g. in Galia Hatav's study of tense of Modern Israel Hebrew, in which she examines the absolute (deictic) and relative (anaphoric) readings of tense in different syntactic and semantic environments (2010). She considers anaphoric readings to involve a shift and finds environments of obligatory and optional shifts (2010, 285).

Dealing with only deictic tenses has the advantage of treating all non-deictic uses as secondary or discourse-dependent making it easy to define a typical context or a typical use. Additionally, this makes the comparison of tense systems more straightforward, as the origo of all tenses in all languages would be a constant (the moment of speech). Leaving out anaphoric time reference leads to completely leaving out six languages (that lack deictic tense) out of the 62 languages in the current data.

The choice to deal only with deictic tenses is made explicit for example by Bob Morris Jones in his study of informal Welsh (2010, 29). This gives him the justification to explain non-concurrent situations ("situations which are not in periods of time which are traditionally associated with the tenses which the examples contain") (2010, 35) as atypical usages with certain language-specific conditions (2010, 35-47). The main analysis has then no problems defining the typical use or environment and maintaining the selected time-of-situation approach ("- - the function of tense is to convey the temporal location of situations in deictic periods of time") (2010, 30).

Then again, if a concept deals with anaphoric tenses the origo may still be represented by one symbol: the question of its actual location on the timeline could be separated from the relation itself and dealt with separately. In his paper on temporal deixis in text Vincenzo Lo Cascio proposes the term Given Primary Time (GPT) for "the time of the universe of discourse relevant for the event or state in question". This may be the time interval of the enunciation or the decodification or one established by the use of the official chronological system (1985, 193-194). In other words it includes deictic and anaphoric relations (1985, 198). Such an approach is also adopted by Kyung-Sook Chung in his study of tense, aspect, evidentiality and speech acts in Korean (2012). He considers tense to be deictic but also notes that deictic tenses are similar to pronouns in that they may also behave anaphorically – that is, "tenses are treated as free variables whose values are determined by variable assignment functions" (2012, 4). The anaphoric usage of deictic tenses is
analyzed either as a zero tense (anaphoric present) or an anterior (anaphoric past) and is interpreted in relation to the higher tense. Thus the reference time may be given either deictically or anaphorically (2012, 11).

5.6. Oppositions and Categories

5.6.1. The Components

Following the terminology used in this work, single tenses form oppositions of two or more tenses. Thus in a language the past tense may be in opposition with present and future tenses. This opposition in its entirety may be called a category when the focus is not so much on the individual tenses but on the relation of the temporal opposition and its linguistic or theoretical environment. Thus, while discussing single tenses, their oppositions are of interest, but when discussing e.g. whether tense is a property of verbs, noun phrases or the sentence, or what does tense do, we speak of the category of tense. In other words, an opposition exists on the level of the members of the category and the category consists of the opposition. This is illustrated in figure 5.7.

![Figure 5.7. The relationship between a category and an opposition between its members.](image)

There are two kinds of categories, or more properly, this work deals with categories in two separate senses: first there are categories that consist of actual, concrete, language-specific markers that are in an opposition (are mutually exclusive and semantically compatible) with each other. These are unproblematic. The other type of categories are abstract, theoretical categories, that do not necessarily correspond to language-specific categories. These categories, that are a part of concepts of tense, indicate what sort of category structure for tenses is seen possible. In other words, when examining possible tense categories posited by the concepts, we are not examining concrete grammatical categories in actual languages but rather abstract, semantic categories and their structure, even though in many cases the two are said to combine (indeed in Figure 5.8. below we focus on the categories as theoretical and concept-bound even though they are meant to represent the actual linguistic categories of Bulgarian). It is important to note that categories in this second
sense do not refer to cross-linguistic categories (see section 2.3.1.), as they may be tied into linguistic reality in a number of ways. This section deals with these abstract, theoretical categories, and their structure.

Even though tense is often referred to as a category of the verb etc., according to some of the concepts tense would actually be something that is common to two or several categories, hence the component Several tense oppositions (There may be several tense oppositions or There may not be several tense oppositions). These categories may then be seen as strictly temporal (Harder 1994, 62) or as combining temporal and aspectual/modal meanings (Thieroff & Budde 1995, 59). Figure 5.8. of the TMA categories of Bulgarian – slightly rearranged from Thieroff & Budde (1995, 57) – illustrates the latter view: Tense is something that is common to two categories – Tense-Aspect (perfect) and Tense-Mood (future tense). Both aspect and mood are also notions common to two categories each with the existence of the aspeccntual category perfective / imperfective and the modal category indicative / reportative. Note that past is here analyzed as a category of conceptual distance.

![Figure 5.8. Tense-mood-aspect categories of Bulgarian according to Thieroff & Budde (1995).](image)

If it is seen possible for there to be more than one tense categories, then additional components, such as Hierarchy between tense oppositions (Tense oppositions may have a hierarchy or Tense oppositions may not have a hierarchy), become relevant. Hierarchy can be understood either as some sort of order of “appliance” in that categories higher up in the hierarchy are more central and primal (in Figure 5.9. below Category A would be more central than Category B), or as a restriction; that the distinction made by the "lower" category is relevant only with one of the member of the "higher" category (in Figure 5.9. the distinction between z and q is made only when co-occurring with y. If x occurs, the distinction between z and q is not relevant). An example of this latter type would be a distinction of future and non-future which would only be made in present (or non-past) tense; if past tense was present, the distinction of future and non-future (in that language) would not be relevant. These two views are separate as hierarchy as an order of appliance does not necessarily pose restrictions to the occurrence of categories – in concepts such as Harder's there is a rigid order of appliance (of three categories) but any combination of co-occurrence is possible (1994, 63-64).
Further components include *Binary oppositions* (*Tense oppositions are necessarily binary or Tense oppositions are not necessarily binary*) and *Non-past and non-future* (*Non-past and non-future are supported or Non-past and non-future are not supported*). These two components are interrelated in that having more than one binary category almost always equals to having one “marked” member and one unmarked member per category (e.g. *future* and *non-future*). In addition to these components the concepts are analyzed in regard to whether they allow members of one category to be expressed with different grammatical strategies or not – if not, then the categories (more readily) correspond to grammatical categories.

All of the above can be seen to revolve around one question: on what level of the semantic structure does the notion of an *individual tense* exist? To put it crudely, if a concept suggests some kind of hierarchical structure for the semantics of tense, is the notion of *individual tense* reserved for the members of these separate categories, or is tense the so-called "final product" that results from applying all the categories? In the previous case, all the separate categories would be seen as proper tense categories (of which there would be several), while in the latter case all tenses would belong to a single, heterogeneous tense category. Figure 5.10 illustrates this difference (for this example, the notion of perfect is included under tense).

![Figure 5.9. Hierarchy of categories.](image)

![Figure 5.10. Tense as the "final product" and as a member of a category.](image)
According to the view \( a \) all tenses belong to one, big heterogeneous category. The oppositions past/non-past, future/non-future and perfect/non-perfect are not treated as proper tense categories but merely as features which have values – and that may or may not correspond to grammatical morphemes of actual languages. This means that individual tenses are compositional (e.g. English Pluperfect, Future Perfect or Simple Past), yet their composition, usage and selection may be explained with the features and their values: e.g. “- - to present events in other than chronological order, the pluperfect is an ideal mechanism - -“ (Comrie 1985, 67).

According to view \( b \) these individual features are actual tense categories – that typically correspond to actual linguistic categories. The members of these categories are individual tenses and as there are several categories, they can co-occur. To sum up, using the English Pluperfect as an example: According to view \( a \) Pluperfect is a (complex) tense that can be characterized by pastness and perfectness. According to view \( b \) Pluperfect is the traditional name for the expression in which past and perfect tenses co-occur. This difference is very relevant in discussing the components related to multiple categories: if a concept with a lot of semantic domains under the notion of tense follows view \( a \), then the components of hierarchy, binary categories and non-tenses typically get negative (not required or not supported) values. If such a concept follows view \( b \), then hierarchy, binary categories and non-tenses are typically required or supported.

5.6.2. The Theoretical Data

Many concepts do not make their position in one or more of the previous questions explicit and the analysis must be careful not to assume too much. In the following discussion a concept is said not to have some component value only if it is either explicitly stated or if it follows indisputably from some other component value of the concept. Likewise, a concept is said to have some component value only if it explicitly deals with the matter or the fact otherwise unarguably follows from the treatment.

It is easiest to start the analysis from the concepts that consider tense to necessarily consist of more than one category (remember that we are dealing with abstract, theoretical categories which may or may not correspond to actual linguistic categories). The prime example of this group is the concept of Thieroff, who – while not treating past or present as tenses – states that tense consists of two categories (which he in fact calls categorizations while reserving the term category for members of categorizations), anteriority (perfect) and posteriority (future) (1994, 5). Furthermore, these
categories are binary in nature (the category of anteriority, for example, consists of members "anteriority" and "unmarked for anteriority") and the unmarked member may be considered a non-tense (1994, 5). One or both of these categorizations may then be present in a given language and they may have language-specific hierarchy (1994, 8). The “inherent categories” of Dutch according to Thieroff are illustrated in figure 5.11. (1994, 8). Note again that the category of remoteness (corresponding to past tense) is not considered to be temporal.

![Diagram](image1)

**Figure 5.11. Inherent categories of the finite verb in Dutch according to Thieroff (1994).**

Another example of such a concept is that of Harder (1994). Harder argues that the three binary choices of the English temporal system, *past* / *present*, *+* / *−* *future* and *+* / *−* *perfect*, should not be seen as mere features of tenses but independent paradigms in their own right, so that the speaker does not have one choice between eight tenses but rather three separate choices (1994, 62). This leads to the possibility to analyze independent paradigms as tense categories – thus making tense something that is common to these categories. Furthermore, Harder stresses that each member of the binary choices consists of both content and expression (meaning and form) (1994, 63), which means that the analysis of categories as separate is justified both grammatically and semantically. This view is illustrated in figure 5.12.

![Diagram](image2)

**Figure 5.12. Tenses in the concept of Harder (1994) – the interpretation of multiple tense categories.**

There are some complications in this analysis. First of all, the three binary choices may be independent in the sense that they can be analyzed separately, but they are strictly ordered: the choice of *past* / *present* precedes the choice of *+* / *−* *future* and the choice of *+* / *−* *perfect* comes last (1994, 63). Second, Harder uses the term *tense* very scarcely and mainly in the traditional sense; to describe the composite tenses (both grammatically and semantically), which combine the *signs* (e.g.
the sign of past is understood to combine content and expression) from all three binary choices (1994, 63). Furthermore, Harder speaks of the description in terms of three sub-paradigms to explain the relationship between tenses. When describing the binary choices, he avoids the term tense and speaks only of choices, paradigms and signs. This leads to an alternative analysis, according to which binary choices constitute to the formation of (simple or composite) tenses and there would only be one tense category (even though the relationship between its members is more organized than in traditional concepts that do not stress independent sub-paradigms). This view is illustrated in figure 5.13.

![Figure 5.13: Tenses in the concept of Harder (1994) – the interpretation of a single tense category.](image)

Harder acknowledges that the status of the notion of tense in his work poses a problem (1994, 77). That he does not deal with the terminological issue in more detail is not a major shortcoming as for his work it is of no crucial importance. If we shift the focus from the few uses of the term tense (as Harder uses the term mainly when explaining the difference between his view and the “traditional” view and it is possible that he uses it only in the “traditional” sense) and focus on the other evidence presented above (to sum it up, Harder stresses focusing on the separate choices that correspond to the notion of category in both semantic and grammatical sense) the analysis in the line of multiple tense categories seems more plausible. Harder’s concept thus requires multiple tense categories, which are restricted to binary oppositions and which have a clear hierarchy. Non-tenses are supported and required.

For Comrie, tense is a grammaticalized expression of location in time (1985, 9). Comrie divides tenses into types based on their type of temporal reference. Absolute (deictic) tenses express a relation between the moment of speech and the situation (1985, 36) and relative (anaphoric) tenses express a relation between some reference point and the situation (1985, 56). The division is purely semantic, as Comrie states that both types of temporal reference may occur in finite environment depending on the language (1985, 56). Nonetheless, language-internally absolute and relative tenses may have very different syntactic environments: in English, simple finite verbs have absolute (94) (1985, 37) and non-finite verbs have relative (95) (1985, 57) time reference (1985, 56).
(94) *I promise to pay you ten pounds.*

(95) *The passengers awaiting flight 26 proceeded to departure gate 5.*

So far it would seem easy to establish separate categories for both absolute and relative tenses as they differ semantically and are by definition tied to “grammaticalized expression”. However, when examining constructions such as the English pluperfect (96) (1985, 65), these two aren’t seen as co-occurring. Instead, a third type of tense is introduced – the absolute-relative tense – which nevertheless combines the temporal reference of absolute and relative tenses: the situation is located in relation to a reference point, which is in turn located in regard to the moment of speech (1985, 65).

(96) *John had arrived by six o’clock yesterday evening.*

Comrie states that absolute-relative tenses *can* be compositional, as in English and in many other languages (1985, 76). According to my interpretation this introduces a problem: if both absolute and relative tense are seen as grammaticalized expressions of time – tentatively grammatical categories – what is the role of absolute-relative tense? If the auxiliary of the English pluperfect expresses absolute tense and the past participle expresses relative tense, absolute-relative tense cannot be a grammatical category, as a grammatical category cannot consist of grammatical categories. Yet all three are described in same terms and are in some respect equal for Comrie. Comrie presents a formula which captures the temporal reference of all these three types of tenses, repeated in Figure 5.14. (Comrie 1985, 130). In the formula $E$ stands for the situation, $R$ for the reference point, $S$ for the moment of speech, $magn$ for degree of remoteness and $n$ for the possible greater number of individual absolute or relative relations in the resulting absolute-relative tense. For absolute tenses, only the relation of $E$ and $S$ is of importance and for relative tenses only the relation of $E$ and $R$.

$$tense \quad E_{(relative \ R)^n (relative \ S)^n}_{magn \ magn}$$

Figure 5.14. The formula of tense according to Comrie (1985).

The answer must be that Comrie does not deal with grammatical categories but with complete expressions (this is hinted by his definition of tense). He thus examines each verbal phrase (or other marking as he accepts tense on sentence-level) in its entirety and analyzes them to have just one single tense – even if it consists of elements that would be considered individual tenses if they occurred alone. This explains the otherwise puzzling statement that absolute-relative tenses may be compositional (such as the pluperfect in English) or *not* (such as the pluperfect of literary Portugese
falara, “he had spoken” [1985, 77]). This also demonstrates that one form – one meaning cannot be upheld.

As the semantics of absolute-relative tenses combine the semantics of absolute and relative tenses, their usually compositional nature is not surprising, but the analysis in line of whole expressions explains the varying compositionality and the “need” for absolute-relative tenses in the first place: if absolute and relative tenses would correspond to grammatical categories, absolute-relative tense could exist as a grammatical category only in cases such as the Portuguese pluperfect above where separate absolute and relative tenses couldn’t be seen as combining. So, if Comrie’s types of tenses have a grammatical component but they are not grammatical categories per se but correspond to whole verbal expressions, can we speak of the necessity of multiple, separate tense categories? The answer leans towards no. If there were separate categories, co-occurrence would be expected, but in Comrie’s concept the tenses (if we exclude relative tenses that are expressed by participal modifiers of noun phrases) cannot co-occur – as they would be analyzed as a single absolute-relative tense. Absolute-relative tenses can be seen as belonging to the same (strategic) category than absolute tenses in English, as they are mutually exclusive and their semantics – although complex – can be seen as compatible (there is one formula that covers every type of tense). In other words, the whole expression of pluperfect is mutually exclusive with e.g. the whole expression of simple past. Any possible relative expression in the same syntactic environment (the vicinity of the finite verb) would also be included in the same strategic category as the notion of grammatical category is not relevant for the concept.

So while in the concepts of Thieroff and Harder we can speak of multiple tense categories as these are reflected in actual grammatical categories that can co-occur, Comrie’s concept is in this respect more similar to the concept of Reichenbach (in which all tenses are equal and have complex semantic representations), even though Comrie further differentiates types of tenses. This differentiation cannot be analyzed to reflect in actual categories though, and must be seen as a set of semantic features of tenses (alternative a in figure 5.10. in the beginning of this section). As the possible division in tense categories would take place on the level of the “final products”, if at all, we must conclude that the issue is not dealt with at all in the concept of Comrie. Comrie’s concept also supports non-tenses (1985, 123-124) and binary oppositions (1985, 49). As Comrie does not deal with the issue of multiple categories the issue of hierarchy is not relevant: even though Comrie speaks of secondary futures of some languages (1985, 49), what he refers to is the varying capacity and the restrictions of non-pasts to refer to future.
The concept of Bull (1960) has apparent similarities to the concept of Comrie. Whereas Comrie speaks of absolute, relative and absolute-relative tenses, Bull has four separate axes of orientation, illustrated in Figure 5.15. (modified from [1960, 25]). Each axis serves as a relevant point itself, in addition to which it serves as a point of origin for two vectors. Two of these axes, *point present* (corresponding to the English present tense) and the *retrospective point* (corresponding to the English past tense), are considered prime axes as they have as their referent a real life situation or an actual event, while the *anticipated point* and the *retrospective anticipated point* do not stand for actual events but are only projected from the other two axes (1960, 23).

![Figure 5.15. Axes of orientation in the concept of Bull (1960).](image)

Future marking of various languages is considered to represent a plus vector originating from the point present (1960, 28) – it is basically considered a prospective – while past tense establishes its own axis. In other words, future is treated asymmetrically from past tense. The anticipated point and the retrospective anticipated point are not considered to be represented by any systematic expression, only by forms which can “shift” from the point present (97) or the retrospective point (98) respectively (1960, 24). While in English the present tense can have future time reference mainly in scheduled events and in subordinate contexts (Comrie 1985, 47-48), this description might fit many of the non-past tenses found in the typological data of the current study.

(97) *He will have left before she arrives.*

(98) *He would have left before she arrived.*

The axes are not, however, analyzable as categories. First of all, Bull uses the term *tense* to describe the “final product” and speaks of the role of temporal and aspectual meaning in the construction of *actual tense forms* (Bull 1960, 25-26). Second, if any categories were to be established, they would
not follow the division into axes. We can examine this with the help of the illustration of English tense system in Figure 5.16. (modified from [1960, 31]).

As already mentioned, Bull states that two of the axes, point present and the retrospective point, are primal (1960, 23). These axes correspond to simple present and simple past tenses, respectively. In other words, if any category would be posited following the description, it would be of a binary opposition between present and past, which occurs between two axes. Second, the distinction between perfect, prospective and unmarked occurs inside not one, but every axis, thus inviting the interpretation of a category of perfect / prospective / unmarked hierarchically under the binary category of tense. An analysis in the line of two separate categories of present / past and perfect / prospective / unmarked is not viable, though, as even though it tends to correspond with morphemes of actual languages, this is not made explicit or supported by Bull in any way and would be a reaching assumption, not a part of the concept: Bull repeatedly speaks of “actual tense forms” (1960, 25-26) or “twelve tense forms” (1960, 23) referring to the “final product”. He also speaks of interaction of aspect and tense only when he refers to the interaction of the whole vector system with the expression of perfective and imperfective (1960, 26). And, most importantly, even though Bull speaks of morphemes as defining e.g. the point present, the retrospective point and as indicating a plus vector in actual languages – and he states that these morphemes may combine in expressing the anticipated and retrospective anticipated points (1960, 28) – by forms Bull does not refer to morphemes corresponding to the categories posited above but to forms that represent the “final products”, the semantics of which are describable by the complex path of points and vectors: e.g. the Future Perfect and its description of $E(AP\cdot V)$ – event ($E$) that is prior ($\cdot V$) to the anticipated point ($AP$) (1960, 24). Bull’s concept does not thus require multiple categories (the issue is not dealt with) but it rather describes the semantic complexity of tenses. The notion of tense includes the
notions of present, past, perfect and prospective but the concept does not recognize an equal future tense. Hierarchy is not relevant as the issue of multiple oppositions is not dealt with. Binary oppositions are not dealt with as while Bull describes some languages as quite non-redundant in their expression of tense and aspect (1960, 28), he nonetheless builds up the complete vector system – in other words, the focus is not on actual oppositions but in the realization of the twelve tenses that are theoretically possible. Non-tenses are not supported at all.

The most common case is that the issue of possible several (abstract and theoretical) tense categories is not discussed at all. This is true for eight concepts. These concepts can be further divided by whether the issue is simply not dealt with or whether multiple oppositions would be totally impossible. The first group is diverse. In the concept of Reichenbach all tenses (“simple” or “complex”) are described with three points resulting in a large table of equally presented tenses (1947, 290). While the inclusion of meanings such as pluperfect and conditional would tempt to see the possibility of several categories, the matter is not discussed. The concept of Reichenbach thus lacks the intricate differentiation of the semantics into types or patterns that is present in the concepts of Comrie and Bull, but the ultimate analysis – of only one tense category – is the same. In Klein’s concept tense concerns the relation between the time of utterance and the topic time (1994, 6) resulting in three basic tenses. While Klein speaks of combinations of these basic tenses, such as non-futures, as being possible (1994, 122), he does not deal with possible separate categories. The concept of Johnson (1981, 151) and Functional Grammar (de Groot 1995, 39) are quite similar to Klein’s in this respect as they too recognize three “basic” tenses but do not discuss possible categories. Hierarchy and non-tenses are irrelevant for these concepts and they necessarily support (at least) non-binary oppositions.

Bache’s concept falls somewhere between the two groups. His metacategory of tense has three basic members (past, present and future) but he says that adding more tenses (to the same category) is possible in language-specific studies (1995, 256). Otherwise we could easily argue that further division into categories would be possible, but Bache’s category of tense also has an abstract member, –TEMP, which stands for an expression that does not assign a temporal location (1995, 256). If the category of tense would be separated into several oppositions, –TEMP would have no clear place to “go”. Its existence stresses the cohesion of the category of tense: the members of the category share something that is opposite to –TEMP. This makes it more natural to place Bache’s concept in the group of concepts that do not allow several temporal oppositions – even despite the fact that Bache’s metacategory of tense is meant to accommodate language-specific studies. Bache’s –TEMP is not a “non-tense” in the sense discussed previously. Non-tense refers to a
section of the timeline, for example reaching from present into future, but –TEMP refers to an expression that is not temporal at all. Neither is –TEMP equal with the notion of abstract tense, which means a segment of the timeline that is not covered by any of the tense markers (or zero-marking), but that may be the implicated time reference of one or several types of marking. –TEMP is more or less equal with the notion of universal truths: one of the concrete tense markers of the language carries both one of the actual temporal meanings (e.g. present tense) and the meaning of –TEMP – in other words, it may be used atemporally to state universal truths etc. If the previous analysis is accepted it means that Bache’s concept does not accept multiple oppositions (or non-tenses or hierarchy). Binary oppositions are supported as Bache states that the individual members of the metacategory of tense are not necessarily (or even typically) realized (1995, 257).

In three concepts several temporal categories are simply impossible as each of them only recognizes two tenses that are in a complementary distribution with each other (they cover the “whole” timeline as future is not seen as a tense in these concepts). These are the concepts of Nordlander (1997), Janssen (1994) and Allen (1982). It also follows that these concepts support only binary oppositions and none of them support non-tenses as only two separate temporal dimensions (past and present or their equivalents for Janssen) are available for them. Nordlander speaks of anterior and non-anterior (1997, 121), but for him the future timeline is irrealis (1997, 119-120), thus making non-anterior practically a present. As there is only one category there cannot naturally be any hierarchy, either. The previous discussion is summed up in Table 5.8.

<table>
<thead>
<tr>
<th></th>
<th>Obligatory</th>
<th>Supported</th>
<th>Impossible</th>
<th>Not dealt with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple oppositions</td>
<td>Thieroff, Harder</td>
<td>-</td>
<td>Bache, Nordlander, Allen, Janssen</td>
<td>Reichenbach, Bull, Klein, Johnson, de Groot, Comrie</td>
</tr>
<tr>
<td>Binary oppositions</td>
<td>Thieroff, Harder, Nordlander, Allen, Janssen</td>
<td>Comrie, Klein, Bache, Bull</td>
<td>-</td>
<td>Reichenbach, Johnson, de Groot</td>
</tr>
<tr>
<td>Hierarchy between oppositions</td>
<td>Harder</td>
<td>Thieroff</td>
<td>Bache, Nordlander, Allen, Janssen</td>
<td>Reichenbach, Bull, Klein, Johnson, de Groot, Comrie</td>
</tr>
<tr>
<td>Non-tenses</td>
<td>Thieroff, Harder</td>
<td>Comrie, Klein</td>
<td>Bull, Bache, Nordlander, Allen, Janssen</td>
<td>Reichenbach, Johnson, de Groot</td>
</tr>
</tbody>
</table>

Table 5.8. Concepts according their acceptance of multiple, binary and hierarchical oppositions and non-tenses.
5.6.3. Strategic Categories

The typological data introduces a problem – how to recognize *language-specific categories*? What are the conditions for considering two or more markers to belong to the same category? What kind of analysis serves the current study best and presents the typological data in such a way that contrasting it with the theoretical data is possible? In other words, what is *appropriate*? As the aim is to make the comparison between concepts and linguistic data easy, the appropriate definition of a category has to be somewhere between the vague theoretical categories of the concepts (that mainly deal with abstract notions and do not take possible co-occurrence of e.g. future and past into account) and the purely linguistic categories of actual languages (the *members* of which are traditionally called *grammatical categories*, such as the English Simple Past) that occupy a single syntactic slot.

I will use two criteria in analyzing whether the markers belong to the same *strategic category*. First, they must be mutually exclusive – only one member per category can occur at a time – and second, they must be semantically compatible: they must express the same type of temporal relation (either a deictic or an anaphoric relation) and their meanings should optimally take up a connected segment of the timeline (e.g. the whole of time, just past and present or just present and future). These criteria are on purpose vague enough to make it possible for different types of marking (e.g. particles and affixes) to be included in the same category. Thus I will speak of a group of contrasting, mutually exclusive strategies (by strategy I mean any grammatical mean, no matter whether inflectional or periphrastic) that express temporality, and that together form a strategic category. Note that to avoid confusion I do not use e.g. the term *functional category* as the term has been used in quite different senses.

The lax nature of the strategic categories pushes the number of tense categories per language down towards one while at the same time it diversifies the contents of the categories. Thus a language is analyzed to have more than one tense category only if the analysis in the line of one category is not possible under these criteria: every bit of grammatical evidence indicating otherwise (mostly co-occurrence) is acknowledged. This makes the possible need for multiple categories as justified as possible. The diversity of the contents of the categories places stress on those concepts that require or favour binary oppositions. In the analysis of the typological data I note whether the members of the strategic category employ different types of marking, so that further differentiation is possible if necessary.
The venture described above – establishing the notion of strategic categories – has the additional bonus that it keeps the notion grammaticality neatly separate. Östen Dahl deals with the notion of grammatical category in detail and suggests that the notion should be "- - 'focused' and 'imprecise', having a centre or 'core' and a periphery- -": the core is characterized with features such as obligatoriness, non-replacability and boundedness (1985, 23). Dahl sees restricting the notion to just inflectional marking as "- - an unwanted delimitation of the field of inquiry - -" (1985, 22). This is in line with the treatment of grammaticality in section 6.1. of this study. Dahl further considers a set of TMA categories to make up the TMA system (1985, 22). Because of the grammatically quite unrestricted nature of single categories, Dahl's notion of TMA system is in many ways similar to strategic categories (even though the number and type of possible oppositions is not touched upon). The key difference is that the notion of strategic category allows different views on grammaticality while still maintaining the same category structure: In other words, whether a certain particle or a newly developed construction is seen grammatical or not, they are still a part of the group of contrasting strategies that express temporality; grammatical criteria would not delimitate the field of inquiry unless such a decision is made for some reason even after the collection of the data. Strategic categories are thus separate from grammatical categories in that they deal with more abstract terms and from abstract categories in that they deal with more concrete terms. They are neither but make the two more comparable with each other.

The notion of strategic categories is irrelevant for concepts that restrict temporal oppositions to binary (e.g. Harder 1994, 62) or temporal markers to inflectional (Johnson 1981, 146). The notion is not supported by concepts in which the categories are foremost theoretical: in practice, by the concepts that place the English will or shall in the same category with past and present even though the future expression includes present marking – this is true for Comrie (1985, 47-48), Klein (1994, 124), Bache (1995, 255), Reichenbach (1947, 297) and Bull (1960, 24). Likewise, the concepts in which the principle of one form – one meaning is upheld (the grammatical expression must reflect its semantic composition) are incompatible with the notion of strategic categories, as the members of strategic categories are semantically symmetrical (describable with the same set of notions, e.g. origo and the theme) but may be grammatically asymmetrical (past may be inflectional but future periphrastic or vice versa) and thus not necessarily compositional. Concepts that do not support strategic categories on these grounds are the concepts of Harder, who discusses the relation between expression and content (1994, 63) and who furthermore deals with strictly compositional, binary tense categories as discussed above, Janssen, who sees periphrastic expressions as a combination of the tense-carrying finite element and the participle (1994, 114) and Allen, for whom one marker may not carry several meanings but some categories are present as zero-marked – thus the English -
does not express perfectivity; perfectivity is instead expressed by not expressing imperfectivity, or in other words, with a zero-marker (1982, 255).

5.6.4. The Typological Data

The components discussed in this section are intertwined with the inclusion/exclusion of certain semantic notions such as past, future or perfect under the semantic domain of tense. In gathering the typological data past and future were considered temporal but the notion of perfect was not. As the semantic scope between many of the concepts and the current data differs, concepts are not readily comparable between themselves or with the typological data. The limitation of the following examination is thus that the components at hand are examined as well as possible with the underlying assumption that tense concerns past, present and future and their sub-segments but nothing else. There are two kinds of offset: the categories of some languages may be analyzed as more complicated by concepts that acknowledge more semantic notions under tense and the categories may be analyzed as less complicated by concepts that do not acknowledge all aforementioned semantic notions.

Out of the 62 languages in the data 52 can be analyzed as having one temporal category and ten as having two. An example of a language with a great number of tenses that are analyzable as belonging to just one strategic category is the language of Babungo with its seven temporal markers (remote past, middle past, hesternal past, hodiernal past, present, close future and remote future) (Schaub 1985, 212-214). The category includes both marking with particles such as in the remote past tense (99) (1985, 213) and with auxiliaries such as in the remote future tense (100) (1985, 213), but the category fulfils both of the criteria of strategic categories – mutual exclusivity and semantic compatibility – given above.

(99) *Vəŋə̀o na ndɔ fì Ndɔ.*
   Babungo REM.PAST leave.PFV from Ndop
   'The Babungo people came from a place called Ndop.'

(100) *Mɔ ndɔ jwì ŋkuusɔ.*
    1SG REM.FUT come Nkuusɔ
    'I shall come on Nkuusɔ.'
A clear indication of there being two categories is if at least two of the temporal markers can co-occur. It is not necessary that the resulting meaning is strictly compositional or even temporal, as long as each of the markers remains in their own syntactic position. A clear case of co-occurrence is in the language of Ndyuka, in which the particle *be* expresses anaphoric past tense (101) (Huttar & Huttar 1994, 492) and the particle *o* expresses anaphoric future tense (102) (1994, 492). When they occur together, they commonly express counterfactual conditionality (which is a modal, not a temporal, notion) (103) (1994, 495).

(101) *Wan dda be de a opu, a Ndyuka, a wan pikinkampu.*

a father PAST COP LOC upstreap LOC Ndyuka LOC a little camp 'There was a man who lived upriver in Ndyuka territory at a small camp.'

(102) *Goontapu o taanga fu tan.*

world FUT difficult for stay 'The world will be a difficult place to live.'

(103) *Ofu a be pasa mi be o sutu en.*

if 3SG PAST pass 1SG PAST FUT shoot 3SG.OBL 'If it had passed by, I would have shot it.'

There are also interesting borderline cases. In Udihe separate verb stems are used to form present and past tenses. Past stems were historically derived from present stems but in the modern language the derivational relations are not as apparent. (Nikolaeva & Tolskaya 2001, 206). Tense distinction lies within the stems as both in present (104) (2001, 215) and past (105) (2001, 215) tense the same type of personal inflection is attached to the stem (2001, 215). The future tense, however, is expressed with a suffix that is attached to the present stem (106) (2001, 215). On the first look it would appear that future could co-occur with present tense, which would require establishing a separate category of future and abstract non-future. But there is an alternative way to analyze the situation. If the present stem itself is not analyzed as actual marking but as the default verb form, then present tense could be analyzed to be zero-marked and past tense would be expressed with stem modification (despite of its opaque nature). The future tense would thus not contain present marking – there would be no co-occurrence – making it possible to analyze all the tenses as belonging to the same strategic category. The key question is, whether the use of present stem is seen as an active choice or as an unmarked form of the verb. In the current study the analysis in the line of only one category is favoured as the idea behind strategic categories is to see categories as wide as the grammatical evidence makes possible.
No cases of three separate temporal categories (which would mean that three temporal markers could co-occur) are found in the data. It should be noted that those concepts that would allow this also include the meaning of perfect – unlike the typological data – which makes the lack of clear cases of three categories in typological data not surprising. Co-occurrence without the meaning of perfect is semantically improbable: Co-occurrence means that the individual meanings are somehow combined into a more complex meaning, which may or may not be simply compositional. This combined meaning must be something the language has the need to express. With the inclusion of perfect this need of three categories is possible to justify with examples such as *I will have left* which combines futurity, present and perfect and *I would later leave* which combines futurity, past and perfect. But if the meaning of perfect is not included under tense, it is much harder to imagine the need for three separate temporal categories to describe one situation. The relations *before*, *past* and *present* are combinable with each other, but they can maximally form two believable categories. A possible candidate for further separation would be remoteness, but only if it was completely separate from the meanings of past and present (as a category of neutral distance). However, a speculative category of temporal distance would not necessarily have enough in common with the other categories and it would thus possibly be left outside the tense system anyway. Such a case could in theory be possible in the language of Toqabaqita, where there is a basic opposition between non-future and future, which are expressed with particles (Lichtenberk 2008, 678-692). Immediate past is expressed with the combination of the particle *biqi* and the non-future tense (107) (2008, 693) while the immediate future is expressed with the combination of *biqi* and future tense (108) (2008, 679).
There are two possible ways to analyze the situation. If the degree of remoteness is seen semantically inseparable from the notions of past or future – if “immediate past” and “immediate future” are considered proper tenses – Toqabaqita can be seen as having one temporal category with four members. Note that this analysis requires the idea of strategic categories instead of purely grammatical categories. If, on the other hand, the notion of immediacy is seen as separable from the notions of past and future, then Toqabaqita could in theory be analyzed as having one temporal category with two members (non-future and future) with a separate category of immediacy. Such an analysis would not be possible in the other languages of the typological data. In many cases the tenses expressing a degree of remoteness in past or future are expressed by one single morpheme, such as the hodiernal (today) past of Nkore-Kiga (109) (Taylor 1985, 153).
With the problems with assigning a separate category of immediacy, as dealt with above, there does not seem to be need for languages to divide temporal expression to more than two categories. This does not mean, though, that such a situation could not arise for example with language change.

We can conclude that – when following the criteria for categories posited earlier – not allowing multiple categories results in the inclusion of 84 per cent of the languages. Out of the 72 categories in the data 29 are binary, 27 are tertiary, eight are quaternary, five are quinary, two are senary and one is septenary. Categories larger than three tenses require degrees of remoteness. Out of the 193 markers 20 are markers of non-tenses – 16 of which mark non-past while four mark non-future. The significance of allowing non-tenses cannot be assessed in isolation, though, as it is closely linked to the components of multiple oppositions and binary oppositions. It thus normally follows from other choices, the least of which is not the inclusion/exclusion of certain semantic notions under tense.

Most of the non-tenses (non-pasts and non-futures) in the data are marked explicitly. The non-tense may either be the only temporal marker that expresses its semantic domain – for example in Daur there are only two temporal markers, past and non-past (111) (Wu 1996, 25) – or there might be an another tense marker that expresses a part of its semantic domain. This may be a mutually exclusive marker (in the same category), exemplified by the non-past (112) (Sridhar 1990, 225) and future (113) (1990, 226) tenses of Kannada, or a co-occurring marker from another category, exemplified by the Danish future (114) (Herslund 2002, 68)

(111) Tər bəɨt -i: biː məd -bəi.
that event -ACC 1SG know -NPAST
'I know that matter.'

(112) Naːnu od -utt -eeːne.
1SG read -NPAST -1SG
'I read.'

(113) Avaru ellarigu: bahumaːna ko -Duvaru.
they all.DAT.INCL prize give -FUT/HAB.3PL
'They'll give prizes to everyone.'

(114) Han vil se på den imorgen.
3SG.MASC will.NPAST look.at.INF at that tomorrow
'He will have a look at it tomorrow.'
The non-tenses are expressed by zero in five out of 20 cases. This means that they are in opposition with an obligatorily marked past or future tense. An example of a zero-marked non-tense is the non-future of Kwaza (115) (van der Voort 2004, 389), which is in opposition with the obligatory future marker -nã- (116) (2004, 397). The language also has optional markers for remote past and past (2004, 390-391).

(115) Txa'hỹ́ba  -jã'hỹ́ -ki.
    path   clear  -CLASS(path)  -DEC
 'He clears/cleared/is clearing/was clearing the/a road/roads.'

(116) Txa'hỹ́ba -jãhý -'nã -tse.
    path   cut  -CLASS(path)  -FUT  -DEC
 'He will clear the road.'

Despite the lack of statistical information the general picture is clear: By using the definition of strategic categories given earlier (aiming at the largest categories possible), the number of categories is still not typologically restricted to one per language, neither are categories necessary binary. Furthermore, non-tenses (tenses that combine present time reference with either past or future) are quite frequent, making it essential for a typologically oriented concept to acknowledge them.

Hierarchy in the sense of an order of appliance is not analyzable based on the reference grammars. In its another sense – as a restriction of the occurrence of one category to a certain member of another category – the categories of the data behave systematically: when two markers co-occur, one of them is typically the present tense (or non-past/non-future). The markers of past and future can co-occur in two languages: In Papiamentu their meaning is compositional and result in a future-in-the-past (Kouwenberg & Murray 1994, 42). In Ndyuka, as exemplified above, the combination results in the meaning of counterfactual conditionality (Huttar & Huttar 1994, 495). Whether we can speak of some sort of hierarchy or just compatibility in these cases is open for interpretation.

One way to approach the question is to examine, whether markers of one of the categories are expressed grammatically more centrally (closer to the verb) than markers of the other category. Out of the ten languages with two tense categories, in six all members of one category are expressed inflectionally while the members of the other category are expressed periphrastically (via auxiliaries or particles). In one language, Faetar, the more central category consists of inflectionally expressed remote past and non-past and a periphrastically expressed recent past, but the member which co-occurs with the member or the other category (non-past) is inflectional and the category can be
analyzed as more central. In three languages – Fongbe, Ndyuka and Papiamentu – the members of both categories are expressed by particles and no hierarchy of “centrality” can be detected. All the categories that can be analyzed as more central in this sense are categories that include past tense(s) and either present or non-past tense. This is in accordance with other findings that claim the marking of past being more central than the marking of future: in the current data past is found to occur more often and it is more likely to be expressed inflectionally. These findings are similar to Dahl's, who notes that future is more often periphrastically expressed than past and it is less often obligatory (1985, 189).

Not all categories are strictly continuous, that is, some categories have a semantic gap. However, in all such cases the “missing” semantic domain is not the meaning of a marker in any another category but must be analyzed as abstract: it is not the sole meaning of any marker but one of the possible interpretations of one or several markers (or zero-marking). In the current data, the gap is always the present moment, as an abstract past, future, non-past or non-future does not constitute a gap as there is no tense marking “on the other side”. An example of the phenomenon is the language of Hdi, in which there are proper markers of past (117) and future (118) tenses (Frajzyngier 2002, 336-340) but no separate present tense: rather, the present tense is one of the possible interpretations (based on the "discourse configurations of events") of clauses not explicitly marked for past or future (2002, 335) – e.g. the imperfective aspect is often interpreted as involving the present moment (119) (2002, 334).

(117) Sí hli’ýá -f dà ráyá -ŋni mà mták.
   PAST leave -UP PURP hunt -1PL.EXCL in bush
   'We were hunting in the bush.'

(118) Dzà’á ‘ngh -í -ká màxtsím.
   FUT see -1SG -2SG tomorrow
   'You will see me tomorrow.'

(119) Xàdɔ -xɔn tà lá -xà wà.
   lack -3PL IMPF go -down NEG
   'They do not go down.'

The reason for introducing abstract tenses is that every semantic domain of the timeline (past, present and future) must be able to be expressed (even if there is no corresponding grammatical strategy), and the notion of abstract tense fits the aim of strategic categories: it helps to group together marking that cannot be analyzed as belonging to separate categories. Abstract tenses thus
work as an adhesive: they are a cosmetic way to bring together e.g. markers of past and future tense while still acknowledging the non-continuous nature of the category.

5.6.5. Discussion

The question of single versus multiple categories is independent from the question of semantic notions included under tense (as long as there are over two tenses): past, present and future may be divided into one or two categories with perfect introducing a possibility for a third category. Likewise, the choice of single versus multiple categories is independent from whether the semantic composition of complex tenses is discussed in detail or not. As discussed above, every concept that includes the meaning of perfect is capable of explaining the structure and differences of so-called simple and complex tenses. They do it in a roughly similar way the main difference being what they actually call tenses (the "final product" or the members of individual feature oppositions such as +/-perfect).

This leads to suspect whether the difference between whether the notion of tense is reserved for separate categories that correspond to grammatical categories or to their combinations that correspond to the “whole expression” is almost cosmetic. The choice has a purpose though, as it directs the attention to the desired level: thus, a study that focuses on phenomena on the level of individual grammatical morphemes and grammatical categories, their combinations and interplay and formation of combined meaning benefits from treating the separate categories as the primary elements of analysis (and treating their combinations as mere combination of categories). This is the case for example in the study of Romanian tense-aspect-mood system by Martin Haase (1995). Haase sees tense as something that is common to three separate oppositions (of grammatical categories); that between present and preterite, that between present and future and that between distant and close preterite (1995, 136). The first two of these oppositions also include modal and/or aspectual meanings (1995, 135), so tense does not correspond to grammatical categories per se. However, tense exists on the level of grammatical categories, as one TMA opposition in Romanian may be seen as subordinated to another one (1995, 136).

If, on the other hand, the focus is on the selection and usage of whole (interchangeable) expressions with less emphasis on the processes behind their formation, the study can benefit from treating these expressions as the main element of the analysis: they may be seen as forming one category – be it called tense or something else. This is the approach for example of Ivan Kalmár in his study of the
function of Inuktitut verb modes in narrative text (1982). The verb modes have been classified as moods, but they cannot be interpreted to be a modal category in the traditional sense as the individual "modes" combine temporal, aspectual and modal meanings (1982, 46). Kalmár lists verb modes such as non-future appositional and future appositional (1982, 47) and deals with them as mutually exclusive without deconstructing them into separate TMA meanings. Kalmár then proceeds to examine the functions of these verb modes in narrative text: the functions are thus arrived at via practice, demonstrating that "a theory of linguistic function must be different from a theory of linguistic form" (1982, 45).

A study may be neutral to possible hierarchy between oppositions, or it may search for evidence for hierarchies. A neutral approach is useful if the focus is on individual meanings and their interplay, not in structure of grammar. This is the a common approach in descriptive accounts. Heinz Vater, for example, in his description of the Polish tense-aspect system, notes that the periphrastic future tense is considered not to be tense by some linguists because its components are not restricted to that construction alone (1995, 159). However, he does not consider it to be secondary in any sense; he simply notes that it consists of the auxiliary in the perfective present tense and the main verb in infinite form (1995, 159). The co-occurrence of present and future thus does not lead him into speculating hierarchy.

Acknowledging hierarchies between categories may be useful when examining the whole tense system as a structure and when searching systematicity between different languages. This is attempted for example by Marit Julien who proposes that "clauses universally contain exactly two temporal heads, a higher T(Past) and lower T(Future)" (2001, 127). She backs this up with data from languages such as Irish and Turkish, where both of these heads simultaneously have positive values (2001, 129) – in other words, they co-occur.

Necessarily binary categories are not typologically viable. Even if only past and present were considered tenses, there would be problems when analyzing languages with mutually exclusive past, present and future tense markers, as the role of the future marker would have to be explained: as mutually exclusive it would have to be analyzed as belonging to the same category as past and present, also requiring a semantic justification. In a language-specific study, or in a study that focuses on related languages binary categories may be viable. In such cases the component value of binary categories is usually not selected as such as it simply follows from the choice of target languages. After all, binary tense systems are quite common: In addition to the binary split between past and non-past e.g. in some European languages (Comrie 1985, 49) – depending on how the status of future is analyzed in these languages – some languages, for example Manipuri, show the
split between future (120) and non-future (121) (Bhat 1999, 18-19). The emergence and existence of such splits may be linked to other phenomena: mood-prominent languages may for example have the tendency of developing a future/non-future distinction (Bhat 1999, 183).

(120) Məhak ciŋ -də cot -li.
3SG.MASC hill -LOC go -NFUT
'He went to the hill.' / 'He usually goes to the hill.'

(121) Məhak ciŋ -də cot -kəni.
3SG.MASC hill -LOC go -FUT
'He will go to the hill.'

Binary categories may be used if the theoretical framework of the study requires it. Thus, in Marit Julien's study of complex tenses in the minimalist framework the temporal heads of T(Past) and T(Future) have positive and negative values – making them separate, binary categories (2001, 128).

It was discussed in section 5.1. that treating only past or future as tense makes it possible to capture language-specific semantic nuances of the separate oppositions. This is not the case, however, if two or more binary oppositions are all considered to represent tenses.

5.7. Universal Truths

5.7.1. The Component

Sentences such as Cows eat grass or Two plus two makes four are in present tense in English but they refer to facts which may be called universal truths – facts that do not refer to any single situation or insight but are meant to hold at all times: two plus two has made and always will make four and as long as there are cows and grass the previous will eat the latter. To make such a statement does not in any way require a single instance to take place at that very moment: no cow needs to be eating and no one has to be having a mathematical insight. There are two basic ways to explain the expression of universal truths: According to one view temporality is not relevant to them and the expressions carry tense marking simply because tense is an accidence category in that particular language (what is left to explain then, is why it is in most cases the present tense that is used). The expressions are thus seen as atemporal as time is irrelevant for them.
According to the second view, as universal truths hold at any given time they also hold at the moment of speech, and as the moment of speech is the most neutral and relevant time in the discourse, universal truths must be expressed in present tense. Universal truths are thus considered to be temporal and concepts that follow this view claim that the expression of universal truths can be explained with the use of one of the individual tenses – in practice, the present tense. *Universal truths* is a component relevant both for the concepts and for the typological data.

5.7.2. The Theoretical Data

Six concepts out of twelve explain universal truths with the meaning of one of the tenses – and more specifically, the present tense. Reichenbach simply states that validity at all times is expressed with the present tense (1947, 292) and Harder is just as curt in saying that eternal truths must be put in present tense (1994, 68). Comrie claims that universal truths refer only to the present moment (1985, 40) while Klein, Allen and Bull choose the opposite: Klein claims that topic times (themes in the terminology of this work) may not be restricted at all, which explains the “timeless” present tense (1994, 6), Allen speaks of present tense extended to include all time (1982, 158) and Bull speaks of the act of contemplating all time (1960, 21).

Janssen’s concept is not included in the previous group as the concept does not deal with the issue. However, as Janssen sees the present tense (as well as the whole tense system) to be atemporal in nature (1994, 116), he would have no difficulty in analyzing present tense, as a signal of focal referential concern, to express universal truths. Curiously a reverse analysis – if some data would require it – would also be supported by his concept: as for Janssen past signals disfocal referential concern (1994, 116), it could also be a justified choice to express universal truths if universal truths were seen as disfocal (not dealing with the current speech context).

Only one concept suggests that universal tense/ atemporality exists as a separate meaning. This is the view in the concept of Bache who speaks of –TEMP (1995, 256), which is synonymous with atemporality. It is an abstract member of the metacategory of tense which expresses the non-assignment of any of the positive members of the category. On the language-specific level the meaning of –TEMP is typically expressed with the unmarked tense marker of the tense opposition (in addition to its positive temporal meaning) (1995, 144-145). This means that if in a given language the present tense is used to refer to universal truths, it is not used in its present sense but rather in its “unmarked” sense: in that language present tense marking is used when no temporal
specification is expressed (1995, 261-262). This basically makes it equally possible for past, future or any other tense marker to be used to express universal truths if they are the unmarked tense in the language in question. Bache further justifies this view by giving a similar example of aspect. In languages with a distinction between perfective and imperfective one of the two aspects is used to describe situations to which the distinction is irrelevant. The aspect used varies across languages and it can be explained by attaching the meaning of –ASPECT to one of the aspect markers language-specifically (1995, 280-281). The main benefit of this view is that it doesn’t require “stretching” the definition of any single tense to fit the needs of universal truths: themes or the origo don’t need to be able to expand infinitely.

5.7.3. The Typological Data

Not all grammars describe how the language expresses universal truths. This information was available from 18 languages. In ten cases, such as in Lingála (122) (Meeuwis 2010, 128), universal truths are expressed with the present tense marker, in seven cases with the non-past tense, such as in Santali (123), (Neukom 2001, 67), in one case, in Toqabaqita, with the non-future tense (124) (Lichtenberg 2008, 694) and in one case with a future marker. This is the case in the language of Malayalam, where both present (125) and future tenses are used to express what are called generic statements and future tense is also used to express eternal truths (126) – both of which are grouped under universal time reference (Asher & Kumari 1997, 287). Hence there are 19 markers for universal truths in these 18 languages.

(122) Moto nyónso a -zal -i na mabé na yé.
   person all 3SG.ANIM -be -PRES(1) with bad CON 3SG.ANIM
   'Everyone has their failings.'

(123) Êũri bele -k’ -te -ge noa dare -reak’
   before ripe -NPAST.MID.VC -CONV -FOC this.INANIM tree -GEN.INANIM
   jɔ -dɔ nũr -uk’ -a.
   fruit -TOP fall -NPAST.MID.VC -IND
   'The fruits of this tree (generally) falls down before it is ripe.'
(124) Qae -qe ngasi e gwaagwari -qa.
bottom.part -ASSOC sugarcane 3SG.NFUT be.sweet -PROP
'The bottom parts of sugar-cane plants are (particularly) sweet.'

(125) Naalum naalum kuqti -yaal ettɔ aa -kunnu.
four.COORD four.COORD add -COND eight be -PRES
'Four plus four is eight.'

(126) Cuu qa -yaal venqa uruk -um.
heat -COND butter melt -FUT
'Butter will melt when heated.'

The case of Malayalam is curious as it seems to conflict with both theoretical views on universal tense. First of all, in every concept that tries to explain universal truths with the meaning of a single tense that tense is the present tense (as dealt with above) – the logic being that if something holds at all times, the present moment is most relevant. Thus the universal time reference of the future tense of Malayalam poses a problem. On the other hand, Bache’s concept of –TEMP is based on the idea that exactly one of the members of every opposition can express –TEMP in addition to its positive meaning (1995, 144). In Malayalam there are two markers, present and future, capable of doing this. Instead of trying to formulate a third “logical” possibility based on this singular example I will only highlight the interesting conflict between the concepts and the linguistic data and suggest that the history of the tense system of Malayalam may offer an answer – as the case could simply be of natural language change which does not go well together with “sterile” concepts.

The two competing views do not affect the gathering of the typological data. While gathering data it suffices to note which tense marker is used to express universal truths. If and when the data presents examples that conflict with the two views presented above, such as the markers of Malayalam, then a solution to the theoretical problem can be sought if that is considered relevant.

5.7.4. Discussion

The advantage of seeing universal truths as a separate meaning, like –TEMP above, is that it does not pose any restrictions on the nature of the theme. All that is required is that one of the tenses in the opposition can be seen as unmarked. The drawback is the difficulty of determining the unmarked member in some cases. The above view is endorsed for example by Stefan Bruweleit in
his study of aspect, tense and action in the Arabic Dialect of Beirut: he states that if the subject is a
generic term, "the situation may lose its deictic character and become extratemporal" (2015, 12).

If universal truths are explained with the nature of the present tense itself, then either the theme
must be able to expand indefinitely or the present moment must be seen as relevant for universal
truths, effectively causing the meaning of universal truths and “typical” tenses to come together.
The advantage of this view is the consistency of semantics of all types of expressions. This
approach is selected by Bob Morris Jones in his study of informal Welsh. He argues that
expressions such as (127) describe a general competence which "endures through a period of time,
including the present time" (Jones 2010, 59). They thus describe "a presently-available ability or
power" and are essentially stative situations, hence justifying the use of the present tense as "the
present tense is included within the period of the endurance of the competence" (2010, 60).
Likewise, examples such as (128) are seen as describing a unitary situation – made up of separate
sub-situations – the period of which includes the present moment (2010, 60-61).

(127) Ma’ halen yn toddi eira.
be.PRES.3SG salt PROG melt snow
'Salt melts snow.'

(128) Ma’ gwartheg yn b’yta gwair.
be.PRES.3SG cows PROG eat grass
'Cows eat grass.'

The borderline between universal truths and “atypical” tense usages is thin. Atypical tense usages
are often language- and discourse specific and depending on the concept they are either explained
using intricate logic or dismissed as exceptions to the primary usage. While the discussion of
universal truths is usually more central in concepts, it should be noted that while the logic and
semantics behind it can more or less satisfactorily be reached, it represents by its nature something
atypical. If seen as –TEMP its semantics are unique compared to other meanings, and if explained
by expanding the theme it can also be considered a special case. And if collapsed with typical
present tense it stops being an issue.
5.8. Static versus Dynamic Formation of the Semantics

5.8.1. The Components

As discussed previously, the semantics of tense deal with at least two members: the origo and the theme. However, some concepts include additional members. These may collectively be called reference points (a term that in this context refers to all possible “waypoints”, whether points or spans by nature). The reference points are motivated in different ways, but their presence always requires the inclusion of the meaning of perfect (and possibly prospective), making the component of Perfect also relevant in this section. If a concept includes one or several reference points – and the semantics of tense thus consist of more than two members – it is possible that the semantics are arrived at in stages: that is, the formation of the semantics is seen as a process of some kind, in which the reference point is "reached" before the theme. I will call this dynamic formation of semantics in opposed to static formation of semantics which means that the semantics are presented simultaneously without any order of application. In other words, the reference point is not reached before the theme but the members are rather simply arranged in the proper order. The component of The formation of the semantics of tense (The semantics are formed statically or The semantics are formed dynamically) is relevant mainly for theoretical work in which issues such as language processing are dealt with. This relevance is further discussed later on.

The dynamicity is understood as internal to the semantics of tense in opposition to external dynamicity between tense and other categories. For example in Functional Grammar (in which all tenses are defined by a relation of two members [de Groot 1995, 39]) tense is seen as operating on existing structure and the categories have a clear order of application (de Groot 1995, 32). Both the notions of dynamicity and stativity as well as the question of whether the semantics of tense consist of two or more members are also independent from the question of whether tense is considered to consist of one or several categories. Even those concepts that consider tense to consist of several categories may deal with the semantics of tense as a static whole: for example even though for Thieroff there are two tense categories (1994, 8), their semantics are nonetheless presented in one static formula (1994, 7).

Dynamicity is not relevant for the typological data as the variance in the number of members in the semantic description and hence the variance in dynamicity would require the inclusion of the meaning of perfect – which is excluded from the data. However, some examples are examined
below in order to discuss common problems in identifying the meaning of perfect and subsequently possible reference points.

5.8.2. The Theoretical Data

For concepts, there are five possibilities. In the first case the semantics concern only two members, in which case the notion of dynamicity is trivial. In the other case the semantics concern at least three members: these concepts can be divided into four groups according to whether the semantics are formed statically or dynamically and whether there is one or whether there are several tense categories.

In the first case the semantics of tense are seen to concern two members, one of which is the origo and the other of which is the theme. The notion of dynamicity is trivial for these concepts as there can only be one relation between two members, making static formation the only theoretical possibility. For Klein, tense concerns the relation between the time of utterance and the topic time (the time that is examined) (1994, 6), for Nordlander it concerns the relation between the situation and the temporal reference point (1997, 120) and for Bache the relation between situations and the present (1995, 255). In Functional Grammar tense deals with States of Affairs and the moment of speaking (1995, 39) and in Allen’s concept with events and moment of coding (1982, 151-156). For Janssen the members are referential regions and a mental vantage point (1994, 108). Johnsson calls the theme a reference time and the origo a time of speaking (1981, 151). A total of seven out of twelve concepts can be analyzed this way.

The semantics of tense in other concepts consist of three or more members. The semantics are seen either as a static formation or built in stages; dynamically. The concepts can be further divided by whether there is only one tense category or multiple categories. This results in four groups: Figure 5.17 illustrates the difference of the resulting groups a, b, c and d (O stands for origo, R for reference point and T for theme). We can see that, as stated before, both staticity and dynamicity are compatible with both one and multiple categories – dynamicity is independent in that it merely concerns the possible order of application represented by arrows in Figure 5.17.
In the concepts of group a the semantics of tense concern more than two members which are seen as presented statically (simultaneously) and all tenses belong in one category. The concepts of Reichenbach (1985) and Comrie (1985) belong to this group. In the concept of Reichenbach (1947) all tenses are described with the same three points S (point of speech), R (reference point) and E (the event) (1947, 288). The reference point is not motivated by individual choices but is considered to be “another event” (Reichenbach 1947, 288). I analyzed the concept of Comrie to deal with only one tense category as his tense types (absolute, relative and absolute-relative) can't co-occur and their semantics are ultimately described with the same formula (1985, 130). This formula, which differs from the formula of Reichenbach in that it consists of several binary relations instead of a simple three-way relation, is nonetheless static in that there is no order of application of any kind; Comrie describes the meanings merely as combining (1985, 65).

In group b the semantics of tense concern more than two members which are seen presented statically (simultaneously) but tense is something common to several categories. The group consists of only the concept of Thieroff. For him, tense consists of categories of anteriority (+/- perfect, the relation of the event E and the point of reference R) and futurity (+/- future, the relation of the time of orientation O and the point of reference) (1994, 7), the semantics of which are combinable (1994, 7): future perfect is E before R & R not-before/after O (Thieroff 1994, 7). Thieroff speaks of naming the categories in which a marker belongs (1994, 6) implying the static nature of the semantics.

In group c the semantics of tense can be said to form dynamically, that is, in stages, yet all tenses belong to one category: in Bull’s concept of tenses as vectors he states that from each axis (a relevant point) the model can go on to another and still another (thus forming “complex tenses”) (1960, 22). Furthermore, he speaks of a process (1960, 22), not just a representation. And finally in group d the semantics of tense can be said to form dynamically and tense is something common to
several categories: Harder sees tense as consisting of three separate categories of *past/present, +/- future* and *+/- perfect* (1994, 62) which are applied in a fixed order, and the semantics of which are combined: Harder stresses the dynamic process of advancing through these binary choices towards a final “diagram” (1994, 63-64). The previous analysis can be summed up in Table 5.9., which shows that each combination of number of categories and dynamicity is represented.

<table>
<thead>
<tr>
<th>Static formation</th>
<th>One tense category</th>
<th>Several tense categories</th>
</tr>
</thead>
</table>

Table 5.9. The dynamicity of the formation of semantics in concepts with a reference point(s).

The occurrence of more than two members in the semantics of tense – a reference point or several – corresponds to whether the concept accepts perfect (and prospective) to contribute to the differentiation of tenses. In most concepts (seven out of twelve) these are seen as a separate phenomenon; these seven concepts are those for which dynamicity was analyzed to be trivial as two members are enough to describe the semantics of tense. In the other five concepts – that constitute the groups a, b, c and d above – perfect (and sometimes prospective) contribute to tense. For Reichenbach present perfect, pluperfect etc. are described similarly to “simple” tenses, with three points in one relation (1947, 290). Comrie considers them to represent absolute-relative tenses, combining absolute and relative time reference (1985, 65). Thieroff sees perfect (antiority) to be one of two binary tense categories (1994, 4). In Harder’s concept *+/- perfect* is seen as a separate binary tense opposition (1994, 62). And finally, Bull treats them as “perfect tenses” (1960, 24) the meanings of which are arrived at by the process of assigning new vectors (1960, 22).

In those seven concepts that treat perfect and prospective as separate phenomena from tense, the semantic representation of perfect may be identical to some concepts that deal with it as a part of tense. Thus, while for both Comrie and for Klein the English present perfect is analyzable as two mostly identical relations (for Comrie it is *R before S & E before R* and for Klein it is *TT before S & TT after TSit*), the difference is that Klein sees the categories as separate – temporal and aspectual (Klein 1994, 108) – while Comrie combines the meanings into one temporal category (1985, 65).
5.8.3. The Typological Data

The typological data was collected according to the criterion that perfect is not seen as contributing to tense distinctions. This was to ease the comparability of the more uncontroversial temporal meanings. The data in itself is thus not helpful in demonstrating how the inclusion of perfect would change the overall picture. Furthermore, dynamicity is such an abstract concept that it is not in the scope of reference grammars to discuss. We may only use individual examples that illustrate some of the issues and problems in identifying the meaning of perfect and subsequently possible reference points.

Grammars deal with perfect in two different ways. They may either separate perfect from tense and deal with it as an individual category or they may treat combinations of perfect and tense as complex tenses or aspects. The separation of perfect from tense follows the separation made e.g. by Klein (1994, 119). This is the case for example in the grammar of Malayalam, in which two generally interchangeable perfect forms, one of them -irikkuka-, are said to combine with past (129), present (130) and future (131) tenses (Asher & Kumari 1997, 291-293). Perfect and tenses are dealt as individual grammatical categories – even though perfect and past seem unsegmentable in (129) – and their semantics combine in a compositional and straightforward way.

(129) Niŋgal -kkə munpə naan aa sinima kaŋt -irunnu.
    2SG -DAT before 1SG that film see -PERF(1).PAST
    'I had seen that film before you.'

(130) ɖookṭar vann -irikk- -unnu.
      doctor come -PERF(1) -PRES
    'The doctor has come.'

(131) Ippoόl ellaam kazinya -irik -um.
      now everything finish -PERF(1) -FUT
    'Everything will now be over.'

The treatment of perfect in the grammar of Catalan (Hualde 1992, 309) is an example of the latter view. The focus of the description is on aspectual perfect forms labeled present perfect, pluperfect, future perfect and conditional perfect, out of which the present perfect is said to also be a part of the tense system as a close past (past actions that took place in the same unit of time as the moment of speaking) (132) (1992, 304). All evidence except for the label of the form – such as the description
of the semantics and the translation of the example – point towards an analysis in the line of a simple tense.

(132) El teu germà ha vingut a les deu.
    the your.MASC.SG brother have.3SG come.PAST.PCPL at the ten
    'Your brother came at ten o’clock.'

Problems arise if the status of perfect is left unclear. If a grammar does not make explicit whether a category includes the meaning of perfect some cases are difficult to analyze. In short: how to know if we are dealing only with the theme and the origo or whether there are additional reference points present? In these cases a linguist can’t be sure what the label “perfect” in the name of the category or the use of the English perfect or pluperfect in the translation really means. This results in problems for a study which excludes the meaning of perfect from the data.

The main problem is the differentiation of markers of present perfect from markers of recent past and the markers of pluperfect from markers of remote past. The problem is caused by the development of remoteness markers from markers with the meaning of perfect (Bybee, Perkins & Pagliuca 1994, 101) and the interference of the metalanguage – the language used for the description of the object-language (Bache 1995, 59); in many cases the reader of a reference grammar cannot be certain how to interpret the meaning of these markers in the terms relevant to the current study; In Punjabi there is a tense marker which the grammar labels both as a remote past and as a pluperfect (133) (Bhatia 1993, 247). The translation of the example uses the English pluperfect – and the construction is similar to the English pluperfect (the lexical verb is in the participle form), but the adverbial in the example hints of a remote past reading. If the marker is truly a marker of remote past, it raises the question of why a translation such as “I went there several years ago” is not used. If, on the other hand, it is a marker of pluperfect, then the label of remote past (as well as the emphasis on “many years ago”) is very misleading.

(133) Kaii saal hoe ki māi óthe giaa sii.
    several years happen.PAST.MASC.PL that 1SG there go.PAST.MASC.SG was
    'Several years ago, I had gone there.'

In addition to the “remote past” there are also proximate past and general past tenses in Punjabi (Bhatia 1993, 241-249). Proximate past is subject to similar questions, as it is called both proximate past and perfect and its form and translation pose similar problems for the analysis. The existence of a separate general past tense makes it more believable to analyse the other past tenses as including perfect. The matter is even more complicated as there are at least three possibilities for the temporal
reference of a marker such as in (133). The temporal reference may be remote past, simple past (if the meaning combines past and perfect) or that of a past-in-the-past. Past-in-past is purely temporal, even though its semantics deal with three members. It is, for example, a possible reading of some English Pluperfects (134) as demonstrated by Mittwoch (1995, 257). If examined with the terminology of Reichenbach (1947), in which R stands for the reference point and E for the event, in these cases the possible adverbials, such as at 6 in (134), do not refer to R – in which case an analysis in the line of a past tense plus a perfect would be possible – but to E, forcing a past-in-past interpretation.

(134) *(I phoned at 7.) Mary had left at 6 that morning.*

In Ndebele there are two past tenses, called remote past (135) and recent past / perfect (136) (Bowern & Lotridge 2002, 36-37). There is no general past tense and there is no overlap in the semantics of said tenses. The recent past / perfect tense is the only tense that is expressed with a suffix (remote past is marked with the subject prefix and present and future tenses have separate prefixes that follow the subject prefix) (2002, 35-38). “Perfect” is once again present in the label of the marker and in the translation, yet that the semantics of the past tenses do not overlap hints at a strictly temporal nature of both of the markers. The case of Ndebele may very likely be that of a grammaticalization process from a perfect to a recent past, but the marker should be presented in a coherent way in the grammar: as a perfect or as a recent past, or if the call is impossible to make – as it quite often may be – then this should be explained to avoid confusion.

(135) Nga  -funda.
   1SG.REM.PAST -study
   'I studied.'

(136) Ngi -fund -è.
   1SG -study -REC.PAST
   'I have studied.'

If we compare Ndebele with a closely related language, Zulu (both are Bantu languages and belong to the language group of Nguni), we see that the same ambiguity in description is present in the grammars of both languages. Zulu also has two past markers: past (137) (Poulos & Bosch 1997, 23) which is used for events that have taken place earlier than a day ago and perfect (past) (138) (1997, 22), used for events that have taken place less than a day ago. The semantics of the two markers do not overlap as the perfect (past) behaves like a recent (or hesternal) past. The markers have different
types of expression, as in Ndebele, and the translation of perfect (past) uses the English present perfect.

(137) Ng -a -bon -a uthisha ngeviki elidlulileyo.
 1SG -REM.PAST -see -VOW teacher week passed
'I saw the teacher last week.'

(138) Usipho u -hamb -ile.
Sipho 3SG -leave -PAST
'Sipho has left.'

In Faetar there are also two past tenses, *remote past* (139) (Nagy 2000, 42) and *proximate past* (140) (2000, 43), the latter of which has a different type of expression from other tenses and is similar in form to the English present perfect. However, in this case the label “perfect” is not present in the name of the marker or in the translation, making the marker a much clearer case of a marker of proximate past. So while the case of Faetar is essentially identical to Ndebele and Zulu when the data alone is examined, there is a clear difference in the treatment of the data in the descriptive grammars. This may be either due to the different behaviour of the markers in their respective tense systems or due to the conventions of naming and translating.

(139) I ɛʃ -ɛrundo la ghiso.
they make -PAST the church
'They made the church.'

(140) Dʒ e pɔntsa do fa buñna.
1SG have think.PAST.PCPL of do.INF good
'I thought I would do well.'

As discussed above, the occurrence of reference points is not an independent component but it rather follows from the inclusion of the meaning of perfect (and prospective) in the notion of tense. The advantages of such an approach were discussed in section 5.1.
5.8.4. Discussion

The advantage of seeing the formation of semantics as dynamic is that the reference points tend to be better motivated, as they result from the “choices” made, as stressed by Harder (1996, 404). This is in contrast to the concept of Reichenbach, in which the reference point is simply “another event” (1947, 288), the abstract nature of which has been criticized (e.g. Harder 1996, 398-404). Such syntactic frameworks that employ derivational phrase structure (Boeckx 2006, 76-77) effectively support the dynamic formation of the semantics of tense if two or more temporal oppositions are seen as being on different levels of this structure. Thus tense formation is dynamic for Marit Julien, who proposes that "clauses universally contain exactly two temporal heads, a higher T(Past) and lower T(Future)" (2001, 127). Even though she speaks of T(Past) and T(Future) simply as having positive or negative values (2001, 129), one governs the other syntactically and because of the bare phrase structure (Boeckx 2006, 172f) employed by the Minimalist program, the tenses are built from the bottom up. T(Past) therefore precedes T(Future) in tense formation.

Dynamicity can thus also be seen as a statement in favour of – and compatible with – such models of language processing that consider expressions to consist of different layers, whether these layers are arranged only hierarchically (as in the X-bar theory) or also in the order of appliance (as in the bare phrase structure). This is also a disadvantage of the notion of dynamicity as it makes neutrality in this regard impossible. In theories of grammar that consider word formation and syntactic derivation to constitute different layers – so that there is an order of appliance – the question of whether tense is applied before or after "entering" derivation is relevant. Yuji Takano, for example, argues that in languages such as English verbs are inflected for tense before syntactic derivation while verbs in Japanese are inflected after syntactic derivation (2004, 177). Dynamic formation of the semantics of tense also implies possible external dynamicity between tense and other categories. Likewise, if the relation between tense and other categories is seen as neutral interplay, in which no one category places “limits” on other categories but the focus is on mutual compatibility, this view may be naturally extended to cover the semantics of tense.

Whereas the inclusion of perfect fundamentally affects the gathering of data, dynamicity does not. If perfect is included under the notion of tense and dynamicity is seen as a relevant question, the choice between dynamic and static formation of semantics has more to do with whether a stance is taken to the question of language processing or to the nature of the reference point. As stated above, static formation allows neutrality and it can be thought of as the unmarked value in this regard. This is by far the more common approach, assumed among others by all those studies that follow the so-
called Reichenbachian scheme; Ellen Thompson, for example, in her study of tense under the Minimalist Approach states that "- - tenses are composed by linearly ordering the three times - -" (emphasis mine) (2005, 4).

It is finally important to note that the relation of “pure” tenses and perfect may be seen as dynamic or static even if the meaning of perfect is not included under tense. In this case the question is of external dynamicity instead of dynamicity of formation of semantics of tense.

6. The Grammatical Components

In this chapter I will discuss the grammatical components of concepts of tense. Just as in chapter 5, all the sections in this chapter have the following structure, whenever applicable; First, I introduce the relevant component or components and their possible values. Then I analyse the theoretical data and the grammatical data in the light of the components. For some components either the theoretical or the typological data is not relevant, and in some sections additional issues are discussed; in section 6.3. nominal tense is given special attention and in section 6.4. non-finite forms are treated in great detail. In the concluding segment I discuss the advantages and disadvantages of including a certain component value, as well as the appropriateness of each component value to certain types of studies and research questions.

This chapter focuses on the grammatical components that were identified in section 3.2.3. The components and their values discussed are therefore those that surfaced when existing concepts (that make up the theoretical data) were contrasted with each other. In other words, these components are the respects in which the concepts differ from each other. This chapter starts with the discussion of the component of Grammaticality (6.1.), as it turns out there is more than one way to define what is grammatical and what is not. I will then discuss Type of expression, that is whether tense may be expressed periphrastically – with auxiliaries, clitics or particles – or whether inflectional expression is required (6.2.). After this I will examine the Morphosyntactic slot: whether tense is seen as a category of verbs only or whether it may be a category of nominals or the sentence as well (6.3.). Finally I will discuss the requirement of Finiteness (6.4.).
6.1. Grammaticality

6.1.1. The Component

In this section I will deal with the notion of grammaticality. If understood in the widest possible sense, grammatical expressions include all expressions that are not completely lexical, and in this sense grammaticality can be seen as a necessary part of any concept that deals with any linguistic phenomenon that is seen as having some consistent marking. However, languages are never black and white: grammaticality forms a continuum and expressions can be seen as more or less grammaticalized. This is consequently reflected in how grammaticality can be defined in several ways using different criteria. Some concepts focus on some of these criteria while some focus on others. It is thus in no way trivial to break the concept of grammaticality apart and contrast these criteria to the typological data. The relevant component is Grammaticality (Grammaticality is required or Grammaticality is not required). Possible ways to define grammaticality include obligatoriness, boundedness, belonging to a closed set and whether a marker is semantically replaceable with another marker or not: all these are properly explained below. The same features are also analyzed in the typological data to the extent it is possible.

6.1.2. The Theoretical Data

Most concepts explicitly require grammaticality of the marker, with the exception of Reichenbach (1947) who does not make any claim about the matter, Allen, who speaks of morphemes and zero-expression with no mention of grammaticality (1982, 255) and Harder (1994), who treats inflectional and periphrastic forms of English as tense markers but does not treat the matter either – most likely as his study is mostly language-specific and the markers treated are thus “self-evident”. Nonetheless, grammaticality must be an implicit requirement in these concepts as well, as the markers examined are in clear contrast with lexical expressions (as they form systems).

Where the concepts differ to some degree is in their definition of grammaticality. Many of the concepts don’t elaborate the term any further, and thus the criterion is simply “grammatical categories” for Bache (1995, 337), “grammaticalized temporal relations” for Klein (1994, 120) and “grammatical operators” for Functional Grammar (de Groot 1995, 32). Some concepts break grammaticality down into its components: “The clearest examples - - are obligatory and
morphologically bound” (Comrie 1985, 10) or at least acknowledge that grammaticalization is a process that is not clear-cut: “- - fully - - less grammaticalized Future - -“ (Thieroff 1994, 8). Some concepts focus on the latter part of Comrie’s definition above and require morphological boundedness – and correspondingly inflectional expression: thus Janssen accepts only tense forms that are marked morphologically (1994, 116) – with periphrastic expression he only analyses the auxiliary as carrying tense – and Johnson states that tenses are found in the inflectional systems of languages (1981, 146) and are thus morphological categories (1981, 174). Nordlander focuses on the obligatoriness of the elements (1997, 133), which may or not be morphologically realized (1997, 107). For him, lack of realization means zero-expression, not omittability. Bull focuses on the fact that tenses receive their meaning from a closed set (1960, 20) – which is the widest possible definition that is still more concrete than plain “grammaticality”. He considers that the morphemes themselves may be bound or free (1960, 20).

We can thus arrive at dividing grammaticality into several criteria or requirements, which can be analyzed in isolation in the typological data. For a marker to be grammatical, it may be required that it is obligatory and/or that it is bound: a requirement further dividable into being morphophonetically bound and forming an accentual unit with the “host” morpheme. Obligatoriness can be required (Nordlander 1997, 133) or it can be seen as an “ideal” case (Comrie 1985, 10).

When we examine the typological data, there are two basic possibilities for obligatoriness: the tense marker can be obligatorily present, and thus an accidence category, or it is non-obligatory and occurs only when the specification of the temporal reference is seen important. We can also analyze whether the marker can be replaced with a tense marker with a wider semantic scope (for example, whether a marker of remote past can be replaced with a marker of general past). For Comrie, replacability is a criterion for treating a tense opposition as secondary (1985, 49). In the same vein Raphael Salkie considers Finnish not to have a future tense as when referring to future "Finnish has no option but to use the present tense" (2010, 197). This is only true in that in Finnish the present tense is predominantly used when referring to the future (this is also why it is more proper to analyze it as a non-past tense): there also exists a periphrastic future construction (141) which is in practice always replaceable by the non-past. However, this does not mean that the construction in (141) would not exist.

(141) Tule -mme teke -mään kaikke -mme.
    come -1PL do -INF all -1PL.POSS
    ’We will do all we can.’
We can compare the case of Finnish future with Norwegian. Norwegian has the future (or modal) auxiliary *ville*, and just as in Finnish the non-past is preferred when referring to the future: in a simple test by Kristin Melum Eide 24 out of 35 native speakers found non-past more natural when firm confidence was to be expressed with only three speakers preferring the future auxiliary (2005, 45). And just as in Finnish, the future with an auxiliary is described as "bookish" (2005, 46). While more marginal, the periphrastic futures do still exist both in Finnish and Norwegian if replacability does not pose a problem for the concept of tense used.

6.1.3. The Typological Data

Vast majority of the markers are analyzable as obligatory (172 out of 193 markers) while 21 markers are non-obligatory. In two languages – Nigerian Pidgin and Tuvaluan – the sources list contexts in which the tense marker may be dropped out. This could make it possible to analyze the markers as omissible; that is, they would not be strictly non-obligatory as there would be a specific set of conditions under which (and only which) the marker could be "deleted". In the case of Tuvaluan, the set of conditions for omission of tense is very large and covers any case where the location in time of a particular situation is clear from either the discourse or the extralinguistic context (Besnier 2000, 473). In the example (142) the latter sentence lacks TMA marking as these categories are clearly the same as in the first sentence.

(142) *Ia koo fai aka ttaofì o ssuáa tìno, peelaa, ‘ko ttìno teelaa.’*
    
    so INC do DXS the.opinion of a.other person thus FOC the.person that
    
    *Fai ssuáa ttaofì o ttìno peelaa, ‘ko ttìno teelaa’.*
    
    do a.other opinion of the.person thus FOC the.person that

'So, one person voices an opinion, ‘that person’. Another person voices an opinion, ‘that person’"

Two other, stricter rules are also presented: tense marking may be omitted when several consecutive clauses denote temporally ordered situations (143) (Besnier 2000, 473) or when clauses that denote situations which succeed one another are marked for roughly similar tense, aspect and mood categories (144) (2000, 473).
(143) *Ia, oko mai te maaloo, a koo fakanofo ei a*  
so reach DXS the government and INC CAUS.stay ANA.PRON CONTR.ABS  
nofoga o te maaloo.  
chair of the government  
'So, the government arrives, and [it] establishes governmental positions.'

(144) *Vau laa kkonei, koo ssala ei ki sefe tusi o te lotu,*  
come then to.here INC search ANA.PRON to box book of the church  
see maua.  
NEG get  
'[He] came here, looked [for it] in the church’s book boxes, and didn’t find [it].'

These somewhat redundant rules are accompanied by a description of both the favoured and disallowed grammatical environments for deletion to take place. Were the set of allowed contexts more limited, Tuvaluan tenses could be analyzed as omittable. However, as the contexts cover almost every conceivable linguistic environment, the Tuvaluan tenses are more appropriately analyzed as non-obligatory. The situation is similar in Nigerian Pidgin. In Nigerian Pidgin factative tense values are assigned by default (Faraclas 1996, 188). This means that the default temporal value for stative verbs is that of present tense and for non-stative verbs that of past tense. This is a situation common in creole languages – at least in those studied by Derek Bickerton (1974, 5). If the desired temporal reference is different, *overt* marking must be used: auxiliaries denoting past or future (proper tense marking), time adverbials or other (overt) contextual clues (1996, 195). A stative verb is considered to have the factative tense value of present tense, if not otherwise specified. Thus, in example (145) (Faraclas 1996, 196), the lack of marking signals present tense.

(145) *A de haws.*  
1SG COP house  
'I am at home.'

If past tense is desired to be expressed, the speaker has three possibilities. Either to use past tense auxiliary “bin” (146) (1996, 197), to use time adverbial “yestádê” (“yesterday”) (147) (1996, 196) or to resort to the unspecified contextual clues.

(146) *A bin de haws.*  
1SG PAST COP house  
'I was at home.'
The crucial role of “other contextual clues” is not made clear in the source, but as they are suggested to be overtly marked (Faraclas 1996, 195) – just as tense and adverbials – it could be assumed that they must be grammatically present (not just vaguely as implications carried over from previous discourse) and they could thus be treated equally with adverbials in this respect. This would make tenses of Nigerian Pidgin omittable. However, such a vague notion covers in all probability an equally large number of cases as the contexts given in the Tuvaluan source; non-obligatoriness is thus still a more likely analysis. Omittability therefore turns out to be an irrelevant notion for the current data.

Sixteen markers from eight different languages are more non-controversially non-obligatory. The typical case is that all tense markers of such languages are non-obligatory, which is the case in all but one language. In Kwaza, the basic opposition, which is obligatorily marked, is between future and non-future. The temporal reference of the non-future depends on the discourse context or on temporal adverbs and may either be made explicit, as in (148) or not (149) (van der Voort 2004, 389).

(148) \(La’to\) away -‘mũ -ki txa’rwa kike -‘mũ -ki.
    yesterday cold -CLASS(liquid) -DEC first hot -CLASS(liquid) -DEC
    'Yesterday it (the water) was cold, today it is warm.'

(149) \(Txa’hũ \ ba -jâ’hũ -ki.\)
    path clear -CLASS(path) -DEC
    'He clears/cleared/is clearing/was clearing the/a road/roads.'

However, past tense (150) (van der Voort 2004, 390) and remote past tense (151) (2004, 391) may be optionally expressed (inflectionally) if non-future temporal reference is not seen sufficient. Thus in Kwaza obligatory and non-obligatory marking coexist.

(150) \(Nũ’ri -xa -ky -hũ -re.\)
    satiate -2SG -PAST -NOMZR -INT
    'Were you full?' (this morning up to three days ago)
(151) Ja a’nū -iʔi -hŷ -ki atxi’txi.
already plant -REM.PAST -NOMZR -DEC maize
'He planted maize already very long time ago.'

Most of the non-obligatory markers (12 out of 16) are marked periphrastically but four are inflectional: the markers of Kwaza dealt with above and the past (152) (Terrill 2003, 328) and future markers of Lavukaleve, which in addition of being non-obligatory cannot occur with aspectual or modal marking – which is peculiar as they are not in a semantic opposition with each other (2003, 323).

(152) Iru -nu.
sleep -PRES.SG
'She's sleeping.'

Out of the 193 markers of the typological data 33 can be analyzed as replaceable by another tense. The replacing marker is often semantically "wider" – that is, it is already able to express the full extent of the temporal reference of the replaced marker. This is the case for example in Chingoni (Ngonyani 2003, 55-60), where instead of the remote past tense (153) (2003, 58) the indefinite past tense may be used (154) (2003, 59).

(153) N -a -hamb -ili.
1SG -REM.PAST -go -PFV
'I went.' (in remote past)

(154) N -aka -hamb -ili.
1SG -PAST -go -PFV
'I went.' (in past)

Replacability may also be mutual. Such is the case in Bilua (Obata 2003, 114-116), where there are near future (155) (2003, 115) and general future tenses (156) (2003, 112). Near future is replaceable with the general future, but the general future may also be replaced by the near future if the event in question is certain enough to happen (2003, 114-116).

(155) Me =ba mujor =o.
1PL.INCL =PROS fish.bonito =NEAR.FUT
'We will go and fish bonitos.'
The semantics of the tenses don't necessarily need to overlap for replacability to be possible. This is the case in Babungo (Schaub 1985, 212-214), where there are two future markers, one for close future (157) (1985, 213) and one for remote future (158) (1985, 213). However, the marker for remote future can be replaced with the close future marker (159) if the certainty of the remote event is stressed (1985, 213). In this usage the tense is thus considered a general future (with a modal component of certainty).

(156) Tu a =da keu =vou Gizo.
be.long 1SG =SIT be.long =FUT Gizo
'I will be in Gizo for a long time.'

(157) Mə tāa jwí mbisi.
1SG CL.FUT come tomorrow
'I shall come tomorrow.'

(158) Mə ndɔ jwí ŋkūusə.
1SG REM.FUT come Nkuusə
'I shall come on Nkuusə.'

(159) Mə tāa jwí ŋkūusə.
1SG CL.FUT come Nkuusə
'I shall (surely) come on Nkuusə.'

The last criterion for grammaticality analyzed in the data is boundedness. This is further divided into whether the marker is bound morphophonetically (that is, whether it takes part in the morphophonetic processes that occur within words) and whether it forms an accentual unit with the host word (that is, whether it takes part in assigning stress). As sufficient positive evidence for these criteria was often not found in the grammars, I analyzed every marker labeled as an affix or that otherwise seemed to behave like a typical inflectional marker as bound in these both respects. There was no marker which would’ve been analyzable as bound in one respect but not in the other. The results are thus straightforward: the markers that are bound are bound in both respects and these markers are the ones analyzable as inflectional (110 markers out of 193). To require boundedness thus limits the data to the inflectional markers and excludes about one third of the markers.
So while at first grammaticality seems like a default component value of any concept of tense, the amount of markers included in the study can vary greatly depending on the definition of grammaticality. To sum up, out of the 193 markers 172 are obligatory and twenty-one are non-obligatory. Thirty-three are replaceable by some other tense and 110 can be considered bound. For curiosity's sake we may calculate that a total of 95 markers fulfil all the criteria of being bound, obligatory and non-replaceable.

6.1.4. Discussion

The above suggests that the most neutral definition of grammaticality that would capture most of the relevant markers would be one that is quite general. After all, the "unwanted" markers are more efficiently excluded by using component values that restrict the linguistic environment, e.g. to finite (see section 6.4.) or verbal (see section 6.3.) or the semantics e.g. to deictic (see section 5.5.). The disadvantages and advantages of using strict criteria for grammaticality – boundedness and obligatoriness – are the same as when periphrastic expressions are excluded (see section 6.2.). In addition to leaving out a significant number of markers sentence-level marking cannot be studied (category types cannot be contrasted) and multiple temporal oppositions are effectively dropped out. On the other hand, it is easier to comply with the principle of one form – one meaning.

If a more general criterion is used – that grammaticality means selecting a marker from the closed set, for example – then periphrastic and sentence-level expressions are included and it is easier to include expressions that occupy the gray area; those which are clearly on the path of grammaticalization but do not meet many of the stricter criteria. A study that chooses to use such a lax criterion may have a research question that focuses on how languages express time – in other words, the “traditional” and established verbal categories are just a part of the object of interest. Such a study acknowledges the constant change of languages and the resulting need for seeing the language as an evolving problem-solving tool. This is the approach of e.g. Shana Poplack and Nathalie Dion in their diachronic study of variable ways to express futurity in French (2009). The expressions that Poplack and Dion examine differ grammatically (2009, 558) and while it has been proposed that they have certain conditions of usage in the standard language, they are rarely used in accordance to these rules in spontaneous speech (Poplack & Turpin 1999). The central finding is that the variability of expressions does not correspond to any of these prescribed conditions (Poplack & Dion 2009, 580). The concept of tense in the study of Poplack and Dion is thus
grammatically very lax – making comparison of different expressions possible – but it allows a number of semantic nuances (2009, 566) as the aim is to examine possible (semantic) conditions of usage. However, as future time reference is considered to be primarily a function (2009, 564), the concept is not made explicit in many ways: the basic semantics of future temporal reference are left implicit and the focus is on the "readings and contexts of use" (2009, 566). In other words, it is presumed that the three competing expressions express future: the study focuses on nuances beyond this presumption.

6.2. Type of Expression

6.2.1. The Component

In this section I will deal with the component Type of expression, that is, whether tense may be expressed only inflectionally (with an affix) or whether periphrastic expression (particles and auxiliaries) and clitics are also allowed. The latter view may also be called “broad” morphology in that it examines all grammaticalized marking in a language rather than just the word-formation processes (Deo 2011, 156). For the purpose of the current work, inflectional expression is defined as a marker that forms an accentual unit with the host (that is, it follows the stress pattern of the host as if it were a syllable that belonged to the stem) and is morphophonetically bound (that is, it undergoes every morphophonetical process relevant to its position to the host, not retaining its independence as if there was a word boundary between it and the host). Clitics fail the previous criteria as do auxiliaries and particles – these are therefore considered periphrastic expressions.

Those concepts that are more semantically oriented typically place no restrictions or emphasis on the type of expression. However, in several concepts periphrastic expression is excluded either explicitly – type of expression being a component selected on purpose – or such an implication may arise from the treatment of the target languages of the study; for example if only the inflectional past and present tenses of English are discussed and the periphrastic future is not dealt with.
6.2.2. The Theoretical Data

Some concepts recognize only inflectional marking as true tense marking. This is stated explicitly in two concepts; “- - the only forms I accept as tense forms are marked morphologically” (Janssen 1994, 116) and “- - found in the inflectional systems of natural languages” (Johnson 1981, 146). The implication of such a restriction can also arise if the concept focuses in a single language and only inflection is considered to represent tense. This is the case in one concept; Allen recognizes only past and present of English (and their respective marking, either [-d] or [0]) as tenses (1982, 256). Janssen’s explicit claim is also very likely influenced by the target language, Dutch, which has inflectional past but periphrastic future. While Janssen is explicit in his requirement of inflectional expression, he is still able to analyze verb complexes with auxiliaries (which thus have periphrastic expression). He just considers the finite verb – in this case the auxiliary – to represent tense while the infinite verb only expresses another event which is disconnected from the encompassing scene (1994, 116). So while periphrastic complexes are analyzable to him, it is only because the lexical verb is faded out of the picture and only the inflection of the auxiliary is considered to express tense.

The majority of concepts recognize periphrastic expressions as expressing tense. This can be stated explicitly as in “- - with the auxiliaries - -“ and “- - tense-marking takes place in the position reserved for sentence-particles - -“ (Comrie 1985, 12), “There are - - languages - - in which some order morphemes are free forms” (Bull 1960, 20) (order morphemes refer to the order relationship between two or more events [1960, 8]) or “- - means used - - inflectional endings, stem change, periphrastic constructions, suppletive forms” (Klein 1994, 123). In other concepts no explicit restrictions on expression type are made altogether and periphrastic expressions are included in the data (e.g. Thieroff 1994). The treatment of English will future, for example, as a tense is evidence for the (implicit) inclusion of periphrastic expression. Reichenbach, for example, includes future and only specifies that tenses are a verbal phenomenon (1947, 287).

The components Zero-marking (Tense may be zero-marked or Tense may not be zero-marked) and The principle of one form – one meaning (The principle of one form – one meaning is upheld or The principle of one form – one meaning is not upheld) are also touched upon in this context. Every single concept allows tense to be marked with a zero making the component rather redundant. However, only five out of the twelve concepts are explicit about it, including Allen (“- - those which 'exhibit' [0] are called present tenses”) (1982, 256) and Johnson (“- - zero-tense forms - - ”) (1981, 170). In the majority of the concepts the issue is not touched upon but an implicit acceptance
of zero-marking is clear as (in the most common case) the zero-marked English present tense does not pose any problems to the concepts. The component of zero-marking therefore only differentiates the concepts in the sense that paying attention to it signals more focus on the grammatical features of tense.

The component *The principle of one form – one meaning* is more relevant. According to the principle (also called *the principle of isomorphism*) each linguistic element corresponds to a certain meaning, meaning that the semantics of co-occurring linguistic elements combine in a predictable, compositional way. Helle Metslang, who examines the structure of Estonian verbal constructions, not only identifies isomorphism (1993, 32) but also the tendencies of the language to both retain and re-establish it (1993, 35). According to Metslang isomorphism in Estonian can be explained as the chain of temporal relations that follows the historical dependency chain of verbal forms (1993, 32); each verbal form in a verbal construction corresponds to a localization of time on the timeline (1993, 31). Yet, as Metslang points out, there are exceptions to isomorphism (1993, 32) and the whole phenomenon (lack and presence of isomorphism) can be discussed alongside language change (1993, 35-37). Isomorphism is explicitly required by the concepts of Janssen – "If one assumes that in principle each linguistic form has a systemic categorical meaning - -" (1994, 106) – and Harder – "- - signifiant and signifié, expression and content - -" (1994, 63) and implied by Allen (1982). Such a requirement may become problematic if periphrastic expression is allowed, as periphrastic expressions often combine two grammatical tense markers while their semantics may still be considered "simple". Consider the example (160) from Finnish. The future is formed with an auxiliary *tulla* (′come′), which is inflected in the (zero-marked) non-past tense. The marking is therefore more complex than the marking of past (161), which only consists of the past suffix -i. If the semantics of past and future are considered symmetrical, the principle of one form – one meaning cannot be upheld.

(160) *Tule -mme teke -mään kaikke -mme.*
    come -1PL do -INF all -1PL.POSS

′We will do all we can.′

(161) *Te -i -mme kaikke -mme.*
    do -PAST -1PL all -1PL.POSS

′We did all we could.′
6.2.3. The Typological Data

It is not surprising that most of the concepts that do not recognize periphrastic expressions are either created for the study of a single language or have a single language as their data (because when examining only one language it is much easier to focus e.g. on an inflectionally expressed opposition of past and present instead of including a periphrastically expressed future). The problem of only including inflectional expression becomes evident when examining the typological data; According to the data as many as one third of the markers (67 markers out of the total of 193) can be classified as periphrastic expressions. Out of these 67 markers the presence of an auxiliary marks tense in 27 cases, an element identifiable as a particle marks tense in 39 cases and in one case the tense is marked by reduplication of the lexical verb. This is the case with the past tense of Mina (Frajzyngier & Johnston 2005, 190) (162).

(162) Dzàw í dzàw -ú á dìwən mədingwərzé.
attach 3PL attach -3SG PRED back donkey
'They attached it to the back of the donkey.'

In addition to periphrastic expressions, there are seven markers that could be interpreted as clitics, such as the close future marker of Bilua (163) (Obata 2003, 115). Out of these seven clitics, one is a cliticized auxiliary – the present tense of Tajik (Ido 2005, 53) (164) and six are particles.

(163) Me =ba mujor =o.
1PL.INCL =PROS fish.bonito =NEAR.FUT
'We will go and fish bonitos.'

(164) Ман мактуб навишка истода -ам.
1SG letter write PCPL -be.1SG
'I am writing a letter.'

No concept made any restrictions about the subtype of inflectional expression. In the data there are 110 markers that can be classified as inflectional. Out of these markers 79 are suffixes, 23 are prefixes, seven are cases of stem modification and one is an infix. The remaining nine markers that are neither periphrastic, clitics or inflectional, are zero-markers. No concept that deals with grammatical components poses any restrictions regarding whether zero-marking could represent tense or not. In some cases actual zero-markers are included in the description: “- - those which ‘exhibit’ [0] are called present tenses - -” (Allen 1982, 256). In most cases, however, there are no
restrictions whatsoever and examples used contain zero-marked tenses with no difficulty. It should be noted that not all instances in which no overt marker is present but in which the sentence is given a temporal reading are considered to have zero-markers for the purposes of the typological data. For a zero-marker to be analyzed its temporal value cannot be merely an implication of the absence of other marking. In other words, if there are – for example – a past and a future tense marker in the language in question and if the absence of them always signals present tense, then the zero-marking is analyzed. If, however, the zero-marking only implies present tense and in some contexts other temporal readings are also possible, then the meaning of present tense is not considered to be “attached” to any specific marker (not even to the hypothetical zero-marker) and is thus considered to be abstract in the language in question. Also note that it is not just present tenses that can be abstract in this manner. For example, the language of Lavukaleve (Terrill 2003) is analyzed as having abstract past tense for similar reasons.

The majority of the concepts accept both zero-marking as well as periphrastic expressions. The concepts that do not accept periphrastic expressions can capture only 126 of the 193 markers (approximately 65 per cent of the markers). If a concept would place a restriction on zero-marking – which was not the case with any of the concepts analyzed – it would capture 95 per cent of the markers (184 out of 193). If a concept accepts only inflectional markers the distribution of meanings of tenses in the resulting data will be different. Of all the markers in the data, 84 represent some kind of past tense (simple past or a past tense with a degree of remoteness), 31 represent present tense, 58 represent future and 20 represent either non-past or non-future. Table 6.1. presents the tenses by their type of expression. We can see that past and present tenses are predominantly expressed inflectionally (in 60 % and 61 % of the cases, respectively). Past tense is also quite often expressed periphrastically (38 %), while for present tense zero-marking and periphrastic expression are equally common (16 % each). The expression of future is almost equally divided between inflectional (52 %) and periphrastic (43 %) expression and the distribution of non-tenses is very similar to that of present tense. These findings are in accord with findings of e.g. Dahl (1985, 183) and Bybee, Perkins and Pagliuca (1994, 279).

<table>
<thead>
<tr>
<th></th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Non-tenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflectional</td>
<td>60 % (50)</td>
<td>61 % (19)</td>
<td>52 % (30)</td>
<td>50 % (10)</td>
</tr>
<tr>
<td>Periphrastic</td>
<td>38 % (32)</td>
<td>16 % (5)</td>
<td>43 % (25)</td>
<td>25 % (5)</td>
</tr>
<tr>
<td>Clitic</td>
<td>2 % (2)</td>
<td>7 % (2)</td>
<td>5 % (3)</td>
<td>-</td>
</tr>
<tr>
<td>Zero-marked</td>
<td>-</td>
<td>16 % (5)</td>
<td>-</td>
<td>25 % (5)</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>31</td>
<td>58</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 6.1. Tenses by their type of expression.
We can also examine the distribution the other way around to reveal some interesting statistics; that is, we can examine the types of expression by their meaning. For this purpose we leave non-tenses out of the picture (as there is some overlap between them and other tenses and because some of them are used predominantly in their present sense), leaving a total of 173 markers the meanings of which are once again “simplified” into past, present or future (e.g. remote past is considered a past).

Types of expression by their meaning are illustrated in the following table (Table 6.2). The distribution of zero-marked expressions and clitics is not analyzed as they form too small groups for any meaningful statistical analysis. They are included in the column “All markers”.

<table>
<thead>
<tr>
<th></th>
<th>Inflectional</th>
<th>Periphrastic</th>
<th>All markers (including zero-marking and clitics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>51% (50)</td>
<td>52% (32)</td>
<td>49% (84)</td>
</tr>
<tr>
<td>Present</td>
<td>19% (19)</td>
<td>8% (5)</td>
<td>18% (31)</td>
</tr>
<tr>
<td>Future</td>
<td>30% (30)</td>
<td>40% (25)</td>
<td>33% (58)</td>
</tr>
<tr>
<td>Total</td>
<td>100% (99)</td>
<td>100% (62)</td>
<td>100% (173)</td>
</tr>
</tbody>
</table>

Table 6.2. The types of expression by their meaning.

We can see that the majority of inflectional (51%) as well as periphrastic markers (52%) are past markers. The shift in distribution occurs with present and future markers. While 19 per cent of inflectional markers express present tense the same is true only for 8 per cent of periphrastic markers. Future behaves in the opposite way as it is the meaning of 30 per cent of inflectional markers but of 40 per cent of periphrastic markers. When comparing the distribution of the inflectional markers to the distribution of all markers the percentages are roughly similar, as the combined number of periphrastic expressions, clitics and zero-expressions is still smaller than the number of inflectional markers. What invites further speculation is the small group of periphrastic present markers: It is tempting to assume some sort of progressive or imperfective meaning to be “hiding” under the seemingly temporal meaning especially if past and/or future tenses of the language are expressed inflectionally. These suspicions arise because progressives are typically expressed periphrastically (Bertinetto, Ebert & de Groot 2000, 520). While there is something peculiar in every single case, there is however no evidence to make this claim. In Shekhawati, for example, present tense is expressed with an auxiliary “he” (165) (Gusain 2001, 35) whereas past and future are expressed inflectionally. Nevertheless, “he” is not a marker of progressive, as an additional progressive marker is required to express ongoing actions. Otherwise the present is more or less restricted to existential clauses (Gusain 2001, 35-38), as in (166) (2001,35).
The case is similar in Kashmiri, in which present tense is also expressed periphrastically while the three different past tenses and future are all expressed inflectionally (Wali & Koul 1997, 220). Another curious case is Papiamentu, in which the particle *ta* is defined as a marker of simultaneousness that is neutral with respect to temporal reference (167) (Kouwenberg & Murray 1994, 40). In my analysis simultaneousness is the same as anaphoric present, which is hardly distinguishable semantically from progressive, if at all.

In Punjabi the present tense is formed with an auxiliary inflected in the present tense and the main verb in the present participle (168) (Bhatia 1993, 243). The auxiliary is not present in past and future tenses (which are expressed inflectionally) and it can thus be considered to mark present tense. The auxiliary also occurs in proximate past and remote past tenses and it cannot thus mark progressive, but the apparent triple-marking (inflection of the lexical verb, the presence and the inflection of the auxiliary) of present tense invites speculation.

In Manx the status of the periphrastic present tense (169) (Phillips 2004, 28) seems to be uncontroversial. All three tenses (past, present and future) are expressed periphrastically and while past and future tenses have perfective and imperfective variants the present tense is restricted to imperfective. (2004, 36-38).

(165) *Mhe likh rya hã.*

1PL write PROG.MASC.PL PRES

'We are writing.'

(166) *The admi ho.*

you.HON man.MASC.SG PRES

'You (honorific) are a man.'

(167) *Bo ta sinti -bo manera ta na bo lugar bo ta.*

2SG ANA.PRES feel -2SG as.if be LOC 2SG place 2SG be

'Do you feel at home?'

(168) *KuRiãã páR -diãã ne/han.*

girl.PL read -PRES.PCPL.FEM.PL are

'The girls read.'

(169) *Ta ’n seihll goll foddey schioun na ve cliaghtey ve.*

PRES the world go far faster than PAST.3SG practise be

'The world moves much faster than it used to.'
So while in none of the cases it can be shown that the periphrastic present would be in fact a progressive or an imperfective, it is nonetheless striking that in four cases out of five the past and future tenses of such languages are expressed inflectionally. These findings could be seen as evidence for speculation on whether present tense is actually a proper tense at all. Bybee, Perkins and Pagliuca, for example, see present as covering various types of imperfective situations rather than having to do with actual deictic temporal reference (1994, 126). Similarly, present is not among the categories studied by Dahl in his typological TMA study (1985). If such a view would be accepted, it would have serious consequences for the discussion of tense oppositions and the categories they form – effectively breaking apart any suggested category structure and forcing treating markers individually.

6.2.4. Discussion

In addition to making it impossible to compare the distribution of tenses according to the expression type – by default – restricting the data to only inflectional markers makes it impossible to gather markers that can be analyzed to be a category of the sentence. While inflectional markers can be a category of a verb or a noun, only periphrastic markers and clitics can be located on the sentence-level. See section 6.3. for more discussion.

The choice of excluding periphrastic expression from the concept of tense can depend on the linguist’s view on grammaticality. As periphrastic expressions do not fulfil the criterion of boundedness – and sometimes not even the criterion of obligatoriness – they may be left out as a borderline phenomenon, something that is not as close to the “core system” as inflectional expression (even though inflectional expression may also be non-obligatory). Even though the natural path of grammaticalization would take these markers further in the direction of inflection (Bybee, Perkins & Pagliuca 1994, 4-9), the line is always drawn somewhere. The component of grammaticality is discussed in more detail in section 6.1.

As the component is purely grammatical, there are no semantic reasons for excluding periphrastic expression, meaning that if periphrastic expression is excluded it is either a choice based on the target languages or on a strict view of what is considered grammatical. Periphrastic expression can be excluded without problems if the target language has a purely inflectional tense system. Thus in her study of the viewpoint and tense system of North-Western Karaim Éva Ágnes Csató does not offer any explicit grammatical criteria for tense as all tenses (past and two separate non-antieriors)
are marked with affixes (2000, 731-732). However, if the study has more languages in scope, then the decision to exclude periphrastic expression must be justified with grammaticality requirements and possibly with the component value of tense being the category of a verb only.

If periphrastic expressions are left out, multiple oppositions are effectively also excluded. While this is not necessary in theory – as there is no reason why two temporal categories couldn’t both be inflectional – there is no instance in the data where this would be the case: in practice one of the oppositions (the one which includes the past tense) is inflectional while the other (which includes the future tense) is periphrastic. Only in one case – the language of Catalan – the effect is reverse: the exclusion of periphrastic expression would leave only the category with future / non-past as in Catalan the expression of future is inflectional (170) (Hualde 1992, 306) while the expression of past (preterite) is periphrastic (171) (1992, 305).

(170) Arribaran d'una hora.
   arrive.FUT.3PL inside of.a hour
   'They will arrive in an hour.'

(171) Vaig anar al mercat ahir.
   PAST.1SG go.INF to.the market yesterday
   'I went to the market yesterday.'

One advantage of dealing with only inflectional marking is that it is easier to comply with the principle of one form – one meaning. Periphrastic tense marking may either consist of just one marker, like in Koyra Chiini, in which future tense is expressed with a particle (172) (Heath 1999, 163), but in many cases the language has two co-occurring temporal categories, one of them inflectional, the other periphrastic. In these cases the future, for example, may co-occur with present tense marking, like in the language of Chingoni. In Chingoni future tense is expressed with a particle while the verb is also inflected for present tense (173) (Ngonyani 2003, 57), whereas past tense occurs as the sole tense marker of the sentence (174) (2003, 59). If the semantics of future and past are seen symmetrical (if they are described with the same type of relation with the same number of members) the principle of one form – one meaning cannot hold in these cases. The principle of one form – one meaning (a position that may be needed for justifying some theories of grammar) would require that any expression of tense that consists of several separate markers results in more complex semantic description (as in e.g. Harder [1994]).
When thunder occurs, they say, "that will (soon) turn into a windstorm."

'I will come.'

'I went.' (in past)

The aspiration to maintain the principle of one form – one meaning, in addition to excluding some marking from tense, may result in including some unconventional cases. Gunlög Josefsson, in his study of Swedish verb formation in the Minimalistic framework, arrives at analyzing the Swedish infinitive affix -a as "a kind of tense affix", the value of this infinitival tense being unspecified but "interpreted in conjunction with the tense of the selecting verb" (1998, 44). This results in a neat paradigm of forms (as Swedish past and present occur in the same syntactic slot) with the cost of making the semantics of the paradigm blurrier. Josefsson further compares Swedish with English (which does not have this overt unspecified verbal marker V0) and explains the situation in English to have resulted from a fusion of the stem and verbal inflection (1998, 175). The two aspirations, to maintain the principle of one form – one meaning and to explain the two languages in similar terms thus forces the author to redundantly expand the category of tense in one language and even more redundantly to see the corresponding category in a language in which it would not be necessary at all.

If the inflectional system in itself is the object of investigation, then the concept of tense may be neutral to whether periphrastic expression would be included under tense. In their study of acquiring verb inflection in child language Lois Bloom, Karin Lifter and Jeremie Haftiz avoid defining tense (1980); what matters is that in English (at least) verb inflection is used to express tense and aspect (1980, 405). While they acknowledge tenses involving auxiliaries, they focus only on the present/past inflection of the auxiliary be (1980, 386), not on auxiliaries that themselves signal tense (will or shall).

Including periphrastic expression is natural or even necessary in studies that focus on the function of tenses, that is, which temporal contrasts are available to the speaker. From this point of view it is irrelevant to consider the relative stage of grammaticalization of tense markers as long as the
minimum grammatical threshold (however it is defined in the study in question) is achieved. This is the case in the study of variable ways to express futurity in French by Shana Poplack and Nathalie Dion (2009). The expressions under study include inflectional (175) and periphrastic (176) marking (2009, 558) and future time reference is considered to be primarily a function (2009, 564).

(175) Ça ir\textsuperscript{-a} peut-être mieux demain.
\begin{tabular}{llllll}
& it & go.FUT & -3SG & maybe & better & tomorrow \\
\end{tabular}

'Maybe it will go better tomorrow.'

(176) On va vous fusiller.
\begin{tabular}{llllll}
& INDEF.PRON & go.PRES.3SG & 2PL & shoot \\
\end{tabular}

'You are going to be shot.'

Furthermore, including all types of expression is necessary in a study that has to take the interplay of the complete TMA system into account in order to examine one part of it. Bill Palmer, for example, examines the imperfective aspect of the Torau language (2007). In order to understand this complex element he examines the interplay of various TMA markers of the "poorly defined syntactic unit referred to as the verb complex" (2007, 502). In Torau tenses are expressed e.g. with a suffix of a particle (2007, 506) or a clitic (2007, 509).

6.3. Morphosyntactic Slot

6.3.1. The Component

Every set of grammatical expressions, a category, can be analyzed to be a category of something. Even though tense affects the temporal reading of the whole sentence, tense marking cannot be tossed randomly in the sentence (or, if it is, then is a category of the sentence). It necessarily has a grammatical scope over something. The traditional view is that tense, along with aspect and mood, is a category of the verb. It is, however, not the only possibility. If it is not explicitly ruled out in the concept, tense (in some languages) may very well be a category of a nominal phrase or the whole sentence as well. The relevant component of concepts is thus Morphosyntactic slot; whether tense is considered to be a category of a verb, a nominal phrase or the sentence, whether several possibilities are allowed or whether no restrictions are placed at all. In examining the typological data the focus is on which element the behaviour of the marker is linked to (or has to do with). For example, whether the location of a particle is describable in relation to the verb, as with the future of Koyra.
Chiini – “I gloss the preverbal *ta* as Future (Fut)” (Heath 1999, 163) – or to the sentence, as with the past tense of Hdi: “The form *si* occurs at the beginning of the clause.” (Frajzyngier & Shay 2002, 335). In the previous case tense is a category of the verb, while in the latter case it is a category of the sentence.

### 6.3.2. The Theoretical Data

Every concept – as expected – allows tense to be (at least) a category of a verb. Nonverbal tenses may not be explicitly excluded; the section of Reichenbach’s book that deals with tenses is titled “Tenses of Verbs” (1947, 287). Thieroff deals with “categories of verbs” (1994, 3) as do Allen (1982, 255) and Bache (1995, 206). Johnson deals with “verbal paradigms” (1981, 174), Harder with “verbal time reference” (1994, 61) and Bull’s study is titled “Time, Tense, and the Verb” (1960). Some concepts offer a definition that explicitly rules out nonverbal tenses. Klein speaks of the infinite component of sentences that consist of a verb or some other category that can be tensed such as copulas (1994, 180) and that it is the highest verbal element of the infinite component that attaches to the finite element (1994, 181). Nordlander speaks of the need for the equivalent of a main verb (1997, 107) and Janssen states that only the finite verb can be viewed as directly related to the time of speech (1994, 99). In Functional Grammar the focus is on the predicate, and even though it may be verbal, nominal or adjectival in nature (de Groot 1995, 31), it is comparable to the "highest verbal element" of Klein and "the equivalent of the main verb" of Nordlander in that it does not allow "true" nominal (e.g. in nominal phrases that function as subjects) or sentence-level tense marking. One concept explicitly mentions the possibility of tense to be a nominal category: Comrie states that tense can be shown in noun phrases (1985, 13). The concept of Comrie is also the only one to further speculate the possibility of tense being a category of the sentence (1985, 13). According to him there is evidence to support each view.

### 6.3.3. The Typological Data

While almost every marker in the typological data is best analyzed as a verbal category (their behaviour has more to do with the verb than the sentence) there are two markers that seem to invite an analysis of sentence-level categories. The markers were analyzed as sentence-level markers if
their behaviour is more closely linked to their relative position in the sentence than to any verb or a noun.

The past tense of Hdi is expressed with the particle sí, the location of which is described to be clause-initial (177) (Frajzyngier 2002, 336). This is in contrast with the future tense, which is expressed with an auxiliary and which is thus a verbal category.

(177) Sí hli’yá -f dá ráyá -ŋní mà mták.
   PAST leave -UP PURP hunt -1PL.EXCL in bush
   'We were hunting in the bush.'

The non-obligatory past tense particle of Mosetén is the only tense marker of the language, and it can be located anywhere in the clause except for the ultimate position (178) (Sakel 2004, 364).

(178) Pero Karanawi pochho’ chhome’ jike pochho -bi’ mōmō’.
    but Caranawi palm.place also PAST palm.place -still only.FEM
    'But Caranawi was also a palm-area, still just a palm area.'

In addition to these two markers there is one language in which the markers show some peculiar behaviour. In Goemai tense – for example the remote past (179) (Hellwig 2011, 331) – is expressed with particles that can be analyzed as a category of the verb whenever the verb is present, as they originate from the first verb of a multiverb construction and are treated as such by co-occurring pronouns (2011, 323). That means that while there may be a pronoun between tense marking and the verb, the behaviour of the tense marker has to do more with the verb than the sentence.

(179) Muèp =dók mààr màár ’nt’it bá.
    3PL.SBJ =REM.PAST farm farm/farming well NEG
    'They didn't farm much in the past.'

However, the same markers are present in verbless clauses such as (180) (Hellwig 2011, 330). While there is nothing peculiar about the copula being omitted, the tense marker cannot be a category of a non-existent verb. Does the marker change its morphosyntactic slot according to the context? Is it a category of the verbal phrase – so that it would “represent” the phrase when the verb itself is missing? Is it a sentence-level marker in all contexts anyway (even if its behaviour in verbal clauses seems to indicate otherwise) or does an omitted copula still count as the verb of the verbless sentence?
(180) Ní dók à long ái?
   3SG REM.PAST FOC chief INTERJ
   'Was he a chief, hey?'

There are no instances of possible nominal tense marking in the data. This is because of the restrictions in gathering data: the data was restricted on markers occurring on the “highest” level of the main sentences (so that the data is coherent, contains as indisputable cases of tense marking as possible and is possible to collect with any degree of completeness). The next section deals with nominal tense in more detail.

6.3.4. Nominal Tense

The treatment of nominal tense in the literature is the prime example of the importance of using appropriate concepts. The discussion between Rachel Nordlinger & Louisa Sadler (2004, 2008) and Judith Tonhauser (2007, 2008) in Language brings up many central points of the current work. Nordlinger & Sadler examine nominal tense marking in a number of languages (2004). They start by repeating the general assumption that the category of tense is an inflectional category of verbs only (2004, 776). However, as they show, two types of nominal tense are widely attested in languages: Independent nominal tense provides temporal information relevant only to the nominal itself: it locates "the time at which the property denoted by the nominal holds of the referent - - or the time at which the possessive relation holds" (2004, 779). In (181) from the language of Tariana (2004, 779), the possessive relationship between you and house is local to the nominal phrase and has no effect on the temporality of the proposition. This is analogous to e.g. English ex-wife or wife-to-be.

(181) Pi -ya -dapana -pena
   2SG -POSS -house -FUT
   'Your future house'

Propositional nominal tense on the other hand contributes temporal information relevant to the clause as a whole (Nordlinger & Sadler 2004, 790). Propositional nominal tense may function in two ways: either in conjunction with verbal TMA, in which case the nominal and verbal TMA together result in the TMA of the clause as a whole (2004, 790), or, it can be the sole or primary
TMA of the clause as in examples (182) from Sirionó (2004, 795) (originally Firestone 1965, 37-38) and (183) from Chamicuro (2004, 796) (originally Parker 1999, 553).

(182) Ési -ke óso ųá ųi -ra.
    woman -PAST go near water -to.LOC
    'The woman went near the water.'

(183) P -aškalaʔ -íś =na čamálo.
    2 -kill -2PL =DEF.NPAST bat
    'You are killing the bat.'

The discussion, as well as the examples provided, clearly shows that the semantics of propositional nominal tenses are comparable to those of so-called traditional verbal tenses. They would easily be included under most concepts of tense if the component value of verbality was not included. For the purposes of the current study, this is sufficient evidence for treating verbality as an optional component value for the concepts of tense. However, Nordlinger and Sadler fail to provide an explicit concept of tense to start with: they rather speak of TMA categories as "standardly defined" (2004, 777) "as they would be for verbs" (2004, 778). Yet, they arrive to a strong conclusion, that "-tense- must now be seen as a possible inflectional category of nouns as well as for verbs" (2004, 802).

There are at least three serious problems with this. First, instead of highlighting the similarity between these language-specific nominal categories and well-known verbal categories – which would have initiated discussion of the importance of the component value of verbality in any concept of tense – Nordlinger and Sadler are looking for the right universal definition of tense. Second, the premise of the article is to challenge a general assumption, but without an explicit concept, it cannot be sure what is challenged. Nordlinger and Sadler are thus insisting on a correct way to see an unspecified, yet invariable phenomenon. Third, while the semantics of propositional nominal tense are more or less equatable to traditional tenses, the semantics of independent nominal tenses (similar to ex-wife) are not. By making a strong claim that both of these types should be seen as representing tense, it serves to make the target phenomenon even more unspecified: what is left is the notion of encoding temporality (Nordlinger & Sadler 2008, 328). The ultimate claim of Nordlinger and Sadler is then even more controversial: a correct way to see tense would be to include any grammatical marker (of a nominal or a verb) that encodes temporality in any sense.
The inevitable reply by Tonhauser (2007) is fuelled by these shortcomings. Tonhauser starts by providing a concept of tense in which she defines tense as concerning the predicate (2007, 831). This means that there is a crucial conflict from the very beginning: if tense is seen as a property of the predicate, it can't by definition be a property of nominals. Additionally Tonhauser focuses exclusively on independent nominal tenses proposed by Nordlinger and Sadler – the type that also differs the most semantically (2007, 831). Tonhauser's study is systematic as she distinguishes several criteria according to which nominal marking may behave similarly to or differently from verbal tense marking (2007, 861) – these correspond to some of the components of the current study. As she does not examine the so-called propositional nominal tenses, she arrives to find very little similar behaviour (2007, 863).

Nordlinger and Sadler reply by stating that they did not originally "seek to make a contribution to the further understanding of the semantics" of TMA (2008, 325). This further highlights the problem of trying study a phenomenon without examining its nature – or at least writing down the theoretical presumptions. Nordlinger and Sadler conclude by stating that just because (some) nominal temporal markers do not behave as verbal tenses it does not mean that they necessarily are not instances of tense: rather than the notion of tense itself should be re-examined (2008, 329). Tonhauser agrees to this by stating that the criteria for whether two phenomena instantiate the same category (across languages) should be examined and the categories rigorously defined (2008, 334). Thus the one thing that Nordlinger & Sadler and Tonhauser truly agree on is that there are cross-linguistic categories to which language-specific categories unambiguously belong or do not – a statement not in line with the current study.

What is the crucial message to take home is that both Nordlinger & Sadler and Tonhauser are correct – following their own concepts. Nordlinger & Sadler provide important insights of two very different types of temporal marking in nominals, one of which – propositional nominal tense – is semantically identical to traditional verbal tenses. Tonhauser is correct in pointing out the differences between the semantics of independent nominal tenses and the semantics of traditional tenses. The lack of an explicit concept in Nordlinger's and Sadler's first article results in criticism that overlooks the promising finding of propositional nominal tense and shifts the focus of the discussion on the more borderline phenomenon of independent nominal tense. If an appropriate concept would have been provided, Tonhauser could have directed her criticism directly to the criteria of tense used by Nordlinger and Sadler – which she finds too lax.
Providing an explicit concept thus both gives a study a clear framework and makes its claims falsifiable: it is a way of stating that the following applies only if this much is agreed upon. Any criticism has then two valid, separate targets: the framework (the concept) and the actual findings. The findings are evidence for the explanative power of the framework, the appropriateness of which for different purposes can then be evaluated. This is true whether one thinks in terms of cross-linguistic categories or comparative concepts.

6.3.5. Discussion

If no restrictions are placed on what tense is a category of – that is, nothing is explicitly ruled out – then some interesting borderline phenomena arise. Aside from nominal tense discussed above even adpositions that are heads of adverbal clauses might be considered tenses. In (184) there is a free adjunct in the form of an adverbial after the break-up. The break-up can be considered to provide an anaphoric origo, known to the speaker and the person addressed. After sets up a relation between the time of the break-up and the time of selling the house. The relation is anaphoric and resolvable with the temporal reference of the tense of the finite verb.

(184) She sold her house after the break-up.

While considering after to represent tense can seem farfetched, we have to remember that we are working with separate components and if the inclusion of adpositions is not acceptable, then they must be explicitly ruled out by the concept or a restriction in data gathering (such as focusing on elements on the “highest level” of an independent clause). After conforms to most of the grammatical and semantic components discussed in this study save for verbality and deictic time reference.

There are several advantages in not restricting tense as a category of verb only. The most apparent one is that it allows including all those phenomena that are semantically identical to verbal tense – that is e.g. the propositional nominal tenses discussed by Nordlinger & Sadler (2004, 790) and sentence particles. As the semantics are the natural core of any comparative concept this can be easily justified and would be beneficial for any study that has a clearly semantic point of view; that is, how languages encode time. This approach gives the study the widest possible array of temporal expressions and is ideal for comparing different grammatical devices used in a similar function.
Naturally this is the approach of many studies that focus on a single language that has expressions analyzable as nominal tenses (see examples in Nordlinger & Sadler 2004, 776).

Allowing nominal tense does not necessarily mean allowing tense on the level of the sentence. Neither does it mean that other grammatical criteria of the concept would necessarily be laxer. This can be exemplified with Katharina Haude's study of the language of Movima. Haude considers the language to not have verbal tense; tense is rather marked on dependent nominals, namely articles (2011, 189). This marking behaves mostly like independent nominal tenses in that they locate "the time at which the property denoted by the noun holds of the referent" (2011, 200). In example (185) the dog is present at the speech situation, while in (186) the dog does not exist anymore (2011, 189). However, the choice of the article is not always determined by properties of the referent – which is sometimes irrelevant – and therefore the nominal tense also has an implicational effect on the temporal interpretation of the proposition (2011, 203). In any case, the articles express nominal tense in the sense of Nordlinger & Sadler (2004).

(185) Kay -a: -poj as pa:ko.
    feed -DIR -CAUS ART.NEUT dog
    'I fed/feed/will feed the dog.'

(186) Kay -a: -poj os pa:ko.
    feed -DIR -CAUS ART.NEUT.PAST dog
    'I fed the dog.'

Haude argues that the language of Movima has no verbal tense morphology (2011, 191), but the language has a set of temporal particles that express notions comparable to pre-hodiernal past, hodiernal past, immediate future and general future (2011, 192). Haude, however, does not consider these to represent tense as they do not belong to the verb phrase (2011, 192) and they are not obligatory (2011, 193). When discussing the status of nominal tense marking Haude concludes that if tense is interpreted in "the narrow, theoretical sense", then the nominal marking can't be seen as tense. If, on the other hand, tense is seen as a functional notion, "a deictic category of temporality", then the articles in Movima would represent tenses. Haude then emphasizes the possibility to compare different strategies used across languages to encode temporal relations. (2011, 205). What is interesting, then, is that even under the idea of tense as a purely functional notion the non-obligatory temporal marking on the level of sentence does not qualify as tense for Haude. This goes to show that concepts of tense do not form a continuum between "conservative" and "liberal".
Allowing nominal tense does not mean allowing tense on the level of sentence or allowing other grammatical criteria to be laxer.

Focusing only on verbal expression of tense is natural if the point of view is more grammatical. Studying categories of verbs – either all of them or just tense – does not need further justification as the object of study is very coherent; to study how verbs encode time, not how time is encoded in language. This makes it possible to compare categories of verb with each other in one language or cross-linguistically as well as to study the development of verb systems. Such is the approach in Lois Bloom’s, Karin Lifter’s and Jeremie Hafitz’s study of acquiring verb inflection in child language (1980). The object of the study is verb inflection and the notion of tense comes into play only secondarily: thus, "Verb inflections are used to mark both aspect and tense in English" (1980, 405) instead of "tense is marked by verb inflections". Would English have undisputable cases of e.g. nominal tense they would be irrelevant in this context.

6.4. Finiteness

6.4.1. The Component

Finiteness is traditionally considered to be a property of the verb and the original decisive feature of its Latin-based definition was agreement (Nikolaeva 2007, 1). More recently a finite verb has been defined as being “limited by properties of person, number and tense” (Huddleston 1988, 44), also limited by other TMA categories (Tallerman 2005, 69) and as a verb that stands alone (Tallerman 2005, 69). It has been noticed, however, that when examined cross-linguistically, there can be no “decisive” feature in the definition, no one component value which could be (always and alone) “responsible for finiteness” (Nikolaeva 2007, 2): Forms considered infinite may in some languages express one or more of the previously mentioned categories (Nikolaeva 2007, 1). In Kodava, for example, participles are seen as expressing non-past (187) and past (188) tense (Ebert 1996, 44). The participles are not, however, marked for person – this is the property of finite forms (1996, 18). Likewise, as none of the criteria (e.g. tense or agreement) are universal phenomena, finiteness would lack from a considerable number of languages if one of them would be seen as decisive (Nikolaeva 2007, 2).
The aim of the above was to show the similarities between finiteness and tense as linguistic phenomena: There cannot be any one definition but there are rather concepts that must be appropriate for the purposes of the study at hand. And just as tense is one of the components in some concepts of finiteness, finiteness is also a component in some concepts of tense. However, as the focus of this work is (and has to be) on tense, we cannot problematize finiteness at the same time. It suffices to conclude by noting that as there is no necessary set of criteria for finiteness, and as there is circularity in the concepts of finiteness and tense, it should be apparent that finiteness cannot be a necessary part of a concept of tense – even if tense is considered to be strictly a category of the verb – just as tense cannot be a necessary part of the concept of finiteness.

The relevant component for concepts of tense is Finiteness (Finiteness is required of the verb or Finiteness is not required of the verb). From the typological data it is analyzed whether the marker occurs with finite or infinite verbs (based on the calls made by the authors of the reference grammars in the description and classification of the phenomena). A related component, The ability of the verb to stand alone (The verb has to be able to stand alone or The verb does not have to be able to stand alone), also comes into play (see section 6.4.4.).

6.4.2. The Theoretical Data

Finiteness of the verb associated with tense is explicitly required only by three out of the twelve concepts. Out of these three, only Klein (1994) further elaborates finiteness. For Klein, the finite component (FIN) of the sentence is the carrier of the components of assertion (e.g. declarative) and tense marking (1994, 180). The other two concepts offer no definition for finiteness: Janssen sees that non-finite verbs present the events as being disconnected from the encompassing scene while the finite forms present events as salient (1994, 116). Thieroff accepts the possibility of tense systems of infinite verb forms, but he states that the systems differ without further elaborating the
issue (1994, 5). He then goes on treating only the tense systems of finite forms. The requirement of finiteness is implied in one concept as Allen treats infinite forms as “verboids” lacking time-orientation (1982, 158-163).

Only one concept explicitly states that finiteness is not a component value of the concept: Comrie considers non-finite verb forms to have relative time reference which he calls relative tense (1985, 16). Comrie’s concept also allows origos other than the moment of speech (1985, 16). The implication of the lack of the component value of finiteness can be made of the two concepts that also allow origos other than the moment of speech and highlight the possible adjectival nature of the verbal nucleus (Nordlander 1997, 86-88) or the predicate (de Groot 1995, 31). The issue is left completely without treatment in some concepts. In practice this means that only finite expressions are discussed and used as examples, but there is no way of knowing whether this is by "accident" or whether there is indeed an unspoken, implicit component value of finiteness in the concept. This is the case in five concepts: Reichenbach only states that tenses are a verbal phenomenon (1947, 287). Bache elaborates this a bit further adding a requirement of grammaticality (1995, 337) but his concept is still mainly semantic and purposefully universally applicable, so he makes no mention of finiteness. Harder deals with the English tense forms which may technically just as well be accidentally finite (1994). The same is true for Johnson, who speaks of inflectional systems (1981, 146) of verbs (1981, 174) but her data is also restricted to only a couple of languages. Likewise, Bull speaks of morphemes and tense as a verbal phenomenon without mentioning finiteness (1960, 20).

6.4.3. The Typological Data

Before examining the actual typological data we may take a look at the various ways in which the authors of the reference grammar deal with the relationship between tense and finiteness. A considerable number of grammars are organized based on the extensive typological questionnaire developed by Bernard Comrie and Norval Smith (1977), and as the question of finiteness and tense is one of relative scope (whether tense is seen as a category of only finite expressions or both finite and non-finite expressions), it is good to first examine the way the questionnaire organizes the linguistic phenomena. The questionnaire treats tense as a verbal category, as tense is dealt under the title “Verb morphology”. When it comes to finiteness, though, there is no hierarchy. Tense is dealt directly under verb morphology and it is further inquired, whether the type of time reference
(absolute or relative) of tenses is affected by e.g. finiteness. The expression of finiteness is likewise dealt directly under verb morphology, with further inquiry on whether tense is overtly expressed in finite and/or non-finite forms. The Comrie-Smith questionnaire (1977) thus clearly allows tense in non-finite clauses, and by not posing any restrictions, it gives a lot of room for the authors of reference grammars.

None of the grammars explicitly include the notion of finiteness in their definition of tense. Neither do the sections labeled “Tense” (or similarly) state that tense is expressed in finite clauses. Tense is simply either dealt under a section “Verb morphology” or similar (regardless of whether the grammar is organized according to the Comrie-Smith questionnaire [1977] or not), or under “Tense-mood-aspect” or similar. Even though finiteness is never positively required in the relevant context, it is clear in many cases that it is still a part of the definition, as the discussion of non-finite forms such as participles may include statements such as only finite forms are marked for tense – as in Kashmiri (Wali & Koul 1997, 243) – or that non-finite forms are not sensitive to tense – as in Punjabi (Bhatia 1993, 265). Tense is thus often seen as a property of finite environments, a constraint which is made explicit only in negative contexts, that is, when discussing non-finite verb forms.

Turning to the main typological data we find only four cases (out of 193) where finiteness as a requirement for the verb having to do with the tense would result in a problem. First are the two markers analyzable as sentence particles: the past marker of Hdi (189) (Frajzyngier 2002, 336) and the past marker of Mosetén (190) (Sakel 2004, 364). They are not categories of any verb and finiteness is thus not a relevant requirement. The past markers of Hdi and Mosetén– as any other sentence particle – would not be included in the data if finiteness was a positive requirement without exceptions, but they would be included if finiteness of the sentence in general would be seen sufficient – or if finiteness was required negatively; that the tense would not be affiliated with an infinite verb.

(189) Si hli’yá -f dá ráyá -ηni mà mták.
   PAST leave -UP PURP hunt -1PL.EXCL in bush
   'We were hunting in the bush.'

(190) Pero Karanawi pochho’ chhome’ jike pochho -bi’ mōmō’.
   but Caranawi palm.place also PAST palm.place -still only.FEM
   'But Caranawi was also a palm-area, still just a palm area.'
The third problematic case is the past tense of Punjabi. It is expressed by a past participle suffix (191) (Bhatia 1993, 245). The addition of an – indisputably finite – auxiliary would result in other tenses, namely proximate (192) and remote (193) pasts (1993, 247). That the marker is called a participle signals by definition the non-finite nature of the verb.

(191) Māi kār giaa.
   1SG home go.PAST.PCPL.MASC.SG
   'I went home.'

(192) Māi óthe giaa āā.
   1SG there go.PAST.MASC.SG am
   'I have gone there.'

(193) Kaii saal hoe ki māi óthe giaa sii.
   several years happen.PAST.MASC.PL that 1SG there go.PAST.MAS.SG was
   'Several years ago, I had gone there.'

There is also a fourth, inverse, case, in which tense can be analyzed to be a category of the verb but finiteness is better understood as a category of the sentence: In Mochica tense can be analyzed to be expressed by the verb stem in the present tense (194) (Hovdhaugen 2004, 44), by a participal form in the past tense (195) (2004, 45) and by a particle in the future tense (196) (2004, 56). In addition to the fact that participal form expresses past tense – a case similar to that of the past tense of Punjabi dealt with above – finiteness in Mochica is expressed by copular particles, which can occur as clitics or as free particles (they have no fixed position) and are thus better analyzed as a category of the sentence (2004, 36). These particles express finiteness, person and number and they are neutral to tense distinctions (2004, 35). The verb associated with tense is thus not finite (or finiteness is not relevant for the verb form), while the sentence in itself is finite.

(194) Llic -æz tzhæng ñang pæn?
   want -2SG 2SG.OBL husband as
   'Do you want him as your husband?'

(195) Az tono -d læm. -top chang.caed?
   2SG hit -PAST.PCPL die -SEQ neighbor
   'Have you beaten your neighbor so he died?'
(196) *A, moll.pæc ixll -i -nic eix nam -ca.*

yes truly sin -OBL -LOC/ALL 1PL fall -FUT

'Yes truly, we will fall in sin -'-

That the main typological data does not yield more examples of finiteness as an incompatible component is not surprising as the data collection was focused on main clauses and on elements on the “highest” level of the said clause. The said restrictions were placed so that the data would be as comparable as possible – and manageable to collect. Finally, all nominal temporal marking would be problematic for the component of finiteness.

6.4.4. Whether the Verb Can Stand Alone

Another component closely related to finiteness is *The ability of the verb to stand alone*; the ability of the verb associated with tense to occur without any other verbal elements in the clause. This means that the verb must be *able* to occur independently of other verbs (and other clauses), not that it *could not* occur as dependent (thus there are no problems in treating tenses of subordinate clauses as real tenses). For this component to be viable, it will need a crucial exception: that auxiliaries are seen as forming a "unit" with the lexical verb and thus standing alone. Were this not so, the component would exclude auxiliaries while still allowing particles.

Two concepts can be analyzed as not requiring verbs to be stand-alone: Comrie deals in great detail relative tenses expressed by e.g. non-finite verb forms of English (197) (Comrie 1985, 57), which are in the scope of a finite verb. Nordlander on the other hand describes constructions of serialized verbs, out of which he analyzes one matrix verb and its serial verb(s) (1997, 95-96). Despite the small number of concepts that allow the verb to not stand alone no concept can be analyzed as requiring the ability of the verb to stand alone – even though Klein deals with the highest verbal elements of the clause (1994, 181), Functional Grammar deals with equivalents of main verbs (de Groot 1995, 86) and Janssen and Thieroff only deal with tense systems of finite verbs ([1994, 116] and [1982, 158-163] respectively). So why does being stand-alone matter if no concept takes any real stand? What would be its role as a component of a concept of tense?

(197) *The passengers awaiting flight 26 proceeded to departure gate 5.*
There are two cases in the typological data in which finiteness is not an appropriate component but the ability to stand alone would be. These are the past tense expressed with a participle in Punjabi (198) (Bhatia 1993, 245) and the marking of finiteness on the level of the sentence in Mochica (199) (Hovdhaugen 2004, 45). In both cases tense is a category of the verb, but in Punjabi the verb is explicitly non-finite (in contrast to other tenses the expression of which may include the finite auxiliary verb) while in Mochica finiteness isn’t linked to verbs at all, but is expressed with copular particles, such as the second person singular particle az in (199).

(198) Mãi  kăr    giaa.
     1SG  home    go.PAST.PCPL.MASC.SG
'I went home.'

(199) Az   tono  -d  læm. -top chang.cæd?
     2SG  hit  -PAST.PCPL die  -SEQ neighbor
'Have you beaten your neighbor so he died?'

The main benefit of the component of being stand-alone in these cases is that it is one more way in which the markers can be said to behave like a “typical” tense marker (that is, like the majority of tense markers) despite the verb being non-finite or finiteness not being a relevant component in their case. This justifies the differentiation of the components of finiteness and being stand-alone, even if the effect on data at hand (and in general) may be marginal, and even if the component is not appropriate to capture tense marking on the level of the sentence – as in Hdi and Mosetén. If the component of finiteness is not used or is deemed too restricting as there are environments even in main clauses that are neutral and incompatible with it (as we just saw) – then the ability to stand alone would serve to exclude unwanted phenomena such as converbs and participles (if auxiliaries were seen as forming a unit with the lexical verb).

6.4.5. Non-finite Forms

Whether the notion of tense is extended to cover non-finite environments in reference grammars can be examined by analyzing descriptions of participles and converbs, as the two may typically carry temporal information. In this section I will first introduce converbs and particles, then discuss their temporal properties, examine how they are described in the reference grammars and finally discuss the role of the component of standing alone in their inclusion to or exclusion from the desired data.
6.4.5.1. Definition of converbs and participles

Converbs are verbal adverbials (Haspelmath 1995, 3), which means that they occupy the syntactic position of an adverbial while they are composed of a verb with converbal marking, a form that is considered non-finite. Example (200), with a converb with the meaning of simultaneity, is from the language of Puma (Schackow et al. 2012, 107).

(200) Ta -yaŋ -so, pa -bud -oŋ.
   come -IMPF -SIM.CONV 3SG.A -call -1SG.P.PAST
   'Approaching, he called me.'

Converbs may express e.g. causality or manner, but we are interested in purely temporal converbs, which express anteriority, simultaneousness and posteriority and thus have anaphoric time reference. The converb of anteriority is not always easily distinguishable from the converb of causality (see the treatment of Latvian below) and the converb of simultaneousness may also have alternative interpretations, such as progressivity (the Progressive Gerund of Tajik is analyzed here as a temporal converb because it contrasts with a form which clearly has the meaning of anteriority, the Perfective Gerund [Ido 2005, 49]). Adverbials specify or modify the situation expressed by the finite verb; temporal converbs do this by introducing another event or time, which is related to that of the finite verb. In (201) from Kodava (Ebert 1996, 45), this another situation is that of eating.

(201) Ava visha  ëtt -ë seebï pannî -na tind -iïtë cattï -pooc -i.
   she poison put -PCPL.apple fruit -ACC eat -PAST.CONV die -TEL -3
   'She ate the poisoned apple and died. / After she ate the poisoned apple, she died.'

Participles are non-finite verb forms with both adjectival and verbal functions and properties. They have many uses depending on the language: they may be used e.g. to modify nouns, noun phrases, verbs or verb phrases – such as veltïtais, 'dedicated' in the example (202) from Latvian (Nau 1998, 44) – or they may be a part of periphrastic TMA constructions – such as izpirkts, 'was sold out' in (202) or in the recent past tense of Catalan (203) (Hualde 1992, 304). Syntactically they may be e.g. predicates (204) or nouns (205), as in Evenki (Bulatova & Grenoble 1999, 40), but the position most relevant here is adnominal; modifying nouns and noun phrases.
Both converbs and participles may have inflection commonly associated with finite verbs. The participles in Evenki may be inflected for number (Bulatova & Grenoble 1999, 40) and the converbs in Evenki (1999, 43) and Finnish may be inflected for person and number. The participles in Latvian may be inflected for gender, number, case, definiteness, tense and voice (Nau 1998, 42). The difference between converbs and participles is not clear-cut. Converbs are sometimes also called adverbial participles or gerunds – as in the grammar of Tajik (Ido 2005, 46). Moreover, in some languages participles can also be used adverbia lly, like in the English examples (206) and (207). In some languages both converbs and participles may have either the same subject with the main clause – like the participle in (206) in English and the converb in Tajik (208) (Ido 2005, 49) – or a different subject – as with the participle in (207) in English and the converb in Evenki (209) (Bulatova & Grenoble 1999, 45).

(206) Looking at them, I noticed the similarities.

(207) Ben being so tall, everyone stood there in awe.

(208) ‘Having broken the pencil he handed it to me.’ / ‘He broke the pencil and handed it to me.’
Furthermore, the participles and gerunds (converbs) in Tajik are formally identical (while their usage is syntactically different), exemplified here with the past participle (210) and the perfective gerund (211) (2005, 49).

(210) Ка Romance -и шика,ta
pencil -iz break.PCPL
'The broken pencil'

(211) Ка Romance -po шика,ta ба ман дароз кард.
pencil -OBJ break.GER to 1SG held out.3SG
'Having broken the pencil he handed it to me.' / 'He broke the pencil and handed it to me.'

6.4.5.2. Temporality of Converbs and Participles

Fortunately, distinguishing participles and converbs formally from each other is not of great importance for the work at hand. What is important is that in some languages, and in some syntactic positions, these non-finite forms – in addition to their numerous non-temporal usages – can be seen as having temporal reference; that is, there is an opposition between past and present participles or between converbs of anteriority and simultaneousness (and sometimes posteriority).

The time reference of converbs is anaphoric, which means that it is resolvable with the time reference of the discourse context; in practice, the time reference of the finite clause. The possible meanings are anteriority, simultaneousness and posteriority. In the data of 62 languages, at least five languages can be analyzed to have an opposition of at least two temporal converbs. In three languages – Finnish, Kodava and Tajik – there is an opposition between converbs of anteriority and simultaneousness. In an example from Kodava (212) the converb of sequentiaility (anteriority) places the event of eating before the event of the main clause, which in turn is located in the past (Ebert 1996, 45). An example of a converb with simultaneous meaning (213) is from Tajik (Ido 2005, 49).
In Evenki, there is an opposition of converbs of anteriority, simultaneousness and posteriority. There are separate sets of converbs depending on whether the subject of the converb is the same than that of the superordinate clause (214) or whether it differs – as in (215) (Bulatova & Grenoble 1999, 44-46). In the latter case the converb is marked for person and number.

The fifth case presents us with the dilemma of differentiating converbs of causality (“because”) and temporality. In Latvian, there is an opposition between converbs with meanings of non-posteriority (-ot) and simultaneousness (-dam-). This sort of semantic overlap is not uncommon with the tenses of the main data, but further suspicion arises when examining the examples. The converb -ot is here shown in its simultaneous (216) and anterior (217) senses, and the converb -dam- in its only temporal sense, that of simultaneousness (218) (Nau 1998, 45). All the examples seem to invite two possible interpretations, those of temporality (“when”/”after”) and causality (“because”). This ambiguity is, of course, largely due to the semantic link between the two: if a causes b, then a also precedes b (but not vice versa). The ambiguity of the examples, suggested by the translations, doesn’t mean that the Latvian converbs should necessarily be analyzed as mainly temporal or causal, as the forms may have both meaning components. The main question in cases like this is whether tense can be seen only as an implication which could then be cancelled. In any case the five cases presented here show that converbs may indeed have anaphoric temporal reference as their meaning and furthermore, that they form (temporal) oppositions. How these facts are accounted for (that is, whether converbs are seen as expressing tense or not) is another thing.
Participles that modify nouns may have an anaphoric time reference similar to converbs. And, as with converbs, it is not always easy to distinguish “pure” temporal meaning from modal and aspectual meanings. Comrie deals in length with participles that modify noun phrases, such as the present participle in (219) (Comrie 1985, 57), which expresses simultaneousness. In (220) from Finnish the waiting may be simultaneous either with the proceeding (which is located in the past) or with the moment of speaking.

(219) The passengers awaiting flight 26 proceeded to departure gate 5.

(220) Lento -a odotta -va -t matkustaja -t men -i -vät porti -lle viisi.

Comrie argues that participles such as these carry relative tense, the time reference of which is necessarily ambiguous between the origo provided by the finite clause – in which case awaiting in (219) would be simultaneous with proceeding – and the moment of speech, in which case awaiting in (219) would be simultaneous with the moment of speech while proceeding precedes moment of speech (1985, 57). Comrie’s relative tense may however also be analyzed simply as a special case of anaphoric time reference in which the time reference cannot be resolved.
The Perfect Participle of English – consisting of the auxiliary have in present participle form and the lexical verb in the past participle form – may be used adverbially in two senses; temporal (221) and causal (222). In both cases the temporal reading is that of anteriority, though in the latter case it is clearly not the main sense. The reverse is not true, temporal anteriority does not necessarily entail a cause-effect relationship. Thus causality is more likely an implication, which surfaces as the prominent meaning component in suitable expressions, such as in (222). In any case, its time reference is resolved with the tense of the main clause – not the moment of speech – and can be considered anaphoric. Thus, if the time reference of the main clause is that of future, as in (223), the Perfect Participle means that boarding precedes locating, not the moment of speech.

(221) Having boarded the ship, he quickly located his cabin.

(222) Having expected better service, he took the lack of staff personally.

(223) Having boarded the ship, he will quickly locate his cabin.

A further example from Finnish illustrates a participle in a syntactic role of an object in a referative construction (224). The characteristics of the referative construction are quite similar to converbs. They also have an anaphoric temporal reference which is resolved by the temporal reference of the finite verb. They also occur in an opposition of anteriority and simultaneousness. Unlike converbs the construction is obligatory as it is a complement; an argument of the finite clause.

(224) Kuul-i -n häne -n lähte -nee -n.

hear -PAST-1SG 3SG -GEN leave -PCPL-3SG

'I heard that he had left.'

Participles may thus have anaphoric temporal reference in obligatory and non-obligatory syntactic roles. This temporal reference is comparable to that of converbs and of anaphoric tenses of finite clauses as the origo of all anaphoric expressions may be resolved in variety of ways and there is variety already between tenses of finite verbs: in Fongbe the anaphoric past tense takes its time reference from the aspectual value of the finite verb (Lefebvre & Brousseau 2002, 91) while in Ndnyuka the tenses are resolved by points of reference previously established by the context (Huttar & Huttar 1994, 493).
6.4.5.3. How Temporality of Non-finite Forms is Treated in Reference Grammars

I noticed earlier that in reference grammars tense is often seen as a property of finite environments, a constraint which is made explicit only in negative contexts, that is, when discussing non-finite verb forms. In this section I examine the treatment of temporality of non-finite forms in reference grammars in more detail: we will see that temporality of converbs and particles is treated somewhat differently from one grammar (or language) to another.

Non-finite forms are not typically seen as carrying tense even though participles may well be labeled *past*, *present* and *future*. This is the case for example in the grammar of Tajik (Ido 2005, 46-47) in which the participal forms carry the names past, present and future but are still deemed aspectual or modal. The temporal converbs, meanwhile, are called perfective and progressive gerunds (2005, 49). In the grammar of Marathi, similarly, the past, present and future participles are said to maintain an aspectual reference with no mention of temporality (Pandharipande 2005, 443). In the grammar of Latvian, it is on one hand stated that participles are specified by tense, but also that there are differences between the tense categories of participle and finite forms – that the present participle is in fact atemporal and the past participle either a resultative or a marker of anteriority (Nau 1998, 42). Temporal converbs of Latvian are not said to carry tense (1998, 45) but they rather mark simultaneousness and/or anteriority. The treatment of Latvian participles thus acknowledges anteriority as an anaphoric tense, yet anteriority as the meaning of a converb is not seen as a tense. These languages exemplify the problem which arises when the terms *past*, *present* and *future* as well as *anterior*, *simultaneous* and *posterior* are used in the contexts of finite and non-finite verb forms with different definitions.

There are also cases in which a temporal marker identical to finite expressions is used as a part of the inflection of the participle, but the participle is not analyzed as carrying tense. This is the case in Imbabura Quechua, where the non-finite suffixes –*_ngapaj* and –*_ngakaman* are composed of the future marker –*_nga* and a postposition, –*_paj* ‘for’ and –*_kaman* ‘until’ respectively (Cole 1985, 158-159). Similarly, in Udihe non-finite forms are said to have an internally fixed TMA structure (Nikolaeva & Tolskaya 2001, 225), but three tense forms, mostly identical to those that occur with finite verbs, are still distinguished in active participles (2001, 228).

But in some grammars, in addition to the mixed case of Latvian, the notion of tense is indeed extended to cover some of the non-finite forms. In Dhivehi, participles are said to be inflected for present tense (225) (Cain & Gair 2000, 40), even though the marking of the finite present
(progressive) tense and that of the participle differs – yet neither is marked for person, in contrast to other tenses (2000, 26,40). In Kodava the participles are seen as expressing tense (Ebert 1996, 44) – non-past (226) and past (227), expressed with stem change (1996, 15) – whereas the same is not said of temporal converbs (1996, 16,45). The participles are not marked for person, unlike finite tense-aspect forms (1996, 18).

(225) Kalē ti tā a"ga himēn -un lai l"debala.

2SG that place mouth quiet -INS pul.PCPL sit.IMPR

'You sit there and keep your mouth quiet.'

(226) Bapp -ē ponnī

come.ST(3) -PCPL woman

'The woman who will come'

(227) Band -ē ponnī

come.ST(2) -PCPL woman

'The woman who came'

In Kannada tense does not distinguish between finite and non-finite forms. The distinction is rather made by that finite forms agree with the subject and can be used independently (Sridhar 1990, 243). This implies that the category of tense is extended over both forms also in this language, even though the markers for past tense (-id) and past participle (-i) and non-past tense (-tt) and present participle (-utta) differ (1990, 70,225-226). In Mapudungun the TMA inflectional potential of non-finite verb forms is analyzed as reduced: the future marker is one of the markers that can occur with non-finite forms (Zúñiga 2000, 26).

It is notable that while the temporal reference of both particles and converbs is similar – if anything, the time reference of converbs is more like that of finite verbs, as it is resolved in a predictable way while participles may have more ambiguous reference – and while converbs are syntactically more directly related to the finite verb as they modify the finite verb phrase (or the whole sentence) while participles often modify noun phrases, converbs are still seen more distant from finite tenses than participles: unlike participles, the notion of tense is never extended to cover them and they are, again unlike participles, never called converbs of past, present or future but rather anteriority (or sequentiality), simultaneousness and posteriority.
The picture emerging from the reference grammars is thus as follows: Finiteness is in some cases explicitly required of verbs but not *positively*; only when it serves either to differentiate time reference of finite and non-finite forms or when the lack of tense inflection is a part of the description of non-finite forms. In some cases both finite and non-finite forms are described as expressing tense, and yet in some cases the relation is more shaddy: the notion of tense may be extended to cover non-finite forms but the categories are still described to differ semantically, or the notion of tense is not extended but the marking is similar or described as restricted. It might thus be said that the component of finiteness is more prominent in the organization of the grammars than in the definitions of verb forms.

It thus looks like that finiteness is not a central component in neither the concepts or in the theoretical background of the reference grammars – at least not explicitly. Other components, such as requiring the moment of speech as the origo “do the job” of finiteness in leaving out non-finite forms. The occurrence of finiteness as a component mostly in the *negative* sense (when dealing with non-finite forms) strengthens the impression that finiteness is sometimes considered a component so self-evident that there would be no need to actually discuss it even though other components are often discussed in detail. When coming up with a concept of tense this can lead to trouble if the other components – the ones doing the “dirty work” of finiteness – are not a part of the concept. In those cases gates may open to participles and converbs, which are then wrongly excluded.

### 6.4.5.4. Excluding Non-finite Forms with the Component of Standing Alone

Converbs and participles are easily left outside a study simply because they are treated as marginal and atypical, yet the restrictions should be explicit. After all, while converbal constructions do not contain a finite verb, they do contain a verb, they have an anaphoric time reference and they are inflectionally marked with obligatory markers (obligatory *inside* the converb construction, even though the construction in its entirety is not obligatory). The markers form their own oppositions and the verbs may be additionally inflected e.g. for number, gender and person. In short, the main differences between them and the finite verbs of the sentence (in addition to finiteness itself, if it is defined non-problematically, that is, not with the very categories that finite and non-finite verbs share in that particular language) is the ability to stand alone.
If finiteness is not a suitable criterion – perhaps because of allowing sentence-level marking of tense – being stand-alone is a valuable component of a concept. Without this kind of restriction some of the concepts, notably that of Comrie – without the requirement of finiteness – invite the inclusion of all kinds of temporal phenomena which would then have to be taken into account.

6.4.6. Discussion

Focusing on tense-marking of finite verbs has the advantage of dealing with a well-defined, easy to gather group of expressions – either in main or subordinate clauses – the drawback being the exclusion of possible tense marking on the level of the sentence or the other cases in which finiteness is either not expressed, expressed separately from the verb, or in which the only verb form of the main clause is non-finite. Only including tense marking of finite verbs means that the syntactic environment of the markers is similar – at least in relation to the verb – and that there are no subordinate intra-clausal relations to add complexity. Pragmatic “interference” is therefore easier to control as eliciting simple clauses may be enough. Such an approach is suitable for any study that benefits from a syntactically (and semantically) homogeneous target: for example, if multiple situations and their interdependence and/or linking via anaphoric time references is not relevant. This is the case for example in the paper of Engin Sezer (2001), in which he examines the finite inflection of the Turkish verb. He is able to define the object of the study in a clean manner and to focus on the key difficulties in identifying certain elements as inflection or derivation (2001, 2-3). The advantage of having a strictly defined phenomenon is that a deeper analysis of very specific nature may only be possible if it is based on such a “clean” phenomenon; Sezer presents six related questions dealing with the elements of finite inflection, the categories to which they belong, the functions they have as well as the structural and semantic properties and well-formedness constraints of finite inflection as a whole (2001, 3). He then goes on separating the tense(s) as syntactic categories (slots in the syntagma) (2001, 4) and as semantic characteristics or features (2001, 5). It is these tense features then that occur with aspect and mood features in various interplay relations and which are examined in the framework of finite inflection.

However, if a study has a wider focus, such as the temporal information and its organization in discourse, the study may benefit from extending the concept of tense to cover all verb forms with marking that signals temporal reference. The question is not so much whether the time reference of converbs and participles is better seen as representing tense or not, but whether grouping it with
finite tense makes more *sense* in the study. After all, a situation expressed by a non-finite verb form could in many cases be alternatively expressed with a finite verb of a separate clause. In other words, similar temporal information may be packed differently, as discussed by Klein (2009, 73-75).

The use of non-finite verb forms in discourse may be seen as linking situations more closely together than a sequence of deictic tenses. The origo of a deictic tense is always the moment of speech. The relationship between two situations expressed with deictic tenses may follow from discourse principles or be made explicit via other linguistics means such as temporal connectives but it may also be left ambiguous (*a* in figure 1 below), whereas the origo of an anaphoric tense may necessarily be (as with converbs) the theme of the deictic tense (*b* in Figure 6.1.) thus linking the situations temporally. The use of non-finite forms could thus be seen as a marked strategy, emphasizing the bond – temporal or other – between two situations.

The following examples from Finnish both contain a description of two situations, 'eating' and 'falling asleep'. In (228) both situations are expressed with deictic tenses of finite verbs, while in (229) the preceding action is expressed with a converb of anteriority, linking it more directly to the following situation. The example (228) corresponds to *a* and example (229) corresponds to *b* in Figure 6.1 above.

(228) Söi -n ja sen jälkeen nukahd -n.
    eat -PAST -1SG and it.GEN after fall.sleep -PAST -1SG
    'I ate and fell asleep.'

(229) Syö -tyä -ni nukahd -i -n.
    eat -CONV.PAST -1SG fall.sleep -PAST -1SG
    'Having eaten, I fell asleep.'
Treating participles and converbs as anaphoric tenses could help to analyze e.g. whether particular discourse favours linking situations to the moment of speech or whether they tend to form more intimate “chains”. This could be done e.g. by simply calculating the percentage of deictic and anaphoric expression. The difference between alternative ways to “pack” temporal information could be easily described and no verbal strategy would be left out: every unique situation introduced by a verb would be included in the analysis of tense; they would not "disappear" from the data if expressed with a non-finite form. Such an approach is used in the study of coordination and clause chaining in Coptic Egyptian by Chris Reintges (2010). Reintges identifies the paradigm of relative tenses – characterized by the merger of TMA morphology with a relative particle – that occurs in a broad range of "information packaging constructions" such as in relative clauses or asymmetric clause coordination and to which coordinative converbs belong (2010, 205). Converbs may express either converbal relative tense, which combines deictic and anaphorical temporal reference and thus locates an event both in relation to the present moment as well as the event denoted by the main verb, or to deictic tense, in which case they "- extend the narration along the same time-line as the main verb - -" (2010, 226). The object of the study of Reintges is syntactic in nature – the "inventory of linkage devices" (2010, 204) – and from his perspective it is beneficial to treat alternative ways to pack temporal information as semantically equal (that is, as representing tense); this results in a large number of devices that can be contrasted grammatically yet are semantically comparable. Further distinctions in semantics would only distract the syntactic treatment and as an explicit description of the types of tense in different environments (2010, 210-211;226) is provided, the theoretical presumptions do not cause confusion.

Needless to say, such comparison can also be achieved without extending the concept of tense to include non-finite forms but simply focusing on time reference itself. Klein proposes that instead of speaking of just one “situation time” (or a topic time) and “clause-external time” (or the origo) the temporal properties of any clause are best seen as a set of time spans that are temporally related to each other and can be characterized by descriptive properties (Klein 2009, 73-75). Such an approach has different advantages from only equating all verbal temporal reference, as it would include all temporal adverbials, temporal connectives etc.; the focus would no longer be on introducing situations. An approach somewhat similar to this is chosen e.g. by Mark Currie in his study of the role of tense in narrative (2009). He explains the concept of narrative tense to be understood at a "discursive level higher than that of the form of the verb" aiming to "bridge the divide between the surface tense of narrative verb forms and - - effects of narrative on the experience of time" (2009, 356). For him a concept of tense not focused on the marking of (finite) verbs serves best to explain the structure of narratives and the temporal effects they achieve: Currie
considers this "expanded" notion of tense capable of describing the relation of forwards and backwards movement (in time) that he sees as fundamental to the temporality of narratives (2009, 363). Thus depending on the focus of the study, the object may be of varying scope. It may be temporal marking of finite verbs, temporal marking of all verbs or temporal marking of any kind. In the first case it is natural to speak of tense and in the last case it is equally natural to not include the meaning of all linguistic elements under tense. It is the second case that is under discussion here: temporal marking of all verbs may equally well be called tense or not.

The temporality of e.g. the English to-infinitives has also been widely studied. Following Stowell (1982) they have often been considered to involve syntactic/semantic future tense – even though not morphologically expressed in English (Wurmbrand 2014, 403) and even though there is "no semiological, syntactic or semantic relation between the - - will and the to - -" (Duffley & Arseneau 2012, 33). Wurmbrand's study, that closely examines the temporality of these infinitives, employs a mostly implicit concept of tense that is open for infinite environments. She ends up explaining the temporality of most to-infinitives as tenseless, the exception being so-called propositional attitude infinitives (230) (2014, 434) that she considers involving tense (2014, 407).

(230) Leo believed Julia to be singing in the shower yesterday.

While the finite environment is in many ways equal to the foreground, it does not follow that the situations introduced in non-finite environment are unimportant: to treat them as only serving to help specifying the foregrounded situation or the referents is already an interpretation of their role in the language, not an indisputable default reading. It is also important to note that while I have spoken of extending the concept of tense to cover non-finite forms, in practice this is achieved negatively, by not placing a restriction on them. Thus, a concept such as “tense is a grammatical category of a verb expressing temporal relation between some origo a nd some time or event” would include non-finite forms as the component of finiteness is not included.

The previous can be summed up as follows: while languages have many different tools for expressing temporal relations, and while all these can be studied in isolation, the tenses of finite and non-finite environments still share enough properties (namely verbality and the ability to assign unique topic times and to introduce situations) to justify treating them similarly in some research contexts. Whether this is achieved with or without extending the concept of tense to include both phenomena – in other words, whether finiteness, the ability stand alone or deictic time reference are (hopefully explicit) components of the concept or not – is not crucial, but the decision must be such that it facilitates the study and the interpretation of its results.
If non-finite expression – and subsequently anaphoric time reference – is included it has numerous effects on the data and on other necessary components of tense. Multiple temporal oppositions must be supported (those of finite and non-finite environments), one language may have both deictic and anaphoric temporal reference (both the moment of speech and any time of orientation must be seen as suitable origos), the percentage of inflection as the means of marking – as well as the probability of several marking strategies in one language – rises, as does the percentage of binary oppositions and anaphoric past and future. In short, the coherence lessens and there is more variation and complexity, which is justifiable if such variation and complexity is in the heart of the study.

7. Discussion

Chapter 6 concluded the main analysis of the work. Chapters from 4 to 6 demonstrated how important it is for any type of linguistic study to carefully create or select an appropriate concept. In making all the relevant points two types of data were used: a theoretical data and a typological data. The emerging picture of tense – the theoretical one or the typological one – was not in the focus of the work, as the attention was directed at separate components and their values. Therefore, in the following sections, such a picture is presented: In section 7.1., based on the theoretical data, I will go through the components and their values in order to answer the question \textit{what is typically considered as tense in the literature}. In section 7.2., based on the same set of components and their values, I will present a conventional typological overview of markers that are considered to express tense. In section 7.3. I will highlight the importance of using and creating appropriate concepts in studying any linguistic phenomenon. And finally, in section 7.4., I will discuss the relevance of the current study to the study of concepts and tense.

7.1. The Theoretical Data – What is Typically Considered as Tense

As noted above, in this section I will – based on the theoretical data – discuss \textit{what is typically considered as tense in the literature}. As was speculated already in section 3.2.1., and as the theoretical data itself has revealed (section 3.2.3.), the concepts of tense have a family resemblance rather than a set of necessary and sufficient component values. Yet one component value may be
the dominant one, if not for reasons of canonicity, then perhaps because of the influence of a well-known, earlier theoretical work; many works are called *reichenbachian* for a reason. What follows is a summary of the theoretical findings designed to give a quick impression. The summary does not follow the component list (or the detailed discussion) faithfully: instead, the findings are presented in whatever form best serves to contribute to the "general picture". Furthermore, I will not discuss individual concepts in this context: I will focus strictly on the statistics. Each set of statistics is followed by a short explanation paragraph; the reader is directed to the relevant sections for more detailed discussions.

*What notions does tense concern? (Section 5.1.)*

<table>
<thead>
<tr>
<th>Concept</th>
<th>Count / Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past, Present &amp; Future</td>
<td>4 / 12</td>
</tr>
<tr>
<td>Past, Present, Future &amp; Perfect</td>
<td>3 / 12</td>
</tr>
<tr>
<td>Past &amp; Present</td>
<td>3 / 12</td>
</tr>
<tr>
<td>Other combination</td>
<td>2 / 12</td>
</tr>
</tbody>
</table>

According to the majority of concepts tense concerns past, present and future (including possible remoteness distinctions). The inclusion of perfect is quite common (in which case reference points become relevant, see also section 5.8.), as is the exclusion of future and focusing on just the opposition of past and present.

*Are past and future considered temporal and referable by tense? (Section 5.1.)*

<table>
<thead>
<tr>
<th>Concept</th>
<th>Count / Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past &amp; Future are temporal and referable</td>
<td>6 / 12</td>
</tr>
<tr>
<td>Past is temporal and referable, future is just temporal</td>
<td>3 / 12</td>
</tr>
<tr>
<td>Other</td>
<td>3 / 12</td>
</tr>
</tbody>
</table>

In the majority of concepts both past and future (as segments of time) are considered temporal and they are referred to by tense markers. However, in three concepts future is seen as temporal but not referable to by tense. This is typically explained by the different nature of past and future time; as future time does not yet exist, we cannot make statements about future states of affairs.
Are distinctions of degrees of remoteness accounted for? (Section 5.3.)

Yes 6 / 12
No 6 / 12

In some concepts remoteness distinctions are properly included in the discussion, yet in others they are acknowledged by a passing mention. In some concepts their possibility is not even mentioned and yet to others they would be impossible to include. To the latter group belong such concepts in which tense oppositions are necessarily binary.

What does tense do? (Section 5.4.)

Locates situations 7 / 12
Locates times 1 / 12
Examines situations 1 / 12
Examines times 1 / 12
Examines regions 1 / 12
Points to a direction of situations 1 / 12

Tense is a relation 11 / 12
Tense is a vector 1 / 12

Almost every concept agrees that tense is a relation between two or more entities. As for what exactly tense does, the majority of concepts consider it to locate situations. It is interesting that only two concepts consider tense to deal with (locate or examine) times, as leaving out situations from the scope of tense would give new possibilities for systematic description of e.g. the semantics of perfect, perfective and imperfective (see Klein 1994, 108). However, the influence of the early treatments, including Reichenbach (1947) and Comrie (1985), in which situations are located, is most likely so strong that focusing on situations has become the norm.

What is the duration of the theme? (Section 5.4.)

A span 7 / 12
A span or a point 3 / 12
A point 2 / 12

Most concepts consider the theme (the situation, the time or the region) of tense to have duration, to be a span. In two concepts the theme is necessarily a point (punctual). However, this does not necessarily mean that the authors consider the speakers to make their statements of a punctual
theme or of a punctual sub-part of a complete theme; pointlike themes are either a convention in representing the semantics or they may signal that the concept is not concerned with the temporal boundaries of the theme at all.

**What is the origo? (Section 5.5.)**

- **Moment of speech** 8 / 12
- **Time of orientation** 3 / 12
- **Mental vantage point** 1 / 12

Origo refers to the entity the theme (a situation, a time or a region) is related to. For the majority of the concepts the origo is the moment of speech. This means that the time reference of tenses is seen as deictic. Three concepts consider the origo to be the time of orientation therefore allowing anaphoric tenses. The concept of Janssen (1994) is an exception as it does not consider tense to be temporal in the first place; for Janssen the origo is a mental vantage point (1994, 93). All concepts consider the origo to be punctual in nature.

**What are tense oppositions like? (Section 5.6.)**

- **Oppositions cannot include non-past / non-future** 5 / 12
- **Oppositions may include non-past / non-future** 4 / 12
- **There may not be several tense oppositions** 4 / 12
- **There may be several tense oppositions & hierarchy between them** 2 / 12
- **Tense oppositions are not necessarily binary** 7 / 12
- **Tense oppositions are necessarily binary** 5 / 12

A considerable number of concepts do no support non-past and non-future tenses. This is typically due to leaving past or future outside the scope of tense. In such a case past or future tense can only be opposed by present tense. The same reason – excluding past or future – is also the main reason for not allowing several tense oppositions. Such a restriction typically results in one binary tense opposition between past and present or future and present. All in all, oppositions are necessarily binary in five concepts, including also concepts that consider both past and future as tenses (Harder 1994). The more typical case, however, is to allow tense oppositions of three or more members.
How are universal truths expressed? (Section 5.7.)

By the meaning of one of the tenses 6 / 12
Separate meaning 1 / 12

The most common case is to consider universal truths to be expressed with the present tense. This is the case in all but one of the concepts that discuss the matter. The exception is the concept of Bache, according to which sentences expressing universal truths are atemporal; because tense is an accident category, the unmarked member of the tense opposition (which typically is the present tense) is used in such sentences (1995, 256).

How are the semantics of tense formed? (Section 5.8.)

Statically 10 / 12
Dynamically 2 / 12

In the majority of the concepts the semantics of tense are formed statically, that is, they are not arrived at in stages but presented simultaneously without any order of application (in contrast to seeing the semantics e.g. as ordered choices describable with a flow diagram [Harder 1994, 63]). Dynamic formation of semantics is nonetheless a possibility in such concepts that include the notion of perfect and therefore at least one reference point (which functions as a "waypoint"). The relevance of this possibility lies in research in language processing and other fields in which the link between the mind and speech – and therefore the order and timing of processes that turn thoughts into utterances – is in focus.

Is one form – one meaning upheld? (Section 6.2.)

One form – one meaning not upheld 9 / 12
One form – one meaning upheld 3 / 12

The principle of one form – one meaning is not typically upheld, making it possible to include e.g. more complex periphrastic futures (I will sing) and inflectional past tenses (I sang) in same oppositions. If one form – one meaning is upheld, the concept may focus on one type of expression (in practice on inflection) effectively excluding future tense or the concept may treat future as semantically more complex than past or present tenses (as does e.g. Harder 1994).
**What are the criteria for grammaticality of a tense marker? (Section 6.1.)**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simply &quot;grammaticality&quot;</td>
<td>4 / 12</td>
</tr>
<tr>
<td>Marker is bound</td>
<td>2 / 12</td>
</tr>
<tr>
<td>Marker is obligatory &amp; bound</td>
<td>1 / 12</td>
</tr>
<tr>
<td>Marker is obligatory</td>
<td>1 / 12</td>
</tr>
<tr>
<td>Marker is selected from a closed set</td>
<td>1 / 12</td>
</tr>
<tr>
<td>Grammaticality is not discussed</td>
<td>3 / 12</td>
</tr>
</tbody>
</table>

Grammaticality is required of the marker in all of the concepts, whether it is explicitly mentioned or not. However, only in five out of twelve concepts the criteria of grammaticality are discussed in any detail. The more common case is just to speak of grammaticality in general; such concepts typically allow different type of expression (inflectional as well as periphrastic).

**What kind of expression may tense have? (Section 6.2.)**

<table>
<thead>
<tr>
<th>Type of Expression</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periphrastic or inflectional</td>
<td>9 / 12</td>
</tr>
<tr>
<td>Only inflectional</td>
<td>3 / 12</td>
</tr>
</tbody>
</table>

The majority of concepts allow periphrastic (auxiliaries and particles) expression of tense. However, in three concepts only inflectional expression is allowed. Focusing on just inflection is easier if the concept is used to analyze only one or just a few languages. In such a case the language(s) in question may simply lack periphrastic tense marking or periphrastic marking is easy to exclude (in the most typical case periphrastic future is excluded and the focus is on the opposition between past and present). When examining a larger set of languages one would eventually run into a problem: either an inflectional future tense or a periphrastic past tense would be encountered. Zero-marking is always allowed regardless of whether periphrastic expression is allowed or not.

**Category of what can tense be? (Section 6.3.)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category of verb only</td>
<td>11 / 12</td>
</tr>
<tr>
<td>Category of a verb, nominal or the sentence</td>
<td>1 / 12</td>
</tr>
</tbody>
</table>

Even though the issue of nominal tense has received a lot of attention (see section 6.3.4. for discussion), it does not get support from the concepts of tense; only one concept acknowledges the possibility of tense as a category of nominals or the sentence (Comrie 1985, 13) while in the rest of the concepts tense is seen strictly as a category of the verb (or the equivalent of the main verb).
Is finiteness required of the verb? (Section 6.4.)

Finiteness is not discussed at all 5 / 12
The verb has to be finite 4 / 12
The verb does not have to be finite 3 / 12

Perhaps surprisingly, given its intuitively central nature in discussing tense, finiteness of the verb is explicitly required by only four of the twelve concepts. The most typical case is that finiteness is not discussed at all, even though only finite expressions are treated and used as examples. This suggests that finiteness is considered (either consciously or unconsciously) to be such a central component value that it does not need to be mentioned at all – it would go without saying. However, as three of the concepts do not require finiteness and as we have discussed many non-finite expressions that raise interesting questions (see section 6.4.6.), this is most certainly not the case.

The above was a quick summary of the theoretical findings. Based on the summary we may create a mock concept that combines the most frequent component values. In reality, of course, such a way to create a concept would not result in appropriate concepts as individual component values cannot be selected completely independently; the selection of one component value may make several other component values necessary or impossible. In any case, the hypothetical average concept of tense is presented below:

Tense locates a span-like situation in relation to the punctual moment of speech. There are three basic tenses – past, present and future – and possibly further remoteness distinctions in past or future, which are both considered equally temporal. Tense is a category of the verb but finiteness is not explicitly required of the verb. Tense may be expressed inflectionally or periphrastically as long as the marker is grammatical in a wide sense. The principle of one form – one meaning is not upheld. There is only one tense opposition, which is not binary and which does not include non-past or non-future. The semantics of tense are formed statically and universal truths are expressed with the present tense.

The mock concept turns out to be deceptively intuitive. It would suggest that there is little interest in digging deeper – the picture of tense in the literature seems stable and established. However, if we examine all the evidence together, we can get a better picture of tense in the theoretical literature: The concepts of tense have a family resemblance, as established by the theoretical data; a group of components relevant to most of the concepts can be identified (this set of components separates the concepts from concepts of other phenomena, such as aspect or mood), yet concepts differ from each other in what component values they include. In other words, the concepts deal with e.g. the
component *The nature of the theme*, which makes them similar; yet in some concepts the theme is *a situation*, in some concepts *a time* and in some concepts *a region*. Some components are more frequent than others (they are dealt with in more concepts, see section 4.4.) and some component values are more canonical (see section 4.3.) or more frequent (as discussed in the current section) than others. Each concept is more or less appropriate for the purpose it is used for. To sum up, there is a considerable amount of both coherence and motivated variation in the concepts of tense.

### 7.2. The Typological Data – What Tense Markers are Typically Like

After examining the picture of tense that emerges from the theoretical data it is time to turn the attention to the typological data. In what follows, based on the typological data, I will present a typological overview of markers that are considered to express tense. The guidelines in collecting the data were described in detail in section 3.3.1. The most important thing to note is that the language sample is a variety sample and therefore not statistically representative (see section 3.3.2. for discussion). This means that the typological findings below do not accurately represent the linguistic reality. The primary role of the typological data was to serve the current study, for which purpose it was optimal. However, keeping this reservation in mind, the findings may have typological value in their own right. What follows, then, is a summary of the typological findings. Just as with the theoretical findings, the summary is designed to give a quick impression; the reader is directed to the relevant sections for more detailed discussion. The typological data consists of 193 markers of tense from 62 languages. Rounded percentages are used as they convey the information more intuitively than absolute numbers.

*What do tense markers express? (Section 5.1.)*

- Past tense (general or with a degree of remoteness)  43 %
- Future tense (general or with a degree of remoteness) 31 %
- Present tense 16 %
- Non-past or non-future 10 %

Past tense is more frequent than future tense and both past and future tenses are more frequent than present tense. The existence of remoteness distinctions further widens the gap between past and future (remoteness distinctions are more frequent in past) and between past and future tenses and present (as such distinctions cannot exist in the present tense). A language may have a non-past...
tense instead of the present and future tenses (or a non-future tense instead of past and present tenses).

**Languages that lack past or future tenses (Section 5.1.)**

- There are no future or non-past tenses 3 %
- There are no future tenses but there is non-past 13 %
- There are no past or non-future tenses 6 %
- There are no past tenses but there is non-future 3 %

The number of languages that lack a future tense is 16 %. However, the frequency of non-past tenses means that only 3 % of the languages lack any grammatical tense to refer to future with. The number of languages that lack a past tense is smaller, only 9 %, but as there are not as many non-future tenses as there are non-pasts, 6 % of the languages lack any grammatical tense to refer to past with.

**What types of opposition does future tense occur in? (Section 5.2.)**

- With past(s) and present 47 %
- With abstract non-future 20 %
- With past(s) 15 %
- With past(s) and non-past 6 %
- Other 12 %

This finding has to do with the symmetry between past and future tenses. The statistics show that future tense does indeed occur in several types of oppositions that also include past tense(s), supporting its symmetrical treatment with past tense.

**How frequently are remoteness distinctions expressed? (Section 5.3.)**

- Markers with remoteness distinctions 26 %
- Languages with markers with remoteness distinctions 34 %

The number of languages with remoteness distinctions is significant enough to cause problems for any typological study with a concept that cannot deal with remoteness. The number of remoteness markers per language varies greatly; in many languages there is only one remoteness marker (typically that of remote past), yet in others there are up to four degrees of remoteness in past alone.
How symmetrical is the expression of remoteness in past and future? (Section 5.3.)

Remoteness distinctions only in past 67 %
Remoteness distinctions in past and future 33 %

Past is more often divided into degrees of remoteness than future. This is natural as the time of occurrence of past situations can typically be specified quite accurately whereas the time of occurrence of future situations involves more uncertainty. The exact time of past situations is also typically more relevant to the discourse as past is simply more frequently discussed than future.

What is the meaning of tenses marked for remoteness? (Section 5.3.)

Remote past 41 %
Middle past 2 %
Close past 21 %
Hesternal past 8 %
Hodiernal past 8 %
Close future 14 %
Remote future 6 %

Remote past is more frequent than close past while close future is more frequent than remote future. One of the potential reasons for this is that past situations are typically considered to be quite recent unless otherwise stated, while future events are typically considered to be non-immediate unless otherwise stated.

The expression type of markers with and without remoteness distinctions (Section 5.3.)

<table>
<thead>
<tr>
<th></th>
<th>Marked for remoteness</th>
<th>Not marked for remoteness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflectional</td>
<td>48 %</td>
<td>64 %</td>
</tr>
<tr>
<td>Clitic</td>
<td>6 %</td>
<td>3 %</td>
</tr>
<tr>
<td>Periphrastic</td>
<td>46 %</td>
<td>33 %</td>
</tr>
</tbody>
</table>

Markers with remoteness distinctions are more often expressed periphrastically than markers without remoteness distinctions. They are therefore grammatically more marked which mirrors their semantically more specific nature and their relative age; when remoteness distinction arise the older markers (of general past or future) have had more time to undergo grammaticalization processes.
The distribution of meaning of remote markers versus non-remote markers (Section 5.4.)

<table>
<thead>
<tr>
<th></th>
<th>Non-remoteness markers</th>
<th>Remoteness markers</th>
<th>All markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>35 %</td>
<td>80 %</td>
<td>48 %</td>
</tr>
<tr>
<td>Present</td>
<td>25 %</td>
<td>-</td>
<td>18 %</td>
</tr>
<tr>
<td>Future</td>
<td>40 %</td>
<td>20 %</td>
<td>34 %</td>
</tr>
</tbody>
</table>

Remoteness distinctions in past are more frequent than distinctions in future (they occur in more languages and there are typically more remoteness distinctions in past than in future). This has the effect of making past tenses in general more frequent than future tenses (48 % of all markers versus 34 % of all markers). Present tenses are the rarest of the tenses in any case; Present time reference may e.g. be one of the possible temporal readings of a verb with no overt tense marking. A potential present marker may also be better analyzable as a marker of imperfectivity, progressivity or habituality (Bybee, Perkins & Pagliuca 1994, 140-141).

The type of temporal reference of the tense system (Section 5.5.)

- Deictic 92 %
- Anaphoric 8 %

The majority of markers in the data can be considered to have deictic time reference. This is affected by the guidelines of data gathering; a number of interesting phenomena – such as converbs and participles – were left outside the data (see section 3.3.1.). This statistics should therefore be analyzed as the percentage of deictic versus anaphoric time reference in tense marking occurring in positive declarative clauses that are not arguments or adjuncts of other clauses.

The number of tense oppositions per language (Section 5.6.)

- One 84 %
- Two 16 %

A language is considered to have two tense oppositions if two tense markers can occur simultaneously. The resulting meaning may be compositional (e.g. co-occurring past and future tenses result in future-in-the-past) or not (the resulting meaning may be e.g. counterfactual conditionality). If none of the tense markers can occur simultaneously they are analyzed as belonging to the same opposition. Such an opposition may include e.g. both inflectional and
periphrastic marking (as in Fyem [Nettle 1998, 36] or marking by both auxiliaries and particles (as in Babungo [Schaub 1985, 213]).

*The type of temporal oppositions (the number of members) (Section 5.6.)*

- Binary 40%
- Tertiary 38%
- Quaternary 11%
- Quinary 7%
- Senary 3%
- Septenary 1%

Tense markers are analyzed as belonging in the same opposition if they are mutually exclusive and their semantics are compatible (they cover a continuous segment on the timeline). Binary oppositions are typically – but not always – oppositions between past and present or past and non-past. Oppositions larger than three members require remoteness distinctions by default (as the co-occurrence of past, present, future and either non-past or non-future would introduce a lot of redundancy), unless the meaning of perfect was included and the resulting complex tenses (e.g. Future-in-the-Past) were analyzed as mutually exclusive strategies. Perfect was, however, not included in the typological data.

*How are universal truths expressed? (Section 5.7.)*

- With present tense 50%
- With non-past tense 38%
- With non-future tense 6%
- With present or future tense 6%

Universal truths are nearly always expressed either with the present tense or the tense that includes present time reference (non-past or non-future tense if present tense is lacking in the language). Only in one language, Malayalam, it is possible to express universal truths with a tense that does not include present time reference – namely with future tense (Asher & Kumari 1997, 287).
**The grammaticality of tense markers (Section 6.1.)**

- Obligatory markers: 89%
- Markers that cannot be replaced with another tense: 83%
- Bound: 57%

The majority of tense markers are obligatory. Non-obligatory markers are used if the temporal reference without overt tense marking is not seen sufficient. Most markers cannot be replaced with another tense. A tense is considered to be replaceable if there exists another tense that can "cover" the same segment of the timeline and that can be used instead. For example, many remote pasts are replaceable by a general past. Tenses that are expressed inflectionally are considered bound.

**By what means is tense expressed? (Section 6.2.)**

- Inflection: 57%
- Particle: 20%
- Auxiliary: 14%
- Clitic: 3%
- Reduplication of the verb: 1%
- Zero-marking: 5%

Inflection is by far the most common type of expression, even if compared to all periphrastic types of expression (particles, auxiliaries and reduplication). Clitics and zero-marking are clearly marginal types of expression. Clitics include cliticized auxiliaries and particles and zero-marking includes only cases where lack of marking has a clear temporal reference (e.g. zero-marking always signals past tense).

**What is the type of inflection? (Section 6.2.)**

- Suffix: 72%
- Prefix: 21%
- Stem modification: 6%
- Infix: 1%

Suffixes are significantly more frequent than prefixes the other two types of inflection (stem modification and infixes) being marginal. This is due to and in accord with the suffixing preference observed cross-linguistically (Hawkins & Gilligan 1988, 219).
**Tenses by the type of expression (Section 6.2.)**

<table>
<thead>
<tr>
<th></th>
<th>Past</th>
<th>Present</th>
<th>Future</th>
<th>Non-tenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflection</td>
<td>60 %</td>
<td>61 %</td>
<td>52 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Periphrastic</td>
<td>38 %</td>
<td>16 %</td>
<td>43 %</td>
<td>25 %</td>
</tr>
<tr>
<td>Clitic</td>
<td>2 %</td>
<td>7 %</td>
<td>5 %</td>
<td>-</td>
</tr>
<tr>
<td>Zero-marked</td>
<td>-</td>
<td>16 %</td>
<td>-</td>
<td>25 %</td>
</tr>
</tbody>
</table>

Past and present tenses are predominantly inflectional, while future is almost equally inflectional and periphrastic. Periphrastic past tenses are quite common, while for present and non-tenses periphrastic expression and zero-marking are almost equally frequent. Clitics are rather rare.

**The types of expression by their meaning (Section 6.2.)**

<table>
<thead>
<tr>
<th></th>
<th>Inflection</th>
<th>Periphrastic</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>51 %</td>
<td>52 %</td>
<td>49 %</td>
</tr>
<tr>
<td>Present</td>
<td>19 %</td>
<td>8 %</td>
<td>18 %</td>
</tr>
<tr>
<td>Future</td>
<td>30 %</td>
<td>40 %</td>
<td>33 %</td>
</tr>
</tbody>
</table>

The majority of all markers, and also of both inflectional and periphrastic markers, are past tenses. The distribution of meanings expressed with inflection is quite even (past tense being the most frequent followed by future and present tenses in that order), but with periphrastic expression the number of present tenses is rather small future tense being almost as frequent as past tense. Periphrastic present tenses nonetheless exist and are discussed in detail in section 6.2.

**What is tense a category of? (Section 6.3.)**

- Verb 99 %
- Sentence 1 %

Almost all tense markers in the typological data are analyzable as a category of the verb with the remaining two – the past tense particles in Hdi (Frajzyngier 2002, 336) and Mosetén (Sakel 2004, 364) – being a category of the sentence. The third possibility – tense being a category of a nominal – was effectively ruled out by the guidelines of data gathering (see section 3.3.1.).
Is tense a category of a finite verb? (Section 6.4.)

Yes 98 %
No 2 %

Almost all tense markers can be analyzed as categories of finite verbs. The exceptions include the markers that are analyzed as a category of the sentence and one language – Mochica (Hovdhaugen 2004, 44) – in which finiteness is not a category of the verb but the sentence. Only in one instance – in the language of Punjabi (Bhatia 1993, 245) – is the verb associated with tense analyzed as non-finite. However, the guidelines of data gathering effectively rule out the most frequent and therefore most interesting cases of temporality in non-finite verbs; converbs and participles (see section 6.4.6.)

Based on the typological data we can thus say the following: Past tense is more frequent than future tense and future tense is more frequent than present tense. There are also more remoteness distinctions in past than in future. Future is otherwise quite symmetrical with past, as it often occurs in the same opposition with past tense(s) and is also expressed inflectionally as well as periphrastically. Past and present tenses are expressed most often inflectionally while for future periphrastic expression is almost as common. Tense oppositions are often binary or tertiary but larger oppositions are also possible. Likewise there may be two tense oppositions in a single language. Remoteness is quite frequent with remote past being more frequent than close past and close future more frequent than remote future. Markers with remoteness distinctions are more often marked periphrastically than markers without remoteness distinctions. Most of the tenses have deictic temporal reference and are a category of the finite verb. Tenses are most often expressed inflectionally (with a suffix), even though periphrastic expression is also common.

While the typological data gives a very intuitive and easy-to-accept picture of tense marking in the languages of the world, it is the very exceptions to general tendencies that have been the most useful for the purposes of the current study. If even one marker has a certain atypical or curious property, it poses a challenge to the concepts. That being said, the most appropriate and useful concept is never one that can capture every curious case: such a concept would most likely be too vague to be of any use resulting in huge amounts of heterogeneous language data. To sum up; both theoretical and typological data, when examined independently, present themselves as intuitive and unproblematic. However, when pitted against each other, especially focusing on the atypical component values in concepts and atypical properties of linguistic markers, the two sets of data
have a remarkable capability to cause problems for analysis and to reveal much more of themselves and of each other.

**7.3. Applying the Findings to Other Linguistic Phenomena**

This work has had two foci; concepts and tense. While the role of tense has certainly been bigger than just that of a case study, this work has been structured in such a way that the central ideas are easy to transfer to the study of other linguistic phenomena: Every linguistic phenomenon deals with concepts. From every set of concepts a group of relevant components can be identified and different possible values gathered. The appropriateness of each component value to a given study can be evaluated and careful consideration can be used in creating or adopting a concept – avoiding the pitfalls of adopting or modifying existing concepts without considering their pros and cons; The already existing concepts can be evaluated by using the tools provided by this work; Is the concept created for (predominantly) formal or functional purposes? Is it semantically and/or grammatically specific? What are its primary component values? What are the most frequent components in all of the concepts? Are there canonical values? What are the most frequent values? And most importantly – which concepts are appropriate for which types of studies? The process, as outlined above, can be applied to the study of any linguistic phenomenon regardless of the complexity of the phenomenon itself (whether the phenomenon is typically describable with only a couple or with several dozen component values) or the complexity of the network of adjacent phenomena (suppletion can be defined in opposition to regular inflection, while tense shares a rather flexible borderline with several phenomena). In fact, the more complex the phenomenon or the environment, the more crucial it is to carefully consider the concept.

In addition to the importance of considering concepts for the purpose of future research, applying the tools for examining concepts is also crucial in understanding and comparing previous research. It is often the case that conflicting results that lead into dead-end arguments are due to the differences in the concepts used. If the concepts are not made explicit enough in the original work, any critique is in danger of missing the point; if the concept used is appropriately explicit, the results of the study are more easily appreciated by readers.
7.4. The Relevance of the Study

I owe a lot to the insights of Martin Haspelmath who coined the term *comparative concept* (2010) and who acknowledges that crosslinguistic grammatical research has previously been based on what are essentially comparative concepts (2010, 665). Considering concepts is therefore in no way a novel idea introduced in this work. However, stressing the importance of doing it properly and the pitfalls of *not* doing it properly, as well as describing the process and carrying it out thoroughly for tense are something that deserved in my opinion to be done. I will end the study by discussing the influence and relevance of the results; how should the results affect our understanding of concepts and the phenomenon of tense?

The examination of the twelve concepts that form the theoretical data revealed that the concepts of tense have a family resemblance. The following can be said of the nature of these concepts and of any set of concepts (that deal with any linguistic phenomenon) in general; There is a set of components that the majority of the concepts deal with. However, at the same time, there is a lot of variation due to the concepts having different component values. Some of the components can be considered more central, at least in the sense of frequency and some of the component values may be considered canonical – that is, best representing the nucleus of tense. Primary component values may be identified and the semantic and grammatical specificity of the concepts can be evaluated. The selection of each component value is ideally an educated choice that is affected by the type of research the concept is intended for. The concept affects the data that can be gathered, the analysis that can be performed and the results that can be reached. I believe this work has introduced and improved methods for evaluating and analyzing existing concepts as well as for selecting and building concepts – methods that should prove useful in future theoretical research on tense. And as for the actual concepts of tense: I have thoroughly analyzed the previous literature; I have broken down twelve existing concepts of tense into dozens of individual component values. I have gone through the component list one by one, comparing the existing concepts with each other and with typological data. I have shed light into advantages, disadvantages (depending on the research question, which may concern language typology, language description, stylistics, study of narratives or any other field) and consequences of selecting each component value as a part of a concept of tense. In doing this I have used numerous previous studies as examples. This has made past and future research on tense more comparable and their results more easily interpretable. I have tried to help in selecting or constructing appropriate concepts and emphasized the importance of making the
concept and its components explicit. I have exemplified this e.g. with a lengthy discussion of nominal tense and the problems surrounding the concepts used in describing it (section 6.3.4.)

The nature of a particular study dictates how much effort should be placed in considering the concept used. In language description, where the linguist encounters and uses hundreds of different concepts, it is appropriate to use quite minimal or even completely implicit concepts; it simply would not be possible to discuss all concepts – the focus should be on concepts which are central to the description or which otherwise require more detailed description. Furthermore, since concepts necessarily involve circular definition (e.g. finiteness can be seen as a criterion for a tense marker and vice versa), it would be very easy to get lost in a complex web of definitions. In a typological study focusing on one or few phenomena, e.g. on tense, the concept should naturally be given a lot of careful attention – after all, the change of one component value may change the nature of the phenomenon and the size and nature of the data drastically. Finiteness serves a prime example here; if it is not required, the data may be opened up to include e.g. converbs and participles. In the extreme case, in a theoretical study that fully revolves around one concept, e.g. tense, the role of considering the concept is of utmost importance. In such a study much of the component values are in practice the findings of the study (for example, the study may arrive at describing the semantics of tense), but all such studies start with some description of the phenomenon, for example "grammaticalized expression of location in time" (Comrie 1985, 9). This initial definition shapes the rest of the study in crucial ways.

And how should this work change the way tense should be seen? From the theoretical perspective the best indicator of the essence or nucleus of tense might be the frequency of the components discussed (section 4.4.); these are the dimensions along which tense is most often differentiated from other phenomena. These include the temporality of tense, the nature and duration of the origo and the theme, what tense is a category of as well as the status of past and future. Components such as finiteness or the number and type of oppositions are not in the nucleus according to this criterion. Another indicator could be the canonicity of individual component values (section 4.3.) which leads to identifying features such as verbality and deicticity as essential. But what about actual tense markers in languages? How should this work change the way they are seen? I have tried to make the point that such a question cannot be asked in isolation but the answer necessarily depends on a concept of tense; If, for example, the concept requires a deictic time reference, then all actual tense markers have by default a deictic time reference. Or if the concept allows nominal tense marking, then some of the actual tense markers are indeed a category of a nominal. The typological data of the current work serves as an example: in order to collect the data it was necessary to build a
working concept. Therefore any typological conclusions drawn from the data depend on the working concept. In other words, when asking what actual tense markers are like, we are in practice asking what actual tense markers collected with and examined "through" a certain concept are like. This is exactly the question to which section 7.2. gives an answer. Still, while the big question, what actual tense markers are like, cannot be answered in isolation, it is of course possible to tackle the question in some way. Perhaps the best way to do this is by comparing theoretical and typological insights: by examining the frequency (section 7.1.) and canonicity (section 4.3.) of the component values in the theoretical literature and comparing them with the frequency of different linguistic features in the typological data (section 7.2.) (this can be justified by the lax nature of the working concept – the typological data allows a lot of variation both grammatically and semantically). If a certain value can be considered canonical and frequent both in concepts and in the data, it is to some extent a partial answer to the question what are tense markers actually like.

We may start with the component Type of expression. The value Only inflectional expression allowed is typologically more frequent than periphrastic expression. However, also allowing periphrastic expression is more frequent in the concepts and also canonical (that is, frequent enough). As periphrastic expression is also quite common in the typological data we may arrive at analyzing the value Also periphrastic expression allowed as where the theory and typology meet.

With the component The nature of the origo the value The origo is the moment of speech is canonical: the moment of speech is always allowed as the origo (whereas a time of orientation is not) and it is also more frequent in the typological data. Similar claims may also be made e.g. of the component Morphosyntactic slot and the value Tense can be a category of the verb. If we analyze every single component and their values in the same way we arrive at table 7.1. below. The second column lists the most frequent component values in the theoretical data (in the case of a tie the value with more explicit occurrences is considered to be more frequent), the third column presents any possible typological evidence supporting one of the component values (based on the frequency of linguistic features) and the fourth column lists the estimate of whether one of the values can be considered canonical or not (as evaluated in section 4.3.). Based on these three columns a final judgement is made; whether these findings are enough to warrant one of the values a place in the so-called "nucleus of tense". Such component values that cannot have typological evidence are not considered to be a part of the nucleus of tense.
<table>
<thead>
<tr>
<th>Component</th>
<th>Most frequent value in concepts</th>
<th>What value does the typological evidence support</th>
<th>Canonical value</th>
<th>Which value, if any, belongs to the &quot;nucleus&quot; of tense</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Temporality</td>
<td>Tense in general is temporal</td>
<td>Tense in general is temporal</td>
<td>Tense in general is temporal</td>
<td>Tense in general is temporal</td>
</tr>
<tr>
<td>2. Past</td>
<td>Past is a tense</td>
<td>Past is a tense</td>
<td>Past is a tense</td>
<td>Past is a tense</td>
</tr>
<tr>
<td>3. Future</td>
<td>Future is a tense</td>
<td>Future is a tense</td>
<td>-</td>
<td>Future is a tense</td>
</tr>
<tr>
<td>4. Symmetry between past and future</td>
<td>Past and future are not semantically symmetrical</td>
<td>Past and future are semantically symmetrical</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5. The nature of the origo</td>
<td>The origo is the moment of speech</td>
<td>The origo is the moment of speech</td>
<td>The origo is the moment of speech</td>
<td>The origo is the moment of speech</td>
</tr>
<tr>
<td>6. The duration of the origo</td>
<td>Origo may be a point</td>
<td>-</td>
<td>Origo may be a point</td>
<td>-</td>
</tr>
<tr>
<td>7. The nature of the theme</td>
<td>The theme is a situation</td>
<td>-</td>
<td>The theme is a situation</td>
<td>-</td>
</tr>
<tr>
<td>8. The duration of the theme</td>
<td>The theme may be a span</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9. The function of tense</td>
<td>Tense locates something</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10. The relationship between the origo and the theme</td>
<td>Tense forms a relation</td>
<td>-</td>
<td>Tense forms a relation</td>
<td>-</td>
</tr>
<tr>
<td>11. Degrees of remoteness</td>
<td>Degrees of remoteness are accounted for</td>
<td>Degrees of remoteness are accounted for</td>
<td>-</td>
<td>Degrees of remoteness are accounted for</td>
</tr>
<tr>
<td>12. Universal truths</td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
<td>Universal truths are explained by the meaning of one of the tenses</td>
</tr>
<tr>
<td>13. Perfect</td>
<td>The meaning of perfect is not included under tense</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>14. The formation of the semantics of tense</td>
<td>The semantics are formed statically</td>
<td>-</td>
<td>The semantics are formed statically</td>
<td>-</td>
</tr>
<tr>
<td>15. Non-past and non-future</td>
<td>Non-past and non-future are not supported</td>
<td>Non-past and non-future are not supported</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16. Binary oppositions</td>
<td>Tense oppositions are not necessarily binary</td>
<td>Tense oppositions are not necessarily binary</td>
<td>-</td>
<td>Tense oppositions are not necessarily binary</td>
</tr>
<tr>
<td>17. Several tense oppositions</td>
<td>There may not be several tense oppositions</td>
<td>There may be several tense oppositions</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18. Hierarchy between tense oppositions</td>
<td>Tense oppositions may not have a hierarchy</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19. Grammaticality</td>
<td>Grammaticality is required</td>
<td>Grammaticality is required</td>
<td>Grammaticality is required</td>
<td>Grammaticality is required</td>
</tr>
</tbody>
</table>
Typical tense markers express a temporal relation between the moment of speech and some theme. They are a category of finite verb and are expressed inflectionally or periphrastically with an obligatory and bound tense marker or by zero-marking. The marker may express past, present or future tense. Tense oppositions are typically binary or tertiary, larger oppositions requiring remoteness distinctions (that occur more frequently in past than in future). The principle of one form – one meaning is not upheld and universal truths are expressed with the present tense. Based on table 7.1, we may also draw the conclusion that what is frequent in the concepts is often frequent in the actual languages as well – even when trying to take the necessary circularity into account (which is done by including several concepts in the theoretical data and by creating a semantically and grammatically quite heterogeneous typological data).

The previous means that tense as a phenomenon has a rather clear and established nucleus both theoretically and typologically. However, it may well be that the very existence of this unproblematic nucleus makes it easier to forget the component values concerning the more problematic areas – both in creating a concept and in interpreting previous works. This leads to identifying fruitful areas of future theoretical research on tense. I consider there to be one important focus: the borderline phenomena such as nominal tense and the temporality of converbs and participles. As the nucleus of tense is more or less unproblematic, it is these borderline phenomena that best force the concepts – and therefore the studies – to take a stand in several key issues (which should, of course, be done explicitly as stressed throughout this work). For example, discussing
converbs inevitably means taking a stand in whether tenses are considered to be a category of the finite verb and whether their time reference should be deictic. The danger with developing a semantic theory of tense based only on the unproblematic nucleus (and a handful of atypical usages) is that the linguistic data may not challenge the author enough; by focusing e.g. only on finite expressions in one or few languages it is possible to come up with dozens of different, equally plausible semantics for tense. Responding to the challenges posed by a more heterogeneous data (including as well as excluding certain phenomena by making educated choices of component values) the range of possible semantic explanations and descriptions gets narrower and the ultimate semantic description therefore appears more justified; there is less room for speculation and the importance of the concept is highlighted. This results in studies that are properly interpretable as they follow the structure if tense is seen as x, its semantic and grammatical features are describable as y. There is, in my opinion, no excuse for leaving out the proper, explicit formulation of the if-clause.

So, to take one final look at the objectives of this work: I believe I have made past and future research on tense more comparable as I have shown the respects in which the concepts differ and discussed the consequences of adopting different component values. I have examined how the choice of concept affects the data, the analysis and the results and helped in building appropriate concepts that best serve the research question. In every possible turn I have highlighted the importance of making concepts and their components explicit. I therefore feel confident in ending this chapter and the whole work with a positive note; considering that linguistic phenomena do not exist in an objective sense, it has certainly been possible to create some order among the very subjective field of tense.
Appendix: The Typological Data

Babungo (Schaub 1985)

1. $\text{Vəŋən o nə ndɔ fi Ndɔ.}$
   Babungo REM.PAST leave.PFV from Ndop
   'The Babungo people came from a place called Ndop.' (remote past)

2. $\text{Dɔə yawa jwi ŋkúusə.}$
   he MID.PAST come.PFV Nkuusə
   'He came on Nkuusə (name of weekday).' (middle past)

3. $\text{Dɔə si jwi.}$
   3SG HEST.PAST come.PFV
   'He came yesterday.' (hesternal past)

4. $\text{Dɔə nii jwi.}$
   3SG HOD.PAST come.PFV
   'He has come (today).' (hodiernal past)

5. $\text{Dɔə zi bɛe.}$
   3SG eat maize-porridge
   'He is eating maize-porridge.' (present)

6. $\text{Mə táa jwi mbisi.}$
   1SG CL.FUT come tomorrow
   'I shall come tomorrow.' (close future)

7. $\text{Mə ndɔ jwi ŋkúusə.}$
   1SG REM.FUT come Nkuusə
   'I shall come on Nkuusə.' (remote future)

Bilua (Obata 2003)

8. $\text{Ni vo ta o -vou -vi sai Fiji.}$
   and 3SG.MASC TOP 3SG.MASC -die -REM.PAST there Fiji
   'And he died there in Fiji.' (remote past)
9  O  -tatabaræ  -k  -ala.
3SG.MASC -buy -3SG.FEM.OBJ -REC.PAST
'He bought it.' (recent past)

10 O  -ta lezumat  -a.
3SG.MASC -SIT study -PRES
'He is studying.' (present)

11 Me  =ba  mujor  =o.
1PL.INCL =PROS fish.bonito =NEAR.FUT
'We will go and fish bonitos.' (close future)

12 Tu  a  =da keu  =vou  Gizo.
be.long 1SG =SIT be.long =FUT Gizo
'I will be in Gizo for a long time.' (future)

Catalan (Hualde 1992)

13 Vaig  anar  al  mercat  ahir.
PAST.1SG go.INF to.the market yesterday
'I went to the market yesterday.' (remote past)

14 El  teu  germà  ha  vingut  a  les  deu.
the your.MASC.SG brother have.3SG come.PAST.PCPL at the ten
'Your brother came at ten o’clock.' (close past)

15 En  Joan  menja  patates.
ART John eat.PRES.3SG potatoes
'John is eating potatoes.' (non-past)

16 Arribaran  dintre  d’una  hora.
arrive.FUT.3PL inside of a hour
'They will arrive in an hour.' (future)

Chingoni (Ngonyani 2003)

17 N  -a  -hamb  -ili.
1SG -REM.PAST -go -PFV
'I went.' (in remote past) (remote past)
18  N -aka -hamb -ili.
   1SG -PAST -go -PFV
   'I went.' (in past)          (past)

19  N -i -bwela.
   1SG -PRES -come
   'I am coming.'         (present)

20  Yati n -i -bwela.
   FUT 1SG -PRES -come
   'I will come.'    (future)

Danish (Herslund 2002)

21  Det gjor -de hende lykkelig.
   that make -PAST 3SG.FEM happy
   'That made her happy.'     (past)

22  Han sidd -er ude.
   3SG.MASC sit -PRES outside
   'He is sitting outside.'  (non-past)

23  Han vil se på den imorgen.
   3SG.MASC will.NPAST look.at.INF at that tomorrow
   'He will have a look at it tomorrow.'    (future)

Daur (Wu 1996)

24  Bi: ʊdəːn -wɔi ərd sɔrj -sn -ə: twallɔ lju:ɗ拮n
   1SG very -NPAST early wake -PAST-REFLX but six.o'clock
   bɔl -dʒi: sain bɔs -sɔn -mi.
   be -PFV just get.up -PAST -PRES
   'I woke up earlier, but I didn't get up until six o'clock.'  (past)

   that event -ACC 1SG know -NPAST
   'I know that matter.'
Degema (Karu 1997)

26 Mi -dí -īn.
1SG -eat -PAST
"I ate." (past)

27 Mó -tā m'éki.
3SG.MASC -go to.market
‘He goes/is going/will go to market.’ (non-past)

Dhivehi (Cain & Gair 2000)

28 Ėnā māle diya.
3SG Malé go.PAST
‘(S)he went to Malé.’ (past)

29 Aharen danī.
1SG go.PRES.PROG
‘I am going.’ (present)

30 Ėnā māle dāne.
3SG Malé go.FUT
‘(S)he will go to Malé.’ (future)

Dolakha Newar (Genetti 2007)

31 Ji mucā tākkū thi -pul pokhara oŋ -guĩ.
1SG child time one -time Pokhara go -1SG.REM.PAST
‘When I was a child, I went to Pokhara one time.’ (remote past)

32 At baje syāt -cu.
eight o'clock kill -3SG.PAST
‘(They) killed (them) at eight o'clock.’ (past)

33 Hāṭta yer -ahin?
why come -3PL.PRES
‘Why do they come?’ (present)
34 Sugā -n tuŋ har -eu.
   parrot -ERG FOC say -3SG.FUT
   ‘The parrot will say (it).’ (future)

English (intuition)

35 I loved Mary. (past)
36 I love Mary. (present)
37 I will love Mary. (future)

Evenki (Bulatova & Grenoble 1999), entries 42 and 44 from (Nedjalkov 1997)

   this river -PROL 1SG in.summer walk -ITR -PFV -REM.PAST -1SG
   ‘This summer I walked along the river.’ (remote past)

   deer -PL path -PROL run -IMPF -PAST-3PL
   ‘Deer were running along the path.’ (past)

40 E: -ma: -ra -n tar boja?
   what -for -IMM.PAST -3SG that man
   ‘Why did that man come?’ (close past)

41 Bi: anŋani: -tikin sagda -tmar o: -źa -ø -m.
   1SG year -ADJV old -COMPR make -IMPF -PRES -1SG
   ‘With each year I get older.’ (present)

42 Tygde -l -d'elle -n.
   rain -INCH -FUT -3SG
   'It will rain in a moment.' (close future)

   1SG seven.day -PROL return -FUT -1SG
   'I will return after seven days.' (future)
44  *Bi* sin -e ngene -b -d’e -m.

1SG you -ACC.DEF go -CAUS -FUT -1SG

'I shall take you away.' (remote future)

Faetar

45  *I* fɛʃ -ɜrunɔ la ghisɔ.

they make -PAST the church

'They made the church.' (remote past)

46  *Dʒ e* pɔentsá do fa búnnɔ.

1SG have think.PAST.PCPL of do.INF good

'I thought I would do well.' (close past)

47  Sun báj la tmd m brassɔ.

her father her hold.PRES.3SG in arms

'Her father holds her in his arms.' (non-past)

48  *Dʒɔ ve:ja a kkjɔmmá lu mmjɔdɔkɔ.

1SG FUT.1SG to call.INF the doctor

'I am going to call the doctor.' (close future)

Finnish (intuition)

49  *Lapsi* pes -i auto -a.

child wash -PAST.3SG car -ACC

'The child was washing the car.' (past)

50  *Lapsi* pes -ee auto -a.

child wash -NPAST.3SG car -ACC

'The child is washing the car.' (non-past)

51  *Lapsi* tul -ee pesɛ -mä -ān auto -a.

child come -NPAST.3SG wash -INF -ILL car -ACC

'The child will be washing the car.' (future)
Fongbe (Lefebvre & Brousseau 2002)

52 Bayi kò m àjóta.  
Bayi PAST catch.sight.of thief DEF  
'Bayi caught sight of the thief.' / 'Bayi had caught sight of the thief.' (anaphoric past)

53 È ná kù.  
3SG FUT die  
'(S)he will die.' (future)

Fyem (Nettle 1998)

54 Tí sóo -râ daal.  
1PL.PFV go -REM.PAST war  
'We went to war.' (remote past)

55 Náá gwo sóo -râ žennarêt.  
1SG.PFV sleep go -HEST.PAST Jennaret  
'I went to Jennaret yesterday.' (hesternal past)

56 Áki taa wun -o.  
3SG.HOD.PAST 3 SG.PFV see -2 SG  
'He saw you earlier today.' (hodiernal past)

Goemai (Hellwig 2011)

57 Muèp =dók mààr màár 'n'tìt bá.  
3PL.SBJ = REM.PAST farm farm/farming well NEG  
'They didn't farm much in the past.' (remote past)

58 Dyên móe -tângóedé gøe Bâkwá.  
REC.PAST 1PL.SBJ -start COMIT Bâkwá  
‘Yesterday, we started (to talk about) the Hausa.’ (hesternal past)

59 Pè 'm -Plateau State mà d'ìn t'óng d'óng.  
place LOC -Plateau State also CL.PAST IRR be.good  
‘The place of Plateau State, too, would have been good in recent times.’ (hodiernal past)
60 Bit lá d'á lin t'óng muès.
   day COND FUT.CL dry.SG sit.SG beer
   'When the day dawns tomorrow, (it) becomes beer.' (close future)

Hdi (Frajzyngier 2002)

61 Sí hlí'yá -f dá ráyá -ŋ ni mà mták.
   PAST leave -UP PURP hunt -1PL.EXCL in bush
   'We were hunting in the bush.' (past)

62 Dzá'á `ngh -í -ká màxtsím.
   FUT see -1SG -2SG tomorrow
   'You will see me tomorrow.' (future)

Imbabura Quechua (Cole 1985)

63 Shamu -rka -ni.
   come -PAST-1SG
   'I came.' (past)

64 Shamu -n.
   come -PRES.3SG
   'He/she comes.' (present)

65 Shamu -ngui.
   come -FUT.2SG
   'You will come.' (future)

Kannada (Sridhar 1990)

66 Us'a anna ma: -DidaLu.
   Usha cooked.rice make -PAST.3SG.FEM
   'Usha cooked rice (made cooked rice).'</n
   (past)

67 Na:nu od -utt -ee:ne.
   1SG  read  -NPAST  -1SG
   'I read.'</n
   (non-past)
They'll give prizes to everyone. (future)

He came on time, but there was no bus. (remote past)

He came on time, but there was no bus. (past)

Aslam read the newspaper. (close past)

I am going to the market. / I go to the market. (present)

He will bring the book. (future)

You harvested. (remote past)

I have come. (past)

He is working. (present)
77  Sidō wad lug -nab magō u au -nab -in.
    sun horizon fall -FUT.3SG lump that come -FUT -1SG
    ‘I will come when the sun has gone down.’
    (future)

    Kodava (Ebert 1996)

78  Mantri ikka bantī  ettīc -i.
    minister now come.ANT.CONV reach -3SG.PAST
    ‘The minister has just arrived.’
    (past)

79  Ull -ira.
    cop -2PL.PRES
    ‘You (pl.) are.’
    (present)

80  Naanī vaarapatrike -na ooduv -i.
    1SG newspaper -ACC read -1SG.NPAST
    ‘I will read the newspaper.’ (‘I habitually read…’)
    (non-past)

81  Ipp -a.
    COP -3PL.FUT
    ‘They will be.’
    (future)

    Koyra Chiini (Heath 1999)

82  Nda hirri dam kul i -i har 'woo go ta kaa hew'
    if thunder be.done all 3PL.SBJ -IMPF say 'DEM IMPF FUT become wind'
    ‘When thunder occurs, they say, ‘that will (soon) turn into a windstorm’.’
    (future)

    Kwamera (Lindstrom & Lynch 1994)

83  T -r -am -apri.
    FUT -3SG -CONT -sleep
    ‘He/she will be sleeping.’
    (future)

    Kwaza (van der Voort 2004)

84  Ja a'nū -î?î -hŷ -ki atxi'txi.
    already plant -REM.PAST -NOMZR -DEC maize
    ‘He planted maize already very long time ago.’
    (remote past)
85 Nū'ri -xa -ky -hŷ -re.
satiate -2SG -PAST -NOMZR -INT
'Were you full?' (this morning up to three days ago) (past)

86 Txa'hŷ ba -jâ'hŷ -ki.
path clear -CLASS(path) -DEC
'He clears/cleared/is clearing/was clearing the/a road/roads.' (non-future)

87 Txa'hŷ ba -jâ'hŷ -'nâ -tse.
path cut -CLASS(path) -FUT -DEC
'He will clear the road.' (future)

Latvian (Nau 1998)

88 Un tad nāc -a kād -a vec -a radiniec -e.
and then come.PAST -3SG PRON -NOM,FEM old -NOM,FEM relative.FEM -NOM
'And then a (certain) old relative [of my mother] came [to us].' (past)

89 Sibīrij -a ir od -u piln -a.
Siberia -NOM COP.PRES.3SG mosquito -GEN.PL full -NOM,FEM
'Siberia is full of mosquitoes.' (present)

90 Ja es nodzīvo -š -u līdz 3. jūlij -u tad...
if 1SG live -FUT -1SG until 3. July -ACC then...
'If I stay alive until the 3rd of July, then...' (future)

Lavukaleve (Terrill 2003)

91 Iru -nu.
sleep -PRES.SG
'She's sleeping.' (present)

92 Mola e -hoa -e e
canoe 3SG.NEUT.OBJ -poke.through -NOMZR 3SG.NEUT.OBJ
-na fi va'var a -hai -re.
-INCL.3SG.NEUTR FOC talking 1SG.SBJ -DO -FUT
'I will talk about building canoes.' (future)
Lingála (Meeuwis 2010)

93 Tinga a -zal -áká mwána - -
    moment 3SG.ANIM -be -REM.PAST child
    ‘When he was a child - -’ (remote past)

94 To -món -ákí yö póso e -lek -í.
    1PL -see -PAST 2SG week 3SG.INANIM-PASS -PRES
    ‘We saw you last week.’ (past)

95 Ba -yéb -í ngáí.
    3PL.ANIM -know -PRES(1) 1SG
    ‘They know me.’ (present)

96 A -ko -kwéy-a.
    3SG -FUT -fall -VOW
    ‘She will fall.’ (future)

Malayalam (Asher & Kumari 1997)

97 Ammaanam enikkə kiṭṭi.
    prize 1SG.DAT get.PAST
    ‘I got the prize.’ (past)

98 Enre makař ancaam klaassil pathikkunu.
    1SG.GEN daughter five.ORD class.LOC study.PRES
    ‘My daughter is studying in standard five.’ (present)

99 Avan naaḷe varum.
    3SG.MASC tomorrow come.FUT
    ‘He will come tomorrow.’ (future)

Manx (Phillips 2004)

100 Va shin goll mygeayrt yn boayl shen son tammylt.
    PAST 1PL go about the place DIST for period
    ‘We went around that place for a while.’ (past)
101 Ta ‘n seihll goll foddey schioun na ve CLIAGHTEY ve.
   PRES the world go far faster than PAST.3SG practise be
   'The world moves much faster than it used to.' (present)

102 Feer vie, nee mee gra.
   very good FUT 1SG tell
   'Alright, I'll tell the story.' (future)

Maori (Bauer 1993)

103 I pupuhi te hau.
   PAST blow the wind
   ‘The wind blew.’ (past)

104 Kei(.)te moe te peepi.
   PRES.PROG sleep the baby
   ‘The baby is sleeping.’ (non-past)

Mapudungun (Zúñiga 2000)

105 Amu -y tañi ruka mew.
   go -IND 3POSS house POSTP
   ‘He went to his house.’ (non-future)

106 Kūdaw -ūn wiya ka kūdaw -a -n wüle.
   work -1SG yesterday and work -FUT -1SG tomorrow
   'I worked yesterday and will work tomorrow.' (future)

Marathi (Pandharipande 1997)

107 Anek warśānpūrvī mī amrāvatī -lā rāh -l -o hoto.
   many years.ago 1SG Amravati -DAT stay -PAST -3SG.MASC was
   'Many years ago, I had stayed at Amravati.' (remote past)

108 Anū mhanā -l -ī
   Anu say -PAST -3SG.FEM
   'Anu said - -' (past)
Mī patra lihi -l -e āhe.

1 SG letter.3 SG.NEUT write -PAST -3 SG.NEUT is

'I have written the letter.' (close past)

Tukārām mhaŋ -t -o.

Tukaram say -PRES -3 SG.MASC

‘Tukaram says…’ (present)

Kar -en.

do -FUT.1 SG

‘I will do…’ (future)

Mina (Frajzyngier & Johnston 2005)

Dzàw i dzàw -ú á diwən mədingwərzé.

attach 3 PL attach -3 SG PRED back donkey

'They attached it to the back of the donkey.' (past)

Sə bèr -é -ŋ bə -n zá.

1 SG sell -GOAL -3 SG cow -1 SG END

‘I will sell him my cow.’ (future)

Mochica (Hovdhaugen 2004)

Az tono -d læm. -top chang.cæd?

2 SG hit -PAST.PCPL die -SEQ neighbor

'Have you beaten your neighbor so he died?' (past)

Llic -æz tzhæng ñang pæn?

want -2 SG 2 SG.OBL husband as

'Do you want him as your husband?' (present)

A, moll.pæc ixll -i -nic eix nam -ca.

yes truly sin -OBL -LOC/ALL 1 PL fall -FUT

'Yes truly, we will fall in sin -.' (future)
Mosetén (Sakel 2004)

117  *Pero Karanawi pochho’ chhome’ jike pochho -bi’ mömö’.*

but Caranawi palm.place also PAST palm.place -still only.FEM

'But Caranawi was also a palm-area, still just a palm area.' (past)

Ndebele (Bowern & Lotridge 2002)

118  *Nga -funda.*

1SG.REM.PAST -study

'I studied.' (remote past)

119  *Ngi -fund -è.*

1SG -study -REC.PAST

'I have studied.' (recent past)

120  *Ngi -ya -funda.*

1SG -PRES -study

‘I am studying/I study.’ (present)

121  *Ngi -za -funda.*

1SG -FUT -study

‘I will study.’ (future)

Ndunya (Huttar & Huttar 1994)

122  *Wan dda be de a opu, a Ndyuka, a wan pikin kampu.*

a father PAST COP LOC upstream LOC Ndyuka LOC a little camp

'There was a man who lived upriver in Ndyuka territory at a small camp.' (anaphoric past)

123  *A busi ø de lai anga meti.*

the.SG jungle ø COP load with animal

‘The jungle is full of animals’ (anaphoric present)

124  *Goontapu o taanga fu tan.*

world FUT difficult for stay

'The world will be a difficult place to live.' (anaphoric future)
Nigerian Pidgin (Faraclas 1996)

125 A bin de haws.
   1SG PAST COP house
   'I was at home.' (past)

126 A gò layk nyam.
   1SG FUT eat yam
   'I will eat yams.' (future)

Nkore-Kiga (Taylor 1985)

127 A -ka -gyenda.
   3SG -REM.PAST -go
   'He/she went.' (in remote past) (remote past)

128 A -gyenz -ire.
   3SG -go -HEST.PAST
   'He/she went.' (Yesterday) (hesternal past)

129 Y -aa -gyenda.
   3SG -HOD.PAST -go
   'He/she went.' (Earlier today.) (hodiernal past)

130 Ni -m -manyà.
   PRES -1SG -know
   'I know.' (present)

131 N -a -ija ku -gyenda.
   PRES -3SG -come INF -come
   'He/she will come.' (Most likely today.) (close future)

132 A -rya -gyenda.
   3SG -REM.FUT -go
   'He/she will go.' (Later than today.) (remote future)
Ogbonuagum (Kari 2000)

133  O -tó -lé akíd.
     1PL -FUT -eat  beans
     ‘We shall eat beans.’ (future)

Oneida (Abbott 2000)

134  S -athute -hkwe.
     2SG -hear -PAST
     ‘You heard.’ (past)

135  A -ha -atolat -ʔ.
     FUT -3SG -hunt -PUNC
     ‘He will hunt.’ (future)

Papiamentu (Kouwenberg & Murray 1994)

136  Esei tawata nét un dia ku - -
     that PAST just a day that
     ‘That just happened to be a day that - -’ (past)

137  Bo ta sinti -bo manera ta na bo lugar bo ta.
     2SG ANA.PRES feel -2SG as.if be LOC 2SG place 2SG be
     ‘Do you feel at home?’ (present)

138  Lo mi bai.
     FUT 1SG go
     ‘I will go.’ (future)

Pima Bajo (Estrada Fernández 1996)

139  Okis tikpaan -im -tad.
     woman work -CONT -REM.PAST
     ‘The woman was working.’ (remote past)

140  Aan kiik aani.
     1SG stand.PRES.SG 1SG
     ‘I am standing.’ (present)
141 Aan noki -hag.
1SG speak -FUT
‘I will speak.’ (future)

Punjabi (Bhatia 1993)

142 Kaii saal hoe ki māi òthe giaa sīi.
several years happen.PAST.MASC.PL that 1SG there go.PAST.MAS.SG was
'Several years ago, I had gone there.' (remote past)

143 Māi kār giaa.
1SG home go.PAST.PCPL.MASC.SG
'I went home.' (past)

144 Māi òthe giaa āā.
1SG there go.PAST.MASC.SG am
'I have gone there.' (close past)

145 KuRīāā pāR -diāā ne/han.
girl.PL read -PRES.PCPL.FEM.PL are
'The girls read.' (present)

146 Māi savaal puch -āāgaa.
1SG question ask -FUT.MASC.1SG
‘I will ask a question.’ (future)

Rapanui (Du Feu 1996)

147 A Papi i ma'u i te rama.
PERS.SG Papi PAST take REL SPE torch
‘Papi took the torch.’ (past)

148 E tunu 'a Nua i te kai 'iroto i te hare.
NPAST cook RES Nua REL SPE food within REL SPE house
‘Nua is cooking the meal indoors.’ (non-past)
Santali (Neukom 2001)

149  Ar -e ruhet'-gət' -ked -e -a: and -3SG.SBJ scold -VERB(2) -PAST.ACT -3SG.OBJ -IND

"iɲ -ren hɔr cet' iəte -m jɔtet' -ked -e -a?"

1 SG -GEN.ANIM person what because -2 SG.SBJ touch -PAST.ACT -3 SG.OBJ -IND

‘Why did you touch my wife?’ he scolded him.’

150  Durre! Nãhãk’ khoti -ge -y -e jəm -bon -ge -a.

alas just surely -FOC -VOW -3SG.SBJ eat -1 PL.INCL.OBJ -FOC -IND

‘Alas, he will just eat us for sure.’

Sapuan (Jacq & Sidwell 1999)


1 SG PAST go Attapeu

‘I went to Attapeu.’

152  ?ɑj ma dɔk nɑŋ klo.

1 SG FUT go visit man

‘I will go and see the man.’

Scottish Gaelic (Lamb 2001)

153  Chunnaic Ealasaid Dùghall.

see.PAST Elizabeth Dugald

‘Elizabeth saw Dugald.’

154  Tha mi nam shuidhe.

be.PRES 1 SG in.my sitting

‘I am sitting.’

155  Bidh e ann a-màireach.

be.NPAST 3 SG.MASC in.it tomorrow

‘He’ll be there/here tomorrow.’
156 On je pisao pismo.
he.NOM be.PRES.3SG write.ACT.PCPL.MASC.sg letter -ACC.NEUT.SG
‘He wrote a letter.’
(past)

157 Ov-a pojav-a nije tako čest-a.
this -nom.fem.sg phenomenon -nom.fem.sg neg.be.pres.3sg
do frequent -nom.fem.sg
‘This phenomenon is not so frequent.’
(present)

158 On će gledati film.
he.NOM will.PRES.3SG watch.INF film.acc.masc.sg
‘He will watch a film.’
(future)

Serbo-Croatian (Kordić 1997)

159 Bo ghar go yo.
3SG home go -PAST.3SG.MASC
‘He went home.’
(past)

160 Mhe likh rya hā.
1PL write PROG.MASC.PL PRES
‘We are writing.’
(present)

161 Bo gam ja wego.
3SG village go -FUT.3SG.MASC
‘He will go to village.’
(future)

Shekhawati (Gusain 2001)

162 Mo ba шахрāсид -em.
1PL to city reach.PAST -1PL
‘We reached the city.’
(past)

163 Ман мактуб навиштā истода -ам.
1SG letter write PCPL -be.1SG
‘I am writing a letter.’
(present)

164 Mo ba шахрāсид -em.
1PL to city reach.PAST -1PL
‘We reached the city.’
(past)
Туркия хох -am рафт.

‘I will go to Turkey.’ (future)

Tauya (MacDonald 1990)

165 Wate e?i -i -?a.

house make 3PL.NFUT -IND

‘They built a house.’ (non-future)

Tokelauan (Hooper 1996)

167 Na fehili au ki te tino na fakaali mai te mea tena.

PAST ask 1SG TO DET man PAST CAUS.reveal DIRE DET thing DEM

‘I enquired of the man who had shown me that thing.’ (anaphoric past)

168 E ita aua koutou kua kaumai.

PRES angry because 2PL INCH bring.here

‘He is angry because you have been brought here.’ (anaphoric present)

169 Ka fai a(.)tatou hiva.

FUT do 1PL.INCL.POSS dance

‘We will do a dance.’ (anaphoric future)

Toqabaqita (Lichtenberk 2008)

170 Kera uufi -a agaa qi roqo.

3PL.NFUT blow -3.OBJ panpipes LOC yesterday

‘They played the panpipes yesterday.’ (non-future)

171 Nau ku biqi fula boqo.

1SG 1SG.NFUT IMM arrive ASRT

‘I have just arrived.’ (close past)
172 Magasi nau, nau kwai biqi fanga boqo neri.
wait.for 1SG 1SG 1SG.FUT IMM eat ASRT NPAST.HERE
'Wait for me; I am just about to eat.' (close future)

173 Ngali-a mai, kwai tyunim.
carry -3SG.OBJ VENT 1SG.FUT tune
‘Bring it [a guitar] here; I'll tune it.’ (future)

Toratán (Himmelmann & Wolff 1999)

174 Te isé im -tumpa e.
CON 3SG AG.VC.PAST -jump.down COMP
‘Then he jumped down.’ (past)

175 Araq isé um -kukuk Ce teqé n -to suaq ne
if 3SG AG.VC.NPAST -cry.out COMP DIST LK -NOMZR maybe 3SG
um -suq mangasé.
AG.VC.NPAST -enter 3SG
‘When he shouts, only then can they go in.’ (non-past)

Tuvaluan (Besner 2000)

176 Te motu ko Niuooku n pukegia nee Siaamani.
the islet FOC Niuoku PAST take. TRN ERG Germany
‘Niuoku Islet was taken by Germans.’ (anaphoric past)

177 E tonu koe.
NPAST right you
‘You are right.’ (anaphoric non-past)

178 Koo fai mai iaa ia kaa nofo I konei.
INC say DXS CMP he FUT stay at here
‘He tells me that he's going to stay here.’ (anaphoric future)

Tyvan (Anderson & Harrison 1999)

179 Düün eki udu dum.
yesterday well sleep.PAST.1
‘Yesterday I slept well.’ (past)
Bo ulus meni bilir.
this people 1SG.ACC know.NPAST
'These people know me.' (non-past)

Udihe (Nikolaeva & Tolskaya 2001)

Wakca: -i.
hunt.PAST -2SG
'You hunted.' (past)

Wakca -ini.
hunt.PRES -3SG
'He hunts.' (present)

Ŋua -zege -fi.
sleep -FUT -1PL.INCL
'We will sleep.' (future)

Ura (Crowley 1998)

I -venim.
3SG.DIST.PAST -come
'(S)he came (some time ago).'</(remote past)

xi -venim.
3SG.REC.PAST -come
'(S)he came (a short while ago).'</(close past)

Yam -daro.
1SG.PRES -think
'I am thinking.' (present)

Ki -nafura.
2SG.FUT -sing
'You will sing.' (future)
Vaeakau-Taumako (Næss 2011)

188  Ko ai na kave -a.
     TOP who PAST bring -TRN
      ‘Who brought it?’  (past)

189  A iau ka to -a te buka.
      PERS 1SG FUT take -TRN SG.SPE book
      ‘I’ll take the book (straight away).’  (future)

Zulu (Poulos & Bosch 1997)

190  Ng -a -bon -a uthisha ngeviki elidlulileyo.
     1SG -REM.PAST -see -VOW teacher week passed
     ‘I saw the teacher last week.’  (remote past)

191  Usipho u -hamb -ile.
      Sipho 3SG -leave -PAST
     ‘Sipho has left.’  (recent past)

192  Usipho u -ya -fund -a.
      Sipho 3SG -PRES -learn -VOW
     ‘Sipho is learning.’  (present)

193  Usipho u -zo -fund -a.
      Sipho 3SG -FUT -study -VOW
     ‘Sipho will study.’  (future)
Bibliography


260


265


Abstract in Finnish

Väitöskirja tarkastelee tempuksen konseptia. Millekään kielelliselle ilmiölle ei voi olla olemassa yhtä "oikeaa" konseptia, sillä ei ole olemassa kielistä riippumattomia "oikeita" kielellisiä ilmiöitä. Tämä tarkoittaa, että tutkimukset käyttävät toisistaan eroavia konsepteja. Nämä konseptit eivät kuitenkaan eroa toisistaan sattumanvaraisesti; konseptit eivät voi olla "oikeita" tai "väärää", mutta ne voivat olla enemmän tai vähemmän tarkoituksenmukaisia. Silti kään tarkoituksenmukaisen konseptin luominen tai käyttäminen ei vielä riitä. On myös tärkeää tuoda tehty tietoa eksplisiittisesti ilmi, jotta tulevat vääärinkäsityksiltä välyttäisiin ja tutkimuksen tulokset olisivat helposti ymmärtävissä ja vertailtavissa; tulokset ovat aina riippuvaisia tutkimuksen teoreettisesta taustasta, mutta konseptien rakenne jätetään silti usein implisiittiseksi.

Väitöskirja on luonteeltaan metateoreettinen: Tarkastelen kahtatoista olemassaolevaa tempuksen konseptia: olen hajoittanut niiden rakenteen yksittäisiksi komponentteiksi, joilla voi olla erilaisia arvoja. Olen vertaillut tätä teoreettista aineistoa 193 tempusmuodosta koostuvaan typologiseen aineistoon, joka on kerätty 62 kielestä (ja joka on analysoitu samaan tapaan). Olen analysoinut kuinka yksittäiset komponenttien arvot vaikuttavat tutkimusten (niin typologisten kuin muidenkin) aineistoon, analyysiin ja tuloksiin.

Väitöskirjan tavoitteina on tehdä mennyt ja tuleva tempustutkimus vertailukelpoisemmaksi, tutkia kuinka konseptin valinta vaikuttaa aineistoon, analyysiin ja tuloksiin, ohjata luomaan tarkoituksenmukaisen konsepteja, jotka parhaisten tulosten saavuttamista tavoitteita saavuttavat konseptien ja niiden komponenttien arvojen eksplisiittistä esilletämisestä. Työ on jäsenneltynyt siten, että keskeiset ideat ovat helposti hyödynnettävissä myös muiden kielellisten ilmiöiden tutkimuksessa.
